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Exploring the Social and Economic Impact of a Rural Medical School on a Small Community



Marnie Connolly

(MClinEd)

A thesis submitted for the degree of Doctor of Philosophy

College of Medicine and Dentistry

James Cook University

8th May 2024

Acknowledgements

There are many people I need to acknowledge and thank for their support, friendship, patience, and willingness to share knowledge.

First to my advisors, Dr. Robyn Preston, Professor Sarah Larkins, Professor Roger Strasser and Dr Angelo D'Amore. Your continuous support, encouragement, honesty and sharing of knowledge have been invaluable. For making yourselves available to meet at times that were often not convenient, I thank you. I could not have completed this epic journey without you, and I am truly grateful.

To Angelo, for the “never give up” card that has sat on my desk through this journey and provided me with much inspiration. I will now pass this on to another PhD student!

To Dr Peter Brain who gave up his time to walk me through how to undertake economic modelling and supervise the study's economic analysis, I am truly grateful. My deepest thanks for your unwavering support and patience, and for reminding me that I was always “in the middle of the road” with the results. I could not have completed this thesis without you.

A special thank you to Associate Professor David Campbell with whom I worked with for 15 years at the Monash University, School of Rural Health in Bairnsdale. Who availed me with learning opportunities and the passion to ensure rural communities are not forgotten and in fact thrive. Your friendship, inspiration and consistent check-ins helped motivate me to see this study through to completion.

Thank you to the CMD doctoral Cohort team, Dr Melissa Crowe, Dr Diana Mendez, and staff for the constant professional development opportunities and mentoring along the way.

Finally, to my family, Bruce, Molly, Tom and Will, I cannot thank you enough for your unwavering support along this journey and the “keep going Marns” mantra that was sung in our household. I am truly grateful for your patience, love, and encouragement. I promise I

will never ever reschedule Christmas in July again. I am blessed to have such a supportive and loving family.

Thank you to all from the bottom of my heart!

Statement of the contribution of others

Intellectual support

My advisory panel provided guidance and support on all aspects of this research within the remit of their roles. I was also supported by the Cohort Doctoral Studies Program provided by the Division of Tropical Health and Medicine, James Cook University (JCU).

Dr Peter Brain provided guidance to the study's economic impact analysis.

Financial support

I received funding through the minimal support program available for all HDR candidates.

Data collection support

I did not receive funding to collect, translate interview transcriptions.

Statement of the Use of Generative AI

During the preparation of this thesis, I utilised TRINT to transcribe my audio interviews to text. The text was checked by the researcher for accuracy.

I acknowledge the use of Co-pilot to create the “Recommendation by Category” section, which categorises recommendations into policy, research and education. Co-pilot’s role was limited to formatting, no content development occurred (refer to Chapter 7). OpenAI (2024)

Abstract

Innovative health education programs have been created to address global health workforce shortages and maldistribution. In 2000, the Australian Government funded the Rural Clinical School (RCS) program to address the rural health workforce shortage. The Monash University School of Rural Health in Bairnsdale (SRH-B) was one of several sites established in 2003. It offered medical students short-term and longitudinal clinical placements. Bairnsdale is a small township located in the East Gippsland region in the eastern part of Victoria. The East Gippsland region has a population of 49,000 people, experiences higher than average levels of social and economic disadvantage and struggles to maintain a health workforce.

Considerable literature evaluates the impact that health workforce training programs funded by the Australian Government have on rural communities in terms of increases in and retention of the health workforce. To date, minimal evidence has been gathered about the social and economic impact of a rural medical school on its community from the perspective of community members and other stakeholders. A healthy and vibrant community needs a strong economy to provide employment and lifestyle opportunities for its residents.

This study aims to address the evidence gap by investigating the social and economic impacts of the SRH-B on East Gippsland. Findings from this research have the potential to provide strategic direction for further education programs, community engagement activities, recruitment and retention of the medical workforce and succession planning.

Methodology

The philosophical approach of pragmatism guided this research. The pragmatic research philosophy acknowledges that there are multiple ways of interpreting the world. It focuses on the application of ideas and the value of experience in forming knowledge. The research question that directs the research methodology is a key determining aspect of the

pragmatic philosophy. This study uses a constructivist-interpretivist paradigm alongside a pragmatic approach to gather diverse participant perspectives that address the research aims. A convergent mixed methods critical single case study design provided the flexibility of using qualitative and quantitative research methods to analyse the participants' views and experiences. Using the critical single case study approach, the case (SRH-B) and its stakeholders in East Gippsland were analysed to understand the social and economic impacts of the SRH-B's presence. The research strategy included quantitative data collection via an online questionnaire to explore the economic contribution of the SRH-B to the region. Qualitative interviews and group discussions explored the experiences of participants with the SRH-B and their meaning. The participants' responses to the questionnaire were analysed descriptively and used to compute economic expenditure and qualitative data. The data were thematically analysed and then brought together for comparison and cross-validation using a convergent joint display table to generate overall conclusions from both datasets. Mapping against the theoretical capitals framework helped discuss the findings.

The four stakeholder groups in this study were students, staff, healthcare professionals and community members, including businesses associated with the SRH-B. A purposive sampling strategy was used to select participants who had an association with the SRH-B and held different views about and had different experiences of the phenomenon being studied. Advertisements inviting participation in the research were displayed at public places across East Gippsland.

Findings

Four key themes were identified: a vision for the future, an evolving community, growing a rural workforce and regional growth.

A Vision for the Future

The study found that participants felt that the East Gippsland region was ‘moving forward’ because of the establishment of the SRH-B. The presence of the university elevated the aspirations of younger people to consider higher education opportunities. The community voiced a sense of pride and achievement and felt valued from outside the region because the Australian Government and a university had invested in the region, including for infrastructure.

An Evolving Community

Some community members felt that the region was evolving as more outsiders (students, staff and visitors) relocated to or visited the region, bringing new skills, knowledge and diverse cultures from which the local community could learn. Students of different origins became embedded in the community’s clubs, became role models and positively influenced local young people’s attitudes to achieving their life goals.

Growing A Rural Workforce

Many participants felt that, rather than just being a medical school, the SRH-B provided a multidisciplinary education centre where all health disciplines came together to learn. The SRH-B was generating a rural workforce for the East Gippsland community, but it could not do this alone. The creation of working relationships between the local healthcare services and clinicians and staff at the SRH-B helped to grow the workforce, build a culture of academia and provide academic and supervisory roles for healthcare professionals. Clinicians with teaching responsibilities enjoyed their engagement with the students and cherished the friendships and camaraderie that developed through their association with the SRH-B.

Regional Growth

Direct spending by students, student visitors, staff and the SRH-B in one year brought \$1.4 million into the local government area of East Gippsland, a substantial contribution to the region. The induced effect of spending by students, students' visitors, staff and the SRH-B increased industry outputs by \$2 million and contributed \$1 million to the gross regional product over one year. Additionally, as many as 10 jobs could be generated by government or industry for people living in the East Gippsland region because of the increase in spending.

Conclusion

This novel study of the social and economic impacts that a small medical school site had on its community in Australia found that social, economic, human and cultural capital are key to sustaining RCS programs, the health workforce and regional development. The results provide empirical evidence for fundholders about the importance of supporting RCS sites such as the SRH-B. The study has addressed a gap in knowledge about the social and economic impacts of rural clinical medical schools.

The methodology and findings from this research may have applicability to other health disciplines in rural areas, and this should be explored. Given the continuing shortage of healthcare workers in rural Australia, there is a need to expand other health education programs in regions where there are medical workforce shortages and develop a more sustainable community engagement program that promotes education, research and regional development. The central university faculties should allocate a percentage of funding to support local research and regional development. RCS sites such as the SRH-B should retain autonomy to address local needs with further investment from the central university faculty to strengthen community partnerships and local leadership.

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List of Abbreviations

ABS	Australian Bureau of Statistics
ACE	American Council of Education
ANZSIC	Australian and New Zealand Standard Industrial Classification
ASGS–RA	Australian Statistical Geography Standard—Remoteness Areas
AUD	Australian dollar
BRHS	Bairnsdale Regional Health Service
CBME	Community-based medical education
CEO	Chief executive officer
CPI	Consumer price index
CRH	Centre for Rural Health
GDP	Gross domestic product
GMS	Gippsland Medical School
GP	General practitioner
GRP	Gross regional product
GVA	Gross value added
HEI	Higher education institution
I–O	Input–output
JTW	Journey-to-work
LGA	Local government area
LIC	Longitudinal integrated clerkship
MM	Modified Monash Model
MUHREC	Monash University Human Research Ethics Committee
NIEIR	National Institute of Economic and Industry Research
NOSM	Northern Ontario School of Medicine

PRCC	Parallel Rural Community Curriculum
RBC	Rotation-based clerkship
RCS	Rural Clinical School
RHMT	Rural Health Multidisciplinary Training
RUN	Regional Universities Network
SEIFA	Socio-Economic Indexes for Areas
SRH-B	School of Rural Health—Bairnsdale
UDRH	University Departments of Rural Health
UK	United Kingdom
UR	Usual resident
USA	United States of America
USD	United States dollars

Key Definitions

For the purposes of this study, the following terms and definitions provide a point of reference.

Commonwealth of Australia: The legal entity of Australia created by the Australian Constitution. The term is used to differentiate the Australian Government from state and territory governments (Department of Foreign Affairs and Trade, n.d.).

Community: A group of individuals bound together either by living in a particular area or by their relationships and interconnected networks (e.g. individuals, families, organisations and institutions). The community shares goals that contribute to the wellbeing and resilience of its members through the creation of a supportive and thriving environment (Cambridge University Press, 2023; Taylor et al., 2008).

Community engagement: The process involves working collaboratively with groups of people connected by geographic proximity, special interest, or similar situations to address issues affecting their well-being. It is a method for bringing about environmental and behavioural changes to improve the health of the community and its members. This often includes partnerships and coalitions that help mobilise resources, influence systems, change relationships among partners, and serve as catalysts for changing policies, programs, and practices (McCloskey, 1997).

Community-based medical education: Medical education activities that take place in community settings but do not actively involve the community in planning, oversight or evaluation (Strasser, 2010).

Community-based medical program: Learning activities that take place within the community, where students, teachers, members of the community and representatives of other sectors are actively engaged in the educational experience (World Health Organization, 1987).

Community-engaged medical education: Medical education in which community involvement is fundamental to research and community engagement activities that generate reciprocal benefits and in which the community contributes to student learning (Strasser et al., 2015).

Community-oriented medical education: Medical education that is focused on groups and individuals in the community and takes into account the health needs of the community (World Health Organization, 1987).

Cultural capital: The way in which people influence the community through customs, beliefs, fears, symbols, language and stories passed on through networks (Emery & Flora, 2006; Farmer et al., 2012; Flora et al., 2015).

Direct, indirect and induced spending: This is where money moves through different levels of the economy expanding its impact beyond the initial purchase.

Direct spending occurs when the initial dollar expenditure using cash or credit to purchase goods and services by consumers and producers. Direct spending in this study comes from the SRH-B and students, staff and visitors. This money directly supports manufacturers and suppliers of these products.

Indirect spending occurs when the initial (direct) expenditure is spent again by businesses to business transaction to purchase more goods and services. For instance, the medical school purchases goods and services from a local supplier, who in turn buy from other businesses.

Induced spending occurs when employees of businesses involved in direct and indirect spending use their wages throughout the local economy. For example, staff and suppliers spending their wages on local goods and services, this generates future economic activity (Lemky et al., 2018; Maltais., 2023). These three rounds provide a comprehensive picture of the economic impact. Direct spending demonstrates the immediate effects; indirect captures

the business-to-business supply chain impact and induced spending reflects the broader economic benefits from increased income. The induced effects of spending increase the initial economic activity through additional rounds of spending and production (direct and indirect spending), lead to increased industry output, changes in Gross Regional Product (GRP) and Gross Domestic Product (GDP), and further employment.

Economic activity: The action involving the production, distribution and consumption of goods and services. It occurs at several levels, including the production of raw materials, the addition of value to raw materials, technology and the delivery of services such as entertainment, healthcare and travel (Hashimzade et al., 2017; Watson et al., 2007).

Economic capital: A concept that encompasses employment, wages, income and wealth, property or infrastructure and loans available to invest in community development (Emery & Flora, 2006; Cocklin & Alston, 2003).

Economic development: The process by which the economic wellbeing and quality of life of a nation, region, community are improved. This involves the efforts to increase the standard of living, reduce poverty, and increase the economic wealth of the area (Sen, 1983). Economic development often includes initiatives to improve infrastructure, education, healthcare and employment

Economic growth: The increase in the value of goods and services produced per capita in a period measured by the gross domestic product (Stevenson, 2010).

Economic impact: The overall effect of an event, policy or project on the economy that includes the additional expenditure circulating within a region, which in this case includes industry outputs, employment and gross domestic product generated as a result of the university presence (Beck et al., 1995).

Employment: The remuneration to work under a contract or self-employed (Australian Bureau of Statistics, 2023a).

Gross domestic product: The value of all final goods and services produced during a given period minus the cost of materials and services used. It indicates the contributions of businesses and workers to the economy, demonstrating the actual value added by production (Organisation for Economic Co-operation and Development, n.d.).

Gross regional product: The total value of all goods and services produced in a region of a country during a specific period. It reflects the region's economic contribution, similar to how GDP measures a country's economy but on a smaller scale (Department of Infrastructure, 2018).

Human capital: Skills and knowledge of people to build their community and support greater economic productivity and investment in a region through leadership, innovation, creativity and educational accomplishment in formal and civic roles in the community (Abel & Deitz, 2012; Cocklin & Dibden, 2004; Davies & Bennett, 2008; Farmer, Bourke, et al., 2012).

Industry outputs: The gross revenue generated by businesses and organisations in each industry sector in a defined region. Gross revenue can be referred to as total sales or total income (Australian Bureau of Statistics, 2021e).

Input–output table: A table that captures the effects of direct, indirect and induced expenditure in the economy by summarising and quantifying the interlinkages between different industries in the economy (Gretton, 2013). The linkages are used to estimate the multiplier effect on employment, industry sales, and gross domestic product from expenditure in the region (Bleaney et al., 1992). That is, as stakeholders spend more on goods and services in the region, industries and services react by buying and supplying more goods and services in response to the increased spending.

Local government area: Local boundary defined in a state or territory (Australian Bureau of Statistics, 2021d).

Longitudinal integrated clerkship: An innovative model of clinical medical education supporting the educational principle of continuity of care, continuity of relationships, and continuity of education (Hirsh et al., 2007).

Modified Monash model: A model measuring remoteness and population size through the Modified Monash (MM) categories MM1 to MM 7. MM1 is a major city, and MM7 is a very remote area (Department of Health and Aged Care, 2020).

Multiplier effect: A multiplier reflects the amount of economic growth from expenditure (Bess & Ambargis, 2011). The multiplier estimates the total impact expected from changes in economic activity through spending and investment minus savings (Zhang et al., 2017). In this study, the multiplier effect was calculated using an input–output table that estimated employment, industry sales and Gross Regional Product outcomes.

Type 1 Multiplier: measures the direct and indirect effects from expenditure, that is how businesses buy goods and services from other businesses in response to the demand.

Type 2 Multiplier: measures the economic impact of initial expenditure including direct, indirect and induced effects reflecting how income generated within the economy circulates through consumption and production cycles to amplify the overall economic activity.

Productivity: The quantity of goods and services that a worker can produce for each hour of work (Gans, 2018).

Regional development: The application of economic processes and resources available to a region to develop businesses and enhance the wellbeing and living standards of residents and visitors. This may include the creation of jobs, further income and local investment and a better quality of life (Organisation for Economic Co-operation and Development, n.d.-b; Stimson et al., 2006).

Rural Clinical School: A Commonwealth rural health workforce program aiming to increase the number of medical professionals working in rural, remote and regional Australia (Department of Health and Aged Care, 2024e)

Social capital: Connections and relationships between community members and organisations, including the collective value arising from these connections, generated through trust, reciprocity and sharing of information with social networks, with responsibilities for sustainability (Putnam, 2004).

Social determinants of health: ‘non-medical factors that influence health outcomes. They include conditions in which people are born, grow, work, live and age and the wider set of forces and systems shaping the conditions of daily life’ (World Health Organization, n.d.).

Social impact: An organisations, person’s or business’s effect on the well-being of the community encompasses both the positive and negative impacts of their activities, projects, or policies on social structures, community health and overall quality of life. People experience a wide range of psychological, emotional, and behavioural changes due to the implied or deliberate actions of others (Drayton, 1972; Granovetter, 1973; Latane, 1981).

Stakeholder: In this study, staff, community members, local government officials, healthcare services and students who are directly or indirectly associated with the School of Rural Health—Bairnsdale and have an interest in the delivery of health education and wellbeing of the community.

Student resilience: A capacity to face and overcome adversities with personal transformation and growth (Tempski et al., 2015).

Chapter 1: Introduction and Study Context

1.1 Introduction

Considerable literature evaluates the impact that medical workforce training programs funded by the Australian Government have on rural communities. Rural health research has traditionally focused on education and training, workforce, and service delivery. There have been fewer studies exploring the social and economic impact a medical school has on its community and what this means for the community's regional development, sustainability, and empowerment. Specifically, there is minimal evidence from the Rural Medical School's stakeholder's perspective of the social and economic impact on its community. This thesis addresses a gap in the literature regarding these phenomena. This study set out to answer the following question: What are the social and economic impacts that a medical school providing 450 student weeks per annum has on its community situated in a rural location? A key aspect of this thesis focuses on stakeholders' perspectives and expectations of a rural medical school. Analysis of the economic contribution that a rural medical school and its stakeholders make to the local government area (LGA) is another key area of the study.

1.2 Chapter Outline

This chapter introduces the research question and aims and briefly describes the theoretical approach and the significance of the study. A critical single case study was chosen to examine the impacts of a medical school on its local region. Specifically, the study focuses on the School of Rural Health- Bairnsdale (SRH-B), a medical school providing approximately 450 student weeks per year. The case study explores the impact of students, staff, health professionals and community members within the context of the East Gippsland region of Australia. East Gippsland, classified under the Modified Monash Model (MM4)¹,

¹ A model measuring remoteness and population size. MM4 is a large to medium size town 5000 to 50,000 population

comprises small-to medium sized rural townships where all interactions between the SRH-B and stakeholders took place (Department of Health, 2020; Saunders et al., 2015; Stake, 1995). The case boundary was determined based on the demographics of the region (Local Government Area of East Gippsland), the participants (students, staff, healthcare professionals and community members affiliated with the SRH-B), the timeframe from 2016-2019, and the organisations with which the SRH-B interacted within the LGA of East Gippsland.

The study aims to understand the social and economic contributions a medical school has on the community it resides. By analysing the SRH-B activities, student placements, staff involvement and community and business owners' interactions, this research seeks to provide a comprehensive understanding of the SRH-B influence. Conducted over the period from 2016-2019, the study used a combination of qualitative and quantitative methods. The findings will contribute to the broader knowledge of how a medical school can impact its local community and provide insights for similar institutions. Medical schools similar to the SRH-B could find this case study applicable and transferable to institutions in comparable regions.

1.3 Significance of the Study

Worldwide, universities bring social and economic benefits to their communities (Hogenbirk et al., 2015; Hogenbirk et al., 2021). However, empirical evidence for the benefits of a local university campus is lacking for small countries and smaller rural areas.

The Australian Government funds 21 Australian universities to support the Rural Clinical School (RCS) program, which provides social interactions and economic benefits to the local community (Department of Health and Aged Care, 2024-e). There are reports (Acil Allen Consulting, 2020; Deloitte, 2020; London Economics, 2016) that cover the economic contributions that large university campuses make to their communities. However, little is

known about the impacts of a rural medical school has on the rural region in which it is situated. This is despite numerous economic impact studies completed by universities and higher education institutions (HEIs) in large regional and metropolitan areas in European countries, Canada, the United States of America (USA) and Australia (Drucker & Goldstein, 2007; Lemky et al., 2018). No previous Australian study has explored the social and economic benefits to the community of a medical school in a rural area (MM4-7). Determining the positive or negative social and economic impacts is important for the development and sustainability of rural medical schools.

Community-based medical education (CBME) involves placing students in rural or urban communities for extended periods with additional opportunities for learning, including exposure to primary care settings (Strasser et al., 2015). Collaborative partnerships are fundamental for the continuation of a CBME program. Program delivery, clinical attachments and community engagement activities are not possible without the support of healthcare providers, clinicians, students, staff, governments and community members in a region. Worley (2002) argues that relationships are important: medicine cannot be learned in isolation. There is considerable evidence for the effects of CBME programs on student education and workforce outcomes, clinical supervisor benefits and challenges and, to a lesser degree, the benefits that patients receive from student consultations (Evans et al., 2019; Hirsh et al., 2007; Mahoney & Yong, 2013).

This study contributes to understanding community expectations and perceptions and how relationships develop between the community, staff, students, healthcare professionals and a rural medical school. Further, the study adds to the literature on short-term economic impact studies.

The following sections provide a brief background on how rural and remote Australia contributes to national productivity and an overview of the medical workforce in Australia and some existing initiatives.

1.4 Rural and Remote Australians: A Holistic Perspective

In March 2023, 72% of Australia's 26.4 million people lived in metropolitan centres, with the remaining 28% living outside the major cities (Australian Bureau of Statistics [ABS], 2023b). Within this 28%, 26% lived in inner and outer regional locations with populations of between 5,000 and 50,000, and 2.0% lived in remote and very remote areas of under 5,000 people (ABS, 2022c).

Many rural and remote areas supply goods and services that are necessary to sustain metropolitan areas. Food, timber, electricity and clothing materials manufactured in rural areas sustain their metropolitan counterparts. Rural Australian industries, including agriculture and mining, contribute almost \$400 billion per year to the value of the economy (ABS, 2022a). Agriculture, fisheries and forestry rural industries and resources generate at least 80% of the country's exports (Reserve Bank of Australia, 2023).

Despite these contributions, education, primary industries, health and medical facilities, banks and post offices are some essential services that are in decline in rural areas (Australian Institute of Health and Welfare, 2023b; National Rural Health Alliance, 2023). Further, people living in rural and remote areas pay higher prices for household goods, and, on average, wages are 19% lower than in capital cities (ABS, 2022b).

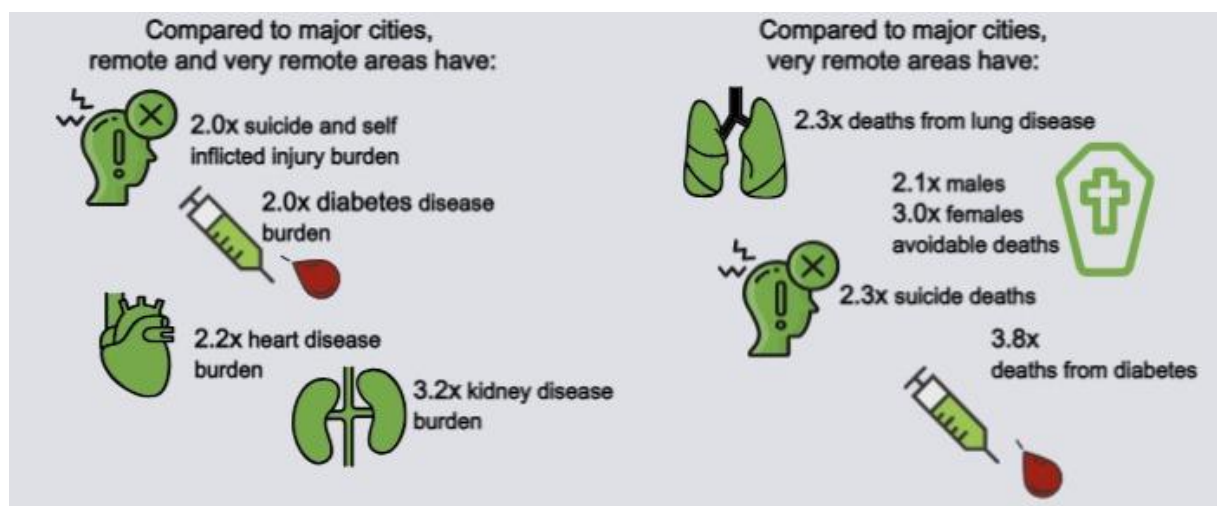
People living in rural and remote areas have a higher burden of disease and are more likely to experience poorer health and welfare outcomes than people living in metropolitan areas (Australian Institute of Health and Welfare, 2023b; Hessel, 2008). Australians living in these regions have higher rates of coronary heart disease, chronic disease, mental health and suicide and have less access to primary health services (Australian Institute of Health and

Welfare, 2023b). Life expectancy is lower in regional areas and decreases further by several years for those living in more remote areas of Australia. Improving access to health services and healthcare professionals is a strategy that might help address this (Australian Institute of Health and Welfare, 2020, 2023b).

Figure 1.1 summarises disparities in the burden of disease between major cities and rural and remote regions of Australia. Section 1.5 provides an overview of the medical workforce in Australia.

Figure 1.1

Rural and Remote Australia: The Burden of Disease



Note. Data taken from “Rural health in Australia snapshot 2023,” by National Rural Health Alliance. n.d. (<https://www.ruralhealth.org.au/rural-health-australia-snapshot>).

1.5 The Medical Workforce in Rural Australia

Doctors and healthcare workers provide health care in communities. Table 1.1 shows the number of general practitioners (GPs; as full-time equivalents per 100,000 people) providing care in different areas of Australia in the fiscal year 2021–2022 (Department of Health and Aged Care, 2023b). In 2022, 44,930 Australians living in remote and very remote areas had no access to primary healthcare services within an hour’s drive and experienced two

to three times higher rates of preventable hospitalisations because of a lack of access to primary healthcare services (Australian Institute of Health and Welfare, 2023b; Bishop et al., 2023).

Table 1.1

General Practitioners in Locations Classified Using the Modified Monash Model

Location type	General practitioners
MM1: Metropolitan area	115.2
MM2: Regional centre	109.9
MM3: Large rural town	125.7
MM4: Medium rural town	127
MM5: Small rural town	78.2
MM6: Remote community	68.1
MM7: Very remote community	70.7

Note: Data from Department of Health and Aged Care (2023b).² General practitioner numbers are given as full-time equivalents per 100,000 people.

It is important to note the number of GPs per population can be misleading and does not consider that rural GPs have more extensive on-call and cover emergencies, obstetric care and after hours care often in more socio-economic disadvantaged communities. Further, many rural GPs cover and work in local hospitals as proceduralist and in the emergency department. To do this GPs require a broader range of skills and workloads that may differ from urban GPs. The above numbers can therefore underestimate the GP-to-population ratios, workloads and holistic care provided by rural GPs.

There is a shortage of GPs in rural and remote areas and an even greater shortage of access to specialists (Department of Health and Aged Care, 2023-d). There are many reasons for the maldistribution of the medical workforce in Australia, including fewer postgraduate speciality and general practice training posts in rural areas (Department of Health and Aged Care, 2024; Phillips, 2020). This results in medical graduates returning to metropolitan areas to undertake further training. Recent studies by Peel et al. (2020) and Malau-Aduli et al.

² The modified Monash model (MM) is a model endorsed by the Australian Government to categorise metropolitan, regional, rural and remote areas (see Department of Health, 2023a).

(2021) have explored the factors that attract general practice registrars and supervisors to work in rural and remote areas of Australia. Lifestyle and opportunities for family members to be included in the community, an interesting scope and variety of practice, support for learning and supervision and a personal motivation to experience rural practice were attractors for training and practice in a rural or remote community (Walters et al., 2017). Reported barriers included the number of hours worked, limited supervision, reduced access to locum support, poor access to schools for children, lack of childcare facilities, distance from family and friends and personal isolation (Malau-Aduli et al., 2021; Peel et al., 2020).

Over the past two decades, the Australian Government has sought to address the imbalance in the medical workforce in rural, remote and regional areas through different initiatives. Workforce initiatives have included supporting medical education and placements in rural communities through the RCS program, increasing vocational training places through the Australian General Practice Training program, financial incentives and more positions for junior doctors to commence rural generalist training (Department of Health and Aged Care, n.d.-e; Government, 2018; Walters et al., 2017).

In 2000, the Australian Government, acknowledging a shortage of medical doctors in rural areas, established rural and regional medical schools to increase the numbers of medical practitioners and other health professionals in rural and remote Australia (Department of Health and Aged Care, 2024-e). The Monash University, East Gippsland Rural Clinical School (RCS) was established in 2006 as one of five sites in Victoria, Australia to address ongoing health workforce shortages in rural areas. By situating a clinical school within East Gippsland, Monash University provided medical education and training opportunities for students in a rural setting. This initiative aims to increase the number of medical graduates working in rural areas, improving healthcare access for underserved communities. Chapter Three and Appendix A provide detailed description of the establishment of the East

Gippsland RCS and its initiatives. Research has shown that recruiting medical students from rural areas and training them in rural regions increases the chances that they will return to practice medicine in a rural region (Campbell et al., 2019; O’Sullivan et al., 2018). A recent study by Seal et al. (2022), examining the proportion of medical graduates working in rural and remote regions of Australia five and eight years after graduation, found that students of rural origin or students with extended RCS experiences were more likely to remain in rural practice. Studies by Walker et al. (2021) and McGirr et al. (2019) reveal that, regardless of whether students come from rural or urban backgrounds, there is a strong correlation between extended placements at an RCS and students’ subsequent likelihood of working in rural and remote areas classified as MM3 to MM7. This phenomenon can strongly influence long-term medical workforce outcomes.

In 2019, the National Rural Generalist Pathway was funded by the Australian Government aimed at addressing the healthcare needs of regional, rural and remote communities (Department of Health and Aged Care, 2023-d). For medicine, it offered a structured training framework for doctors in training who wanted to become rural generalists. Rural generalist are general practitioners (GPs) with additional such as emergency medicine, obstetrics, anaesthetics and mental health to provided care where specialised services are limited. These services allow rural Australians to access comprehensive care, maintaining community health and reducing non-urban health disparities. (Department of Health and Aged Care, 2023-d).

This section has provided a brief outline of the distribution of the medical workforce in Australia and information about attractors and barriers for junior and senior doctors to practice rurally. It has described some initiatives of the Australian Government to attract and retain doctors in rural areas.

This thesis aims to explore the social and economic impact that a medical school, situated in a MM4-7 region, and its stakeholders have on the Local Government Area (LGA).

The following sections state the research aims and sub-aims and briefly outline the methodology and research design utilised to fulfil them.

1.6 Aims of the Thesis

This research has three specific aims, two of which have subsidiary aims:

1. To explore the social impact of a medical school in a MM4-7 region on stakeholders and the community using the SRH-B within East Gippsland as a critical single case study.
 - a. To explore stakeholder and community relationships and interactions with a medical school and their underpinnings
 - b. To explore stakeholder and community perceptions and expectations of the role of a medical school situated in a MM4-7 region in relation to educational activities, community engagement, the health workforce, access to health care and research
2. To explore the economic impact of a medical school in a MM4-7 region on stakeholders and the community using SRH-B within East Gippsland as a critical single case study.
 - a. To identify the economic effect on a MM4-7 region (East Gippsland) attributable to the presence of the medical school (SRH-B).
 - b. To explore economic development opportunities for a medical school (SRH-B) in a MM4-7 region (East Gippsland).
3. To explore what the results mean for strategic directions, opportunities and sustainability for a medical school in a MM4-7 rural region using SRH-B and the East Gippsland community as a critical single case study.

1.7 Methodology and Research Design

The research design used a critical single case study with a mixed methods approach incorporating qualitative and quantitative data collection. A constructivism-interpretivist research paradigm guided and influenced the design of this study. (Cohen et al., 2018; Creswell, 2014; Goodrick, 2016). By combining a constructivist, interpretivist epistemologies, and adopting a pragmatic lens brought diverse meaning and understandings from participant's experiences, directly addressing the study aims (Patton, 2015).

The case study addressed the experiences of stakeholders living, studying or working in a rural region MM4-7. The qualitative data obtained using the case study approach enabled the researcher to explore and analyse stakeholder relationships and the expectations and perceptions of stakeholders of a rural medical school. The quantitative data gathered using questionnaires provided an estimate of the economic contributions and productivity generated by a medical school in a MM4-7 region in Australia. Understanding the positive or negative economic impact of a medical school on the community within which it is located can be important for forecasting regional growth, achieving budget and spending accountability and maintaining and justifying government funding. However, it is important to note that this study does not attempt to formally measure social capital.

1.8 Thesis Structure

This thesis is presented in seven chapters, each of which includes an introduction, main body and summary.

1.8.1 Chapter 1: Introduction and Study Context

Chapter 1 discusses the significance of the study and presents a profile of rural and remote Australians and the state of the medical workforce in Australia, along with some of the initiatives undertaken by the Australian Government to address the maldistribution of medical

doctors in rural areas. The study aims and sub-aims, the methodology and the thesis chapter topics are identified.

1.8.2 Chapter 2: The Social and Economic Impact of Community-Based Medical Education Programs

Chapter 2 is a narrative review with two sections. The first section examines literature on the social impact of medical education within the context of a university medical school, including Community-Based Medical Education (CBME), Longitudinal Integrated Clerkships (LICs), and Rural Clinical Schools (RCSs), and its impacts on students, health professionals, staff and community members. The chapter presents the literature about community engagement activities of medical schools, including supporting stakeholder education. The concept of social capital is discussed together with how relationships and reciprocity support cohesion in communities. The second section assesses the literature on short-term economic impact studies and their methodologies. The latter part of the chapter analyses and critiques the ways in which universities have undertaken short-term economic impact studies.

1.8.3 Chapter 3: Methodology

Chapter 3 outlines the research design and methodology. It describes the decision-making about the research design and methods consistent with the study's aims and sub-aims. This chapter also describes the study location, ethical considerations, sampling strategy, questionnaire design, data collection and recording and data analysis. It concludes with strategies to enhance rigour and trustworthiness, including reflexivity. A detailed description of the process undertaken to analyse the short-term economic impact is presented.

1.8.4 Chapter 4: The Social Impacts of a Medical School on its Community

Chapter 4 reports the qualitative results of interviews and questionnaires from stakeholders (community members, staff, students and healthcare professionals) about the role of a rural medical school in a small community MM4-7. The qualitative data from the

interviews and questionnaires were thematically analysed and provided the stakeholders' perceptions and expectations of a rural medical school and its social impact, along with the participants' insights into the SRH-B's economic impact on the East Gippsland community.

1.8.5 Chapter 5: The Economic Impacts of a Medical School on its Community

Chapter 5 reports on the results of the analysis of interviews and questionnaires from stakeholders (community members, staff, students and healthcare professionals) about the economic effects of a rural medical school on its community. Descriptive statistical analysis with statistical multipliers and an input–output (I–O) table were used to identify the short-term economic effect that stakeholders and a medical school have on the community.

1.8.6 Chapter 6: Discussion

This chapter integrates and discusses the study findings in relation to the scholarly literature on rural medical schools, short-term economic analysis and the outlook of rural communities. The study findings are interpreted using the capitals theoretical framework of Flora, (2004) and Farmer, Prior, et al. (2012). For this study, the theoretical framework has been adapted to the context of a medical school (SRH-B) and its stakeholders (community and business members, staff, students and healthcare professionals) in a rural community (East Gippsland) to interpret the social and economic impacts, strategic directions and sustainability of the SRH-B in East Gippsland.

1.8.7 Chapter 7: Recommendations and Conclusion

This chapter presents the recommendations and conclusions drawn from the study for future research, policy and practice for universities, health services, the community and all levels of government (Federal, state and local).

1.9 Chapter Summary

Chapter 1 has provided an overview of the Australian medical workforce and insight into the maldistribution of this workforce in Australia. Additionally, summarises disparities in

the burden of disease between major cities and rural and remote regions of Australia and, provided a background to the establishment of the Australian Government's RCS program. As discussed, this study aims to investigate the impact of a medical school in a MM4-7 location has on its community and stakeholders' expectations and perceptions to understand how and why relationships develop and continue. This study also aims to analyse the economic impact that a medical school in a MM4-7 location and addresses the knowledge gap about stakeholder involvement. A deeper understanding can provide strategic direction for further education programs, community engagement activities, the recruitment and retention of the medical workforce and succession planning. The study can also provide empirical evidence to fundholders and health planners regarding the importance of supporting small rural medical clinical schools such as the SRH-B. Moreover, this study's findings and methodology could be transferable to other medical schools located in MM4-7 locations.

Chapter 2 critically analyses the literature with a focus on: (a) the relationships between local community stakeholders and Community-Based Medical Education (CBME) programs, Longitudinal Integrated Clerkships (LICs), and Rural Clinical Schools (RCSs), as well as the factors underlying these relationships; (b) the community's perceptions and expectations of CBME programs, LICs, and RCSs, including educational activities, community engagement, and addressing local workforce shortages; and (c) the economic impact of CBME programs, LICs and RCSs and the interactions associated with their presence in local communities.

Chapter 2: The Social Impact of Community-Based Medical Education Programs

2.1 An Introduction

Chapter 2 is a narrative literature review. The chapter examines the social impact of medical education literature in the context of a university medical school, including Community-Based Medical Education (CBME), Longitudinal Integrated Clerkships (LICs), and Rural Clinical Schools (RCSs). This is followed by a critical discussion of the economic impacts that a university including, medical schools, CBME, LICs and RCSs has on the community. The chapter is structured in fifteen sections. Section 2.2 presents an outline of the methodology undertaken for the literature review on social and economic impact. To situate this research in its historical context, Section 2.3 and 2.4 provides a critical overview of the changes in medical education from the 20th to the 21st century and the reasons for these changes. The evolution of CBME, including the origins and impact of longitudinal clerkships, is key to these developments and is discussed in Section 2.5. Section 2.6 examines the social impact on workforce distribution, students, supervisors, and patients. Section 2.7 critically analyses community engagement, collaborative partnerships, social capital, research opportunities, and support for rural students. Section 2.8 is a summary of the social impacts and sections 2.10 and 2.11 introduce the economic impact and a summary of literature reviewed. The economic impacts, both short- and long-term, of academic institutions on its community is examined in Sections 2.9 to 2.15.

2.2 Literature Review Methodology

The narrative literature review identifies and critically examines evidence relevant to the research question (Coughlan & Cronin, 2020; Ferrari, 2015; Greenhalgh et al., 2018, Sutton et al., 2019). A narrative review was chosen to explore a broad range of literature and

provide a reflective perspective on the social and economic impact of a medical school. This approach allows for addressing multiple questions and exploring the topic more thoroughly (Greenhalgh et al, 2018).

While narrative reviews may introduce bias by excluding certain studies, this review moderates selection bias through detailed documentation of the literature review process. Two tables summarise included studies enhancing transparency (Ferrari, 2015). The search strategy focusses on examining the social and economic effects of a rural medical school from various stakeholder perspectives, including students, staff, healthcare professionals, and the broader community, while contextualising the findings (Cronin et al., 2008). It synthesises key findings and situates them within the broader context.

2.2.1 Search Strategy

The search strategy was developed iteratively beginning in March 2016, with updates in 2020, 2022, and 2023. This ongoing refinement ensured relevance and completeness. Initial search terms were based on the research aim: incorporated the search terms ‘rural clinical school’, ‘community’ and ‘social and economic impact’ in various combined with related keywords. As the search progressed, terms were refined based on their relevance from retrieved articles and through consultation with James Cook University librarians. Tables 2.2 and 2.3 detail the search terms, combinations, and data sources. Additionally, Appendix A provides a breakdown of search terms and results.

To achieve a holistic understanding of the topic, both qualitative research (e.g., grounded theory, ethnography, exploratory approaches, phenomenology, and systematic reviews) and quantitative studies (e.g., controlled and uncontrolled before and after studies) were included into the analysis. The electronic search included the databases of Scopus, Ovid MEDLINE, Google Scholar and EBSCO ensuring coverage of relevant literature. Grey literature was searched using the same search terms. To maintain methodological rigor, certain studies were

excluded from the review, including non–peer reviewed articles, studies with insufficient methodology descriptions, and non-English literature. Additionally, publications prior to 1960 were excluded, except seminal articles identified through reference searches. Additional literature were identified through manual searches of reference lists from the articles retrieved to determine which were relevant until a point of saturation was reached.

Table 2.1

Search Strategy - Search Terms 2016 and 2020

Concept 1	AND	Concept 2	AND	Concept 3	AND	Concept 4
Keywords “rural clinical school”		Keywords “social impact”		Keywords “economic impact”		Keywords ‘community’
Subject headings “rural clinical school” OR “school of rural health” OR “medical school” OR “community based medicine” OR medical curriculum” OR “clinical curriculum” OR “clinical school” OR “universit*” OR “rural education” OR “rural medical school” OR “institutions” OR “regional medical program”		Subject headings “communit* participation” OR “capital frameworks” OR “bridging” AND/OR “bonding” OR “university partnership” OR “empower*” OR “community sustainability” OR engagement” OR “relationship”		Subject headings “economic impact” OR “economic contribution” OR “economic growth” OR “economic development” OR “short term impact” OR “short run impact” OR short term analysis”		Subject headings “communit*” OR “stakeholder” OR “community participation” OR “private-public sector” OR “outreach” OR “remote location” OR “rural” OR “regional area” OR “rural population”

Search Strategy - July 2022, 2023, Search with James Cook University Librarians

Concept 1	AND	Concept 2	AND	Concept 3	AND	Concept 4	AND	Concept 5
Keywords "rural clinical school"		Keywords "longitudinal Clerkship"		Keywords "social impact"		Keywords "economic impact"		Keywords "rural community"
Keywords "rural clinical school" OR "school of rural health" OR "medical school" OR "rural medical school" OR "community-based medical education" OR "regional medical program"		Keywords "medical students" AND "experience" AND "Longitudinal Clerkship" AND "mentor" AND "general practitioner" AND "experiences" rural		Keywords "social impact" OR "social capital" OR "social development" OR "social impact theory" OR "employment" OR "school mission"		Keywords "economic impact" OR "economic growth" OR "economic development" OR "economic contribution" OR "regional development" OR "economic benefit" OR "economic impact analysis"		Keywords "contribut*" OR "outcome*" OR "benefit" OR "relation" OR "reciprocal" OR "support" OR "social responsibility"
MeSH students, medical, education, medical, undergraduate, rural population, centre of rural health, medical school		MeSH Students, medical, education, undergraduate clinical clerkship, community-based education, workforce, rural health		MeSH social environment, social support, economics, social change, humans		MeSH cost benefit analysis, healthcare costs, rural population, employment, humans, economics, model economics		MeSH international cooperation

Table 2.2

Database Search Strategies and Periods

Data source	Time			
	Mar–Aug 2016	Mar–Jun 2020	Feb–May 2022	Feb–May 2023
Ovid MEDLINE, Scopus, Google Scholar	First search	Second search	Third search	Fourth search
EBSCO	First search		Second Search	
Reference and citation tracking			Ongoing	
Books	First search		Ongoing	
Conference papers, Reports, Australian Bureau of Statistics, Australian Institute of Health & Welfare			Ongoing	

2.2.2 Review Process and Quality Assessment

All articles resulting from the search were imported to EndNote (EndNote, 2016; Clarivate, 2018; Clarivate, 2020), and duplicate records were removed to ensure accuracy in data management. The review methodology involved screening the titles and abstract to determine their relevance to answering the aim of the research question. For data organisation, studies were categorised into two tables, one for Social Impact Studies and another for Economic Impact Studies to facilitate a structured analysis. Each table includes the headings: Reference, Aims, Study Design, Sample Size, CASP and Key Themes and Comments. Articles were assessed on their aims, methodological approach, study design, recruitment strategies, data collection methods, ethical considerations, data analysis, key findings, and overall contribution to knowledge (Ferrari, 2015). To ensure methodological rigor, studies were critically appraised using the Critical Appraisal Skills Programme Evaluation Framework (CASP) (CASP UK, 2024), with Table 2.3 outlining the evaluation criteria applied. Articles were ranked according to their CASP scores, and only those with medium to high scores were included in the review. Articles were allocated accordingly. Tables 2.4 and 2.5 lists the articles used for the social and economic impact literature review, including an assessment of methodological rigor.

Table 2.3*Critical Appraisal Skills Program (CASP)-Based Article Evaluation Framework*

CASP Criterion	Low Quality (Limited rigor, unreliable)	Medium Quality (Some rigor, minor gaps)	High Quality (Strong, reliable, robust)
Research Aim & Justification	Unclear or misaligned with review focus	Relevant but lacks precision	Clearly defined, directly aligned with research goals
Study Design Appropriateness	Methods unsuitable to answer question	Methods appropriate but not optimal	Methods well-justified for research objectives
Sampling Strategy & Selection Bias	Small, unrepresentative, high bias risk	Adequate sample with minor biases	Well-selected sample, minimal bias risk
Data Collection Methods	Poorly described, unreliable measures	Adequate but lack full transparency	Well-documented, replicable
Ethical Considerations	No mention of ethics or consent	Ethics considered, poor reporting	Fully transparent ethical approval
Results & Findings Transparency	Unclear findings, weak supporting data	Most findings clear, explanations lacking	Well-documented, transparent & data supported results
Analysis Rigor	Weak analysis missing justification	Analysis reasonable but lacks depth	Highly rigorous analysis, locally justified
Interpretation & Applicability	Overgeneralised or inconsistent interpretations	Lacks deeper theoretical impact but somewhat useful	Strong interpretation providing actionable insights
Consistency with Existing Literature	No clear connection to prior research	Limited contextual depth	Strong engagement with literature, well positioned
Implications & Limitations	No discussion of limitations or future research	Limitations mentioned not fully addressed	Clear acknowledgement of limitations and future research directions
Mostly Low Scores - Unsuitable for inclusion Mostly Medium Scores- Potentially useful (adequate but requires careful interpretation) Mostly High Scores - Strong for inclusion (rigorous, relevant)			

Adapted from *Critical Appraisal Skills Programme Checklist*: Available at <https://casp-uk.net/casp-tools-checklists/qualitative-studies-checklist/>

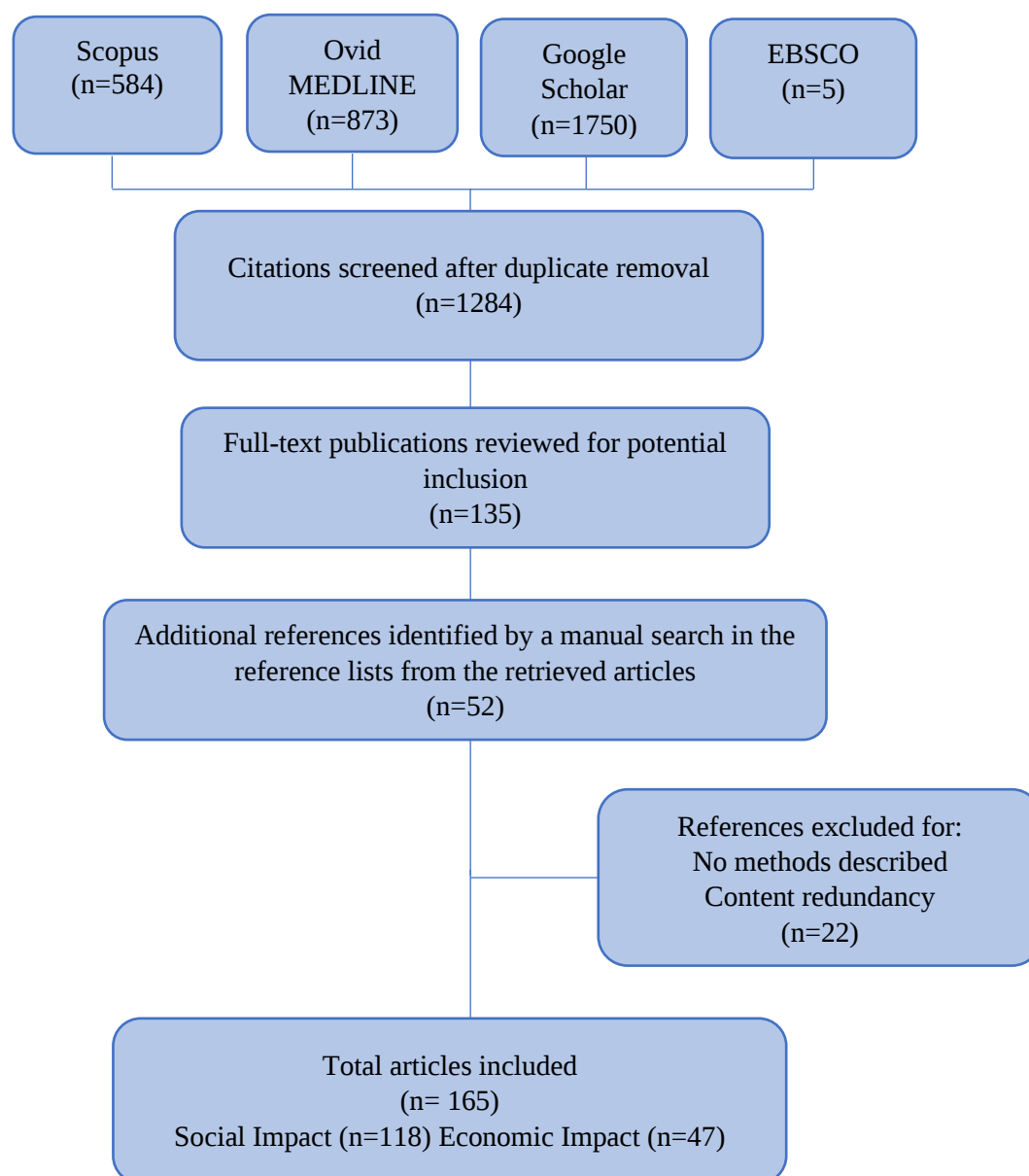
2.2.3 Summary of Selected Studies

The narrative literature review identified 165 of articles exploring or reporting various social and economic impacts of universities, medical schools including community based medical schools and longitudinal integrated programs. Of these, 118 studies directly or indirectly referenced the social impact including social capital of a university, medical school and/or its stakeholders while 47 studies examined or acknowledged the economic implications or economic outcomes.

These studies incorporated perspectives from university, staff, students and communities, offering a comprehensive evaluation of impact. I included social capital into the literature review as it can provide a more comprehensive analysis of a medical school or university role and impact within the community. These studies discussed various aspects of impact. All included studies except for reports and reviews had ethics approval and informed consent, reinforcing credibility. Figure 1 displays the literature selection process including the number of entries from each database.

Figure 2.1

Flow Diagram of the Literature Selection Process



Adapted from Ferrari, R. (2015) Writing narrative style literature reviews, *Medical Writing*, 24:4, 230-235, <https://doi.org/10.1179/2047480615Z.000000000329>

Table 2.4*Social Impact Literature Reviewed*

Reference (Author, Source, Year)	Aims	Study Design	Sample Size	CASP Article Evaluation high, moderate, low quality	Key Findings	Themes (Comments)
Ahmed & Palermo, 2010 Community engagement in research: frameworks for education and peer review American Journal of Public Health (USA)	To create a framework for involving communities in research.	Commentary	Working group of academics and community members representing different sectors of the community No number to the size of group	Medium	Educate both researchers and communities on how to effectively engage in research. Ensure reviewers understand the principles and value of community engagement in research. Frameworks need to be evaluated and reviewed to ensure their effectiveness. Provides 2 tables on the values, strategies of community engaged research describing 13 values that are relevant to community engagement e.g. partnership, equity and criteria for research involving community, experience with and understand requirements of community engaged research.	Using the frameworks can <u>build strong partnerships between researchers and community</u> <u>Increase the level of quality research conducted.</u>
Andrew et al., 2008 Building on Wenger: communities of practice in nursing Nurse Education Today (UK)	Discuss the shift toward community engagement in higher education.	Narrative review		Medium	Community engagement Is core business to the university rather than an extraneous activity and maintain that leadership is required to enable institutional 'recognition and reward of community engagement in teaching and learning.	<u>Community Engagement is core business for a university</u>

Ash et al., 2012 The context of clinical teaching and learning in Australia Medical Journal of Australia (AUS)	Highlight the current state of clinical teaching and new clinical environment in rural and regional areas and their benefits.	Narrative review		High	There is a shift towards community-based clinical placements, in rural areas including general practice for extended periods. Aim to attract medical students to rural areas. Enhanced learning opportunities Symbiotic relationships Longitudinal learning. More comprehensive and varied clinical experience	<u>Situated learning.</u> learning in context is important for medical education.
Baquet et al. 2013 Rural Community-Academic Partnership Model for Community Engagement and Partnered Research Progress in Community Health Partnerships (USA)	Develop a sustainable community-academic partnership that addressed health and social issues on rural Eastern Shore.	Qualitative Study		High	Partnerships, formalised through agreements and shared grant funding, build trust and sustainability while enabling academic and community partners to collaborate on training, research, and outreach. It supports qualitative and quantitative studies, to address health disparities and enhance community health.	<u>A rural community-academic partnership model builds trust, communication and shared grant funding can be replicated in other rural areas resulting in community and academic growth.</u>
Bartlett et al., 2019 Dundee's Longitudinal Integrated Clerkship: drivers, implementation and early evaluation Education for Primary Care (UK)	Discuss the setting up of the new LIC education program called Dundee's LIC (40 weeks) and evaluating the first year.	Qualitative study	Focus groups and semi-structured interviews 35 students, 2 health service staff 21 GPs	High	Stakeholders involved had good experiences and support the LIC program <u>Students felt connected to the local community and found their roles meaningful and contributed to patient care.</u> I felt part of the clinical and GP practice team. Tutors reviewed themselves as education supervisors and supported students.	<u>LIC is a promising model to address the local workforce needs in rural areas.</u> Based on international models.

Bartlett et al. 2018 'Knowledge leech' to 'part of the team': Students' learning in rural communities of practice Education for Primary Care (UK)	To explore students' perceptions while living together and learning in local GP practices for 15 weeks.	Qualitative study	Focus group interview 11 students	High	Students felt accepted in their placements. Students had educational learning opportunities. Developed relationships with staff and patients. Developed professional and personal growth. Did feel some isolation.	Placement significantly impacted on students learning and development, however, <u>need to address some of the challenges of isolation.</u> Transformed into being valuable contributors to patient care.
Bartlett & Muir, 2018 A new model of undergraduate clinical education? British Journal of General Practice (UK)	Discuss LIC as a new model of medical education in the UK.	Editorial		Medium	Core principles of LICs. Continuity of seeing patients, Integration learning multiple disciplines together, longitudinally ongoing relationship with tutors, clinicians and patients Benefits: enhanced clinical skills, empathy, resilience, professional identity, self-directed learning.	<u>LICs offer an alternate comprehensive patient-centered approach to medical education that benefits students, patients and teachers.</u>
Beard et al., 2020 Progress in Community Health Partnerships Australian Journal of Rural Health (AUS)	Identify themes in patient attitudes towards students.	Research Report	Focus groups with 12 patients	High	Patients viewed student involvement in care: Improved patient satisfaction, quality of care, communication, personal history, patient best interests, resulting in improved patient satisfaction.	Longitudinal involvement in patient care <u>improves patient satisfaction</u> and perceived quality of care. Suggesting the longer students are involved with a patient effects patient satisfaction.

Beattie et al., 2022 Rural longitudinal integrated clerkships and medical workforce outcomes: a scoping review protocol BMJ Open (UK)	Synthesise the literature on the outcomes of rural LIC programs and identify areas needing further research of medical education that positively impact rural workforce outcomes.	Scoping Review			Scoping review protocol for exploring workforce outcomes of rural LIC programs. Discusses how the authors are going to complete a scoping review of LIC programs.	Provides 5 steps. Identify research questions, identify relevant articles, selection of studies, data extraction, collating, summarising and reporting.
Beattie et al., 2024 Do Medical Graduates from a Rural Longitudinal Integrated Clerkship Work in Similar Rural Communities? International Journal of Environmental Research and Public Health (AUS)	Investigated whether Longitudinal Integrated Clerkship (LIC) graduates are practicing in communities with similar rural classification to those where they trained to provide data for future policy development.	Mixed Methods approach	Participants PGY 5-12 (2011-2018) 1041 graduates	High	Found the most effective training to encourage rural practice is a combination of LICs and traditional block rotations resulted in higher ratios for working regionally (4.20) and rurally (5.4). Both the length of training (2 years) and type of clinical experience (including a rural LIC) affect where medical graduates work.	Well-designed rural training programs support the <u>growth of health workforce and access to health care in rural and regional areas</u> . Only undertaking placement in rural areas does not always lead to rural workforce outcomes. Efficient management and expansion of programs are needed to <u>improve health access and workforce distribution in rural communities</u> .

Blitz et al., 2018 Implications for faculty development for emerging clinical teachers at distributed sites: a qualitative interpretivist study Rural and Remote Health (SA)	Understand the perspectives and experiences of clinicians in their role as clinical teachers.	Qualitative Study	Participant (9) (8) General Partitioners (1) Clinical Manager	Medium	Emphasises the need to address 3 key areas, relationships, responsibilities and resources in faculty development for clinical teachers. Findings suggest that fostering strong relationships with clinical teachers and university faculty is essential in distant training environments.	Need a more holistic approach to faculty development through <u>building relationships, clearly defining responsibilities of clinicians and having the resources to teach and facilitate students.</u>
Bourdieu, 1986 Forms of Capital Handbook of theory and research for sociology of education Greenwood Press (USA)	Discuss the Forms of Capital.	Book Chapter		High	Discusses forms of capital cultural, social and economic. Capital can be objectified or embodied and take time to accumulate. Cultural = embodied – long lasting of the body or mind, objectified, pictures, instruments, machines, institutional – educational attainment, qualifications. Social = membership in a group, networks of connections Economic = material wealth and financial assets.	Bourdieu argues these capitals are interrelated and can be converted or support each other e.g. spending can achieve paying for education (cultural capital).

Brown et al., 2019 Review Considering the Development and Implementation of Longitudinal Integrated Clerkships, Including a Practical Guide for Application Journal Medical Education and Curricula Development SAGE Publications (UK)	Overview of the international literature to developing and implementing a LIC program within the United Kingdom.	Narrative Literature Review		High	Success of a LIC program is due to the students participating in community and building relationships, self-directed <u>learners</u> . Tutors provide leadership to support students, provide professional feedback, help connect students with patients, and manage their own workloads. Medical School needs leadership to plan, promote LICs and effective communication to students and faculty. Barriers: isolating rural areas, intense working relationships, increased need for videoconferencing, travel and accommodation, discomfort of unpredictability, assessment not aligned with LIC experience.	Consideration of barriers and different types of LICs.
Burgis-Kasthala et al., 2018 How does studying rurally affect peer networks and resilience? A social network analysis of rural- and urban-based students	Study the differences in peer networks between rural and urban students and their impact on social networks and resilience.	Mixed Methods Study	90 Year 2, 52 Year 3, 55 Year 4 medical students completed a survey.	High	Year 2: Urban and rural students have similar social networks, likely because they are taught together. Year 3: Rural students begin their long-term placements, leading to smaller social networks, though the strength of relationships remains stable. Year 4: Rural students return and show larger academic and support networks than their urban peers, along with higher resilience Rural placements help students build better support systems.	<u>Study suggests that rural experiences foster resilience rather than marginalise.</u>
Butterfoss 2006 Process evaluation for community participation Annu Rev Public Health (USA)	Review aims to provide an understanding of how community participation can be evaluated and its impact measured.	Narrative Review		Medium	<u>Community empowerment where individuals and communities gain control over their lives, organisations and community. Through participation, leadership, problem assessment, management, action.</u>	Need process evaluation in community-partnerships interventions for measuring progress, maintaining interest and achieving goals.

Campbell et al., 2019 Outcomes of a 1-year longitudinal integrated medical clerkship in small rural Victorian communities Rural and Remote Health (AUS)	Explore the workforce outcome of students undertaking a year 4 LIC program delivered in Victoria, Australia.	Longitudinal tracking study		High	East Gippsland LIC program students who participate in extended LIC program and engage in rural training in other years up to 2 years duration are more likely to work in smaller regional and rural towns.	The study suggests that <u>extended rural training can help address this recruitment challenge in smaller regional, rural and remote towns struggling to recruit medical doctors.</u>
Carpiano, 2006 Toward a Neighborhood Resource-based Theory of Social Capital for Health: Can Bourdieu and Sociology Help? Social Science and Medicine. (USA)	Enhance the understanding of how social capital within neighborhoods can influence health outcomes.	Narrative Review		High	Integrates Bourdieu and Putnam's social capital theory into a conceptual model linking neighborhoods socioeconomic processes, social capital and health outcomes. Uses a conceptual model to examine social capital theory and to help build new theories through systematic literature reviews. Conclusion, there is a need for new theoretical approach to studying social capital in public health using Bourdieu's theory.	<u>Bourdieu focuses on the resources within social networks. Putnam highlights community engagement and trust, integrating these theories to better understand social capital functions in neighborhoods.</u>

Carrigan et al., 2023 Connectivity is the key to longer rural placement: Retaining students on rural longitudinal integrated clerkships Medical Teacher (AUS)	Examine factors that promote retention in a Rural LIC.	Qualitative Study	8 students interview phase 1 13 students interview phase 2	High	Students remain on rural programs when there is connectivity with current practice, future practice and social networks. Well designed and administered rural longitudinal integrated clerkships can promote retention in rural educational placement. Rural LICs should continue to afford students immersive hands-on practice where they are known to the team and their learning is visible. Students value peer-peer connection highly and focusing on peer-led promotion will improve retention. Innovative short placements in metropolitan hospitals can minimise students' fears of missing out on learning experiences perceived to prepare students for intern placement.	<u>Connectivity promotes student retention in LIC programs.</u> Highlights connectivity to place, community, peers, is crucial to retaining students in rural LICs.
Carrigan et al., 2024 Fostering links, building trust, and facilitating change: connectivity helps sustain longitudinal integrated clerkships in small rural and remote communities BMC Medical Education (AUS)	To understand the sustainability of LICs in small rural communities.	Qualitative Study	11 key individuals involved in LICs. (Clinical school directors, program coordinators, clinical educators).	High	Connectivity is identified as the central theme for sustainable LICs, expressed through three subthemes: Fostering Links: Building connections between students, educators, and the community. Building Trust: Establishing trust among all stakeholders involved in the LIC. Facilitating Change: Enabling adaptability and responsiveness to the needs of the community and the LIC program.	<u>Connectivity is crucial to sustainability of LICs through links (learning opportunities, engaging in broader community, peer connectivity), trust (mutually beneficial partnerships), and investment (infrastructure e.g. IT, accommodation), supervision and active funding) for sustainability.</u>

Caygill et al., 2017 Comparing a longitudinal integrated clerkship with traditional hospital-based rotations in a rural setting Medical Teacher (AUS)	The study aim is to compare the learning experiences of third year rural medical students studying various specialties (women's health, aged care, child and adolescent health, mental health, general practice) through either traditional hospital-based rotations or LICs in rural general practice settings.	Qualitative Study	38 Focus groups with students from LIC and Hospital Based Rotations	High	No Academic Disadvantage: There was no perceived academic disadvantage to studying medicine in rural areas. Increased Access and Hands-On Experience: Rural medical study provided increased access to patients, more hands-on experience (due to small cohort size and immersive learning environment), and closer relationships with patients and colleagues. LIC Students' Confidence: Students in LICs reported increased confidence in their clinical skills and felt better prepared for internships. However, they experienced more social isolation compared to students in hospital-based rotations.	Highlights the benefits of LICs – <u>student feel more confident with clinical skills and more prepared for practice than other rural students despite the challenges of social isolation.</u>
Charles 2016 The rural university campus and support for rural innovation Science and Public Policy Oxford (UK)	Build an understanding of how small rural campuses engage with their regions.	Case Study of seven university sites	14 staff across seven universities and 15 external stakeholders	High	Establishing new campuses in rural areas shows mixed benefits: while they provide educational opportunities for some students and can boost local diversity and economy, the community expected the university site would contribute to a livelier community, their impact on local industry and innovation is limited by the lack of scale and specialisation. Despite contributing to regional innovation systems, these campuses struggle with achieving significant engagement with local industry.	<u>Mixed benefits from establishing new campuses in rural Scotland include the social impact.</u>

Cocklin and Alston, 2003 Community sustainability in rural Australia: a question of capital? Centre for Rural Social Research (AUS)	Present case studies and an analysis in the context of rural communities.	Book		High	Economic capital refers to the resources available to a community, such as income, employment, and investments, which support projects, local businesses, and economic stability.	<u>Economic capital definition.</u>
Coleman 1990 Foundations of social theory	Explain how social structures influence economic, political and social behaviour.	Theoretical Study		High	Created a framework to understand social structures and their influence on actions. Social capital exists in interactions and networks rather than individuals, Forms – obligations, expectations trust within the network, social ties give access to information, shared values encourage cooperation, and improves areas like education, economic development, community engagement.	Framework helps us understand how social structures influence community behaviour.
Condon et al., 2017 Student academic performance in rural clinical schools: The impact of cohort size and competition Medical Teacher (AUS)	To understand how the educational environment and clinical site attended impact on medical students' academic performance.	Retrospective Cohort Study	236 eligible students	High	Consistent with previous studies, dispersed clinical education sites do not disadvantage students compared to traditional metropolitan centres. No significant difference in exam scores (rural vs metro). Small cohorts allow mentoring and integration of students into the community. Students who did not share their site without university students tended to do better due to range of educational experience, personal and professional experiences.	<u>This analysis highlights the benefits of smaller, rural clinical sites in providing a favourable educational environment and better academic outcomes for medical students.</u>

Connolly et al., 2014 What is the impact of longitudinal rural medical student clerkships on clinical supervisors and hospitals? (AUS)	To understand the impact of medical students (LICs) on clinical supervisors and hospitals.	Qualitative Study	15 interviews with supervisors	High	Supervisors became more reflective in their knowledge and practice, professional role and responsibility. Students questioned policies and created changes. Supervisors desired feedback on their supervisory role. There was increased learning for supervisors. There was a change in hospital culture to a learning environment and supervisor felt they had a responsibility that students learnt and enjoyed their experience in a hope of addressing the workforce.	<u>Students have a positive impact on supervisors</u> <u>Hospital culture is more positive with students present</u> <u>Students fulfilled patient knowledge gaps</u>
Corbin et al., 2018 What makes intersectoral partnerships for health promotion work? A review of international literature Health Promotion International Oxford (USA)	Review aims to identify what makes partnerships work well.	Scoping Review 26 studies		High	The review highlights seven core processes to contribute to successful partnerships. Partnerships can have weaknesses and there is no correct way. 1. Develop shared vision and align goals 2. Resources include diverse partners 3. Leadership can vary, the key is to inspire trust, confidence, inclusiveness and transparency as a leader 4. Communicate tailor to participants needs 5. Roles clarify roles 6. Input balance finances and partners 7. Trust and Power build trust from beginning, share with partners.	<u>Collaborative partnerships between community members and organisations</u>

Corbin and Mittelmark 2008 Partnership lessons from the Global Programme for Health Promotion Effectiveness: a case study Health Promotion International	A model developed to be widely applicable to test its usefulness in other collaborations.	Case Study	20 participants interviewed		The study offers insights into <u>global health promotion partnerships</u> and identifies areas for further research to enhance their effectiveness. Despite challenges, partnerships can be productive, though not always successful. Financial support and planning are essential.	<u>Health professionals improve partnerships and make collaborations more effective</u>
Couper and Worley, 2010 Meeting the challenges of training more medical students: lessons from Flinders University's distributed medical education program Medical Journal of Australia (AUS)	To understand four challenges in medical education Expanding Clinical Training Venues, encouraging rural practice. Continue involving the private sector. Addressing the decline of altruism and humanism during education.	Qualitative Research	Focus Groups and Individual Interviews Total 87 interviewees	High	The Flinders Y3 model is successful. Each site had strength and weaknesses fitting different students learning styles. In metropolitan hospitals appropriate patients and learning opportunities for students. The PRCC enhanced the appeal of rural practice for highly qualified doctors, though some students struggled with isolation and lack of support in small communities. GPs found teaching rewarding, students in long-term placements became valuable assets through parallel consulting, and both private practice staff and patients appreciated and formed relationships with the students. Continuity enabled students to build personal relationships with patients, GPs, and staff, follow patients' health journeys, and maintain connections with faculty, which led to educational success.	The study highlights the importance of the LIC approach. LIC approach <u>supports continuity in clinical attachments, aligns with health policy and student perceptions. Emphasises the benefits of continuity for students, private clinicians, and suggests longer placements are more rewarding</u>

Crotty, 2005 More students and less patients: the squeeze on medical teaching resources Medical Journal of Australia (AUS)	Highlight the dearth of clinical placements for medical students.	Editorial		Medium	A study found that only about one-third of inpatients were accessible, with 70% of those agreeing to student interactions. Challenges include shorter patient stays, older patients with cognitive issues, and the shift of outpatient care to private settings. Solutions proposed include better <u>integration of students into clinical teams, using alternative settings like private clinics, and incorporating simulation-based teaching.</u>	Highlights the need for <u>better planning, collaboration between governments, hospitals, universities to address adequate clinical placements.</u>
Cuncic et al., 2018 It's all about relationships: A qualitative study of family physicians' teaching experiences in rural longitudinal clerkships Perspect Medical Education (CAN)	To explore family medicine preceptor experiences of students' clerkship supervision in LIC rural sites.	Qualitative Study	9 family physicians interviewed	High	Key findings include: Preceptors are proud of students learning and companionship. Supervisors felt they could provide effective feedback. Through supportive relationships with supervisors, students felt more motivated and enhanced their earnings. Supervisors were able to share difficult patient experiences with students (deaths, breaking bad news, births). Students are viewed as future colleagues by supervisors. Supervisors remembered their own training and difficult times and tried to create a positive learning environment.	<u>Highlights the strong and supportive relationships from effective clinical supervision and student learning with LICs.</u>
Cutforth et al. 2003 Community Based Research and Higher Education (USA)	Discuss the principles of community-based research.	Book Chapter 1 of Community-Based Research and Higher Education		High	Principles of CBR: It is a collaborative enterprise between academic researchers and the community Acknowledges multiple sources of knowledge and promotes the use of using different methods of knowledge produced. Research goal is for the purpose of social justice	Working for social and economic integrity.

Dodsworth et al., 2022 Patient outcomes in a Longitudinal Integrated Clerkship: A systematic literature review Medical Education (UK)	Explored the patient outcomes in a LIC program.	Systematic Review	26 studies reviewed	High	The study highlights that students showed care and compassion, patients felt more educated about their health and able to manage their health and felt a loss when students finished their placement. Students were a change agent in that they advocated for patient needs, helped patients navigate the health system, were able to foster robust discussion between healthcare professionals and patients.	<u>LICs support educational relationships</u>
Dubé et al., 2019 It takes a community to train a future physician: social support experienced by medical students during a community-engaged longitudinal integrated clerkship Canadian Medical Education (CAN)	To understand students' experiences (from a student's perspective) through their LIC.	Qualitative Study	12 medical students	High	The study highlights students received social support from various sources. This included preceptors (doctors), colleagues (other medical students), family, other health professionals (interprofessional collaborations) and members from the community. The continuity of clinical teachers helped develop relationships between mentors (drs, community). Students can feel lonely, discouraged from pursuing another medical pathway and at times see patient situations that were confronting however they were able to learn from the scenario.	<u>Different individuals (medical professionals, other students, healthcare professionals and local community) supported students through their LIC.</u>
Duffy et al., 2013 Processes and outcomes for a successful engagement between a medical school and a remote Indigenous community in North Queensland, Australia Rural and Remote Health (AUS)	Describes how JCU developed Community Engagement Protocols to ensure sustainable engagement with Indigenous populations.	Qualitative Study	13 Indigenous people participated in a group meeting with an Indigenous project officer.	High	Highlights how in 2010 JCU expanded its community engagement by creating an Indigenous Reference Group to create ongoing connections, improve the indigenous program for students and develop better engagement principles. Table developed on examples of good engagement under the headings, communication, activities, empowerment, sustainability, traditions, community, timeframes.	<u>Demonstrated how successful partnerships can be created and sustained through the process that allow Indigenous people to guide the process.</u>

Dussault et al., 2006 Not enough there, too many here: understanding geographical imbalances in the distribution of the health workforce Human resources for health (UK)	Aim to provide a better understanding of the factors that influence geographical distribution of health care and strategies to improve distribution.	Qualitative Review		High	Highlights that a well-balanced distribution of health infrastructure must have the same in health care professionals to be effective and impact of community's health. Both rich and poor countries remain to have this problem. Health care must be geographically accessible, affordable to the people needing care, culturally appropriate. Factors affecting geographical distribution, personal factors (age, female, family, career plans) gender difference, incentives, remuneration, workload, isolation, facilities, education and training, cultural environment (political, social, economic and historical factors to choosing a practice), gender balance.	Highlights health worldwide needs to be <u>accessible, affordable, and culturally appropriate</u>
Evans et al., 2019 Continuity in Undergraduate Medical Education: Mission Not Accomplished Journal of General Internal Medicine (US)	To summarise the current evidence for Longitudinal Integrated Clerkships in US.	Perspective		High	Outcome studies suggest that LICs add value to patient care. However, less than half of US medical schools have adopted them encouraging regulatory bodies to mandate continuity focused experiences for medical students. Identify the key benefits of patient centred care, enhanced student-patient centredness, recruitment into primary care, enhanced student, and preceptor relationship.	<u>LICs enhance student learning, responsibility, patient care and therefore need broader adoption.</u> <u>Systemic Barriers: space, faculty recruitment, reimbursement, hinder wider implementation, despite evidence of effectiveness.</u>

Farnsworth et al., 2012 Community-based distributive medical education: advantaging society Medical Education	Aim to highlight the benefits of community-based distributive education in addressing the physician shortage and distribution while recommending more research to improve policy and cost effectiveness.	Narrative review		Medium	Highlights the emergence of community based distributive medical education from the imbalance of medical workforce post population growth. The AAMC called for a 30% increase in medical school enrolments. This involved training students in community settings to address the population of the medically underserved. CBDME is a cost-effective way to meet community needs encouraging other universities to find resources to instigate this model. Recommends further research on incentives for doctors to work in underserved regions, cost effectiveness of CBDME and leadership in medical education.	CBDME is a cost-effective model to address physician shortage and the ability to meet community health needs.
Farmer and Kilpatrick 2009 Are rural health professionals also social entrepreneurs? Social Science and Medicine	To explore if rural health professionals in (Tasmania and Scotland) act as social entrepreneurs by creating community activities and networks that lead to social and health benefits.	Qualitative Study	38 participants	High	Rural health professionals engage in various community activities, both as part of their job and in their personal time, to produce social outcomes. They initiate activities like exercise classes, health clinics, and community centres, often driven by their professional insights and personal interests. The process involves recognising opportunities, gathering resources, and securing funding. They leverage their networks and community connections to support these initiatives, which contribute to overall community wellbeing and resilience. Examples – establishing cafes and services for homeless people to meet social needs	<u>Primary health keeps people healthy and happy in their communities by involving them in co-creating health and building social capital. Their efforts contribute to community development and resilience, that drives social change.</u>

Flexner, 1910 Medical education in the United States and Canada: a report to the Carnegie Foundation of the Advancement of Teaching, 1910 World Health Organization	Report on the state of medical education in USA and CAN.	Report		High	Abraham Flexner under the Carnegie Foundation assessed medical education in USA and Canada. Highlighted the need for better medical training, and the incorporation of more scientific principles, proper knowledge, attitude and technique in medical education. Further the closure of medical school of substandard. This report led to reforms including admission policies, education requirement, consolidation of medical schools	<u>Historical review of reform</u>
Ganapathy & Dongre, 2018 Process of developing of community based medical education programme curriculum in Puducherry, India Journal of clinical and diagnostic research (IND)	Aim to develop, implement and evaluate CBME programs to improve medical students' ability to connect health problems with social, economic and environmental conditions.	Qualitative Study	Individual and group interviews with students, tutors, and community members. 629 students.	High	A CBME program designed for villages served by Rural Health Training Centre in India. Students received briefings, supervision, had 20 hours of contact with families, completed assignments and developed communication skills, social responsibility and clinical skills. Tutors supervised students, gave feedback, participated in discussions and reflections to improve the program. Community members appreciated students' efforts and environmental awareness, participated in feedback and benefited from communication that improved health problems.	<u>CBME improved student learning and student-teacher interaction.</u> Exposure to the community allowed students to understand <u>health problems and relate them to the social and local environmental factors.</u> Continuous support and evaluation are required for the program to continue.

Garth et al., 2019 'Your head can literally be spinning': 'A qualitative study of general practice supervisors' professional identity' Australia Journal of General practice (AUS)	Aim to explore the experiences and perceptions of general practice supervisors to understand what contribution to the development of their professional identity as supervisors, using Wenger's "community of practice framework".	Qualitative Study	15 general practice supervisors with 2- 42 years' experience.	High	Four themes in identifying a supervisor's identity: felt a sense of belonging in the role, felt personal meaning in supervision, balancing supervisor and clinician role, learning specific skills. Relationships with learners, other supervisors, colleagues, is important in supporting their identity as supervisors	<u>Highlights four factors in developing supervisor identity. Learning supervisory skills, feeling a sense of belonging and meaning and balancing clinical and supervisor roles.</u>
Golden et al., 2018 Learning to be a doctor: Medical students' perception of their roles in longitudinal outpatient clerkships Patient Education and Counselling (USA)	Aim to understand how medical students perceive their roles in early longitudinal primary care clerkships.	Qualitative Study	Interviews with 35 medical students	High	Students perceived their role in various ways. One focused on teamwork and continuity, another on one-to-one access to preceptors. FSM offers two early experiences, a four-year team-based program (ECMH) focusing on patient continuity and teamwork, and a one-to-one preceptorship (IP) for the first two years followed by a four-week rotation in the third year. All students perceived themselves to have multiple roles. ECHM students identified more roles like mentor and care manager suggesting that the program's focus on continuity and teamwork supports student engagement and communication skills.	Highlights giving students meaningful clinical responsibility <u>helps them develop professionally</u> , with ECMH students feeling more integrated and having more advanced roles that enhances engagement and professional identity.

Granovetter, 1973 The Strength of Weak Ties American Journal of Psychology (USA)	Analyses how individual relationships affect the spread of influence, information, mobility opportunities, and community organisation.	Social Network Analysis		High	Highlights how individual experiences are influenced by larger social structures which are societal norms, economic conditions and cultural expectations. These factors influence our lives beyond personal control, indicating the significant impact of society on personal experiences.	<u>Highlights that our personal experiences are influenced by the society around us (social impact)</u> <u>Societal weak ties connections are still important for linking different societal groups together and facilitating broader social action.</u>
Greenhill et al., 2015 Towards an understanding of medical student resilience in longitudinal integrated clerkships BMC Medical Education	Aim to understand students' resilience during first year of clinical training in a rural LIC.	Qualitative Study	Interviews 19 students, staff and clinical teachers.	High	Discusses the challenges and stresses medical students undertaking LICs in clinical environments. Highlights resilience can be built through continuity of relationships (Safe Haven), (staying the course) getting through the syllabus, (journey within) students draw on and develop coping strategies to achieve their goal of being a doctor.	<u>Highlights the importance of supportive learning environments, self-awareness and the need for professional guidance in developing resilience and having a positive experience.</u>
Haffling & Hakansson, 2009 Patients consulting with students in general practice: survey of patients' satisfaction and their role in teaching Medical Education	Aim to investigate patient's attitudes to consultations by students prior to their GP and students' teaching role.	Qualitative Study	105 Students distributed 403 questionnaires to patients and 400 completed.	High	Highlights patient satisfaction with consultation by experienced medical students before seeing their GP. Generally, patients are happy with consultations by students, patients learn more about their conditions and health issues, their history was review thoroughly. Patients felt a sense of altruism in helping students' progress. Some patients were reluctant to see students about intimate examinations or emotional issues.	Highlight patient satisfaction from student-patient consultations.

Hari et al., 2018 Broadening the clinical spectrum for medical students towards primary care: a pre-post analysis of the effect of the implementation of a longitudinal clerkship in general practice BMC Medical Education	Aim to evaluate the impact of implementing a four-year longitudinal clerkship in general practice on final year students.	Quantitative Study	190 medical students completed the questionnaire	High	Highlights the new implemented curriculum with longer clerkship in general practice increased the number of primary care cases that medical students saw. Despite the reduced training time the new curriculum improved exposure to primary care. Overall, the new clerkship broadened the clinical experience of students, enhancing their education in primary care.	A new curriculum introduced four-year LIC in general practice. <u>The new approach allows students to encounter a wider range of clinical experiences in primary care.</u>
Hauer et al. 2009 Longitudinal, Integrated Clerkship Education: Better for Learners and Patient Academic Medicine	Aim to advocate for the implementation of Longitudinal Clerkships in medical education.	Commentary		Medium	Suggests that LIC is better for developing patient-centred doctors. LICs involve longer relationships with supervisors, patients and experiences with multi-disciplinary teams. Students receive consistent feedback which helps them develop a holistic and better understanding of health care.	Highlights that <u>LIC provides more meaningful and continuous learning experiences compared to the traditional block models.</u>
Hays, 2008 Evolving community-based medical education: Integrating undergraduate and postgraduate education Education for Primary Care	Aim to explore how medical education can adopt a shift from tertiary inpatient to community-based care.	Review		Medium	Highlights the evolution of community-based care and its impact on medical education. The shift from care delivered in a hospital to the community setting enhances patient care and medical education through more services being delivered outside hospitals. Hospitals are now for sicker patients and more patients are being cared for in the community. Medical students gain varied, hands-on experience and help deliver more integrated, efficient, and equitable healthcare by providing timely care closer to home and reducing unnecessary hospital stays.	<u>Learners interact with patients and supervisors, rich learning environment with much experience provided, full healthcare journey and more relevant to the medical curricula.</u> This mode of delivery requires planning and resources.

Henschen et al., 2015 Four-Year Educational and Patient Care Outcomes of a Team-Based Primary Care Longitudinal Clerkship Academic Medicine (USA)	Aim to evaluate the effectiveness of the Education-Centred Medical Home (ECMH) model in enhancing undergraduate primary care education.	Qualitative Study	Surveyed 137 out of 181 eligible medical students	High	The ECMH students reported higher satisfaction with their primary care training, more meaningful patient relationships, better patient care experiences and developed more rapport with patients compared to students undertaking the traditional curriculum.	Suggests that ECMH students can improve patient outcomes, such as chronic disease management and preventative care through LIC.
Hirsh et al., 2007 Continuity as an Organising Principle for Clinical Education Reform New England Journal of Medicine (USA)	Aim to advocate for reform in medical education to better align with the needs of the community.	Qualitative Study		High	Highlights the need to advocate for service learning into medical education to enhance students' commitment to patient care and improve their learning experience through continuity in care, curriculum and supervision. Highlights the need for interdisciplinary collaboration, experienced clinicians should have roles in teaching and supervision to avail feedback and mentorship to students. There are barriers of resource limitation, support for primary care clinics which will require leadership and innovation.	Advocates for a medical system that advocates <u>continuity in care, curriculum and clinical supervision to ultimately benefit student learning experience and the healthcare system.</u>
Howe, 2002 Twelve tips for community-based medical education Medical Teacher (UK)	Provide practical and political tips on community-based medical education.	Qualitative Study		High	12 guiding principles to learning in community-based learning. Holistic learning (whole person care), Community staff serve as role models, induct students into the community, understand and align the curriculum and ensure dedicated time for learning and teaching. Use relationships for mentoring, take assessment seriously, have resources and equipment, engage in own professional development, use community team for teaching, highlight the importance of community exposure and social responsibility.	<u>Provide 12 tips to support CBME for successful learning.</u>

Holzer et al. 2014 Why We Need Community Engagement in Medical Research Journal of Investigative Medicine (USA)	Aim to address mistrust in medical research among minority communities.	Qualitative Study	3 Case studies	High	Highlights the needs to engage communities in medical research which then reduces the power imbalance between the researchers and community. By involving community builds trust, encourages participation and ensures the research addresses the community's needs/issues. Resources are available to researchers to help implement effective community engagement.	Researchers need to <u>respect communities</u> <u>by acknowledging</u> <u>reasons for mistrust</u> <u>and addressing these</u> <u>concerns.</u> <u>Researchers need to</u> <u>consider the needs</u> <u>and interest of the</u> <u>community as</u> <u>partners to improve</u> <u>health outcomes.</u>
Hudson et al., 2010 Are patients willing participants in the new wave of community-based medical education in regional and rural Australia? The Medical Journal of Australia (AUS)	Aim to explore how patients in rural and regional areas feel about being part of medical education.	Qualitative Study	122 patients surveyed	High	Patients in rural-regional areas accept higher levels of student involvement in patient consultations than urban students. Reasons being rural workforce, positive attitude towards students in rural areas, and supportive training in the clinical sphere. <u>While these are positive results,</u> <u>this study should be undertaken in other</u> <u>rural and regional areas.</u>	Patients in rural regions saw themselves as part of the real context of healthcare.
Hudson et al., 2011 Engaging rural preceptors in new longitudinal community clerkships during workforce shortage: a qualitative study BMC Family Medicine (AUS)	Aim to determine why General Practitioners are engaged as clerkship preceptors.	Qualitative Study	Semi-structured interviews with 28 General Practice supervisors	High	GPs show a strong commitment to LICs despite workforce shortage, motivated by the values of LICs, many find the rewards as supervisors outweigh the challenges as they see benefits for community and practice. Note they need financial support. Patients are willing to participate in CBME.	GPs are committed to teaching and view LICs to address the <u>dearth of the medical</u> <u>workforce. The</u> <u>rewards of</u> <u>supervising outweigh</u> <u>the logistical</u> <u>challenges but need</u> <u>financial support and</u> <u>recognition.</u>

Hudson et al., 2017 Longitudinal integrated clerkships Medical Teacher	Explore the growing interest in LICs due to the positive outcomes for students, patients and supervisors.	Qualitative Study	Explored existing literature on LIC programs	High	LIC drive continuity and benefits to stakeholders (students, patients, supervisors). There are challenges in implementing and sustaining LICs including underinvestment in infrastructure, traditional culture, departmental boundaries and culture, lack of interdisciplinary model, content of educational and assessment strategies, recognition of the model of preceptorship and inflexibility from accreditation and regulatory bodies.	Study reviews existing evidence of <u>LICS</u> and give guidance on implementing or evaluating LICS.
Hughes et al., 2017 The relevance and role of homestays in medical education: a scoping study Medical Education	Aim to explore the role of homestays in providing immersive experience for medical students undertaking CBME.	A Scoping Study	Explored existing literature to identify gaps and benefits.	High	Homestays can provide an immersive experience for students. Existing studies suggest that homestays can enhance language learning, cultural immersion helps students build local relationships and enhance their cultural competency professional skills, better understanding of community health through immersive experiences however this all depends on the quality and level of engagement with host family.	<u>Homestays offer a unique and enriching experience for medical students, but more research needs to be completed to explore this approach.</u>
Iyer et al., 2005 Social Capital, economic growth and regional development. Regional Studies (UK)	Aim to evaluate the impact of social capital on economic growth and regional performance and analyse the determinants of social capital.	Qualitative Study		High	Social Capital is important for growth. Older individuals have more social capital through informal social interactions. Employment is a significant source of social capital it avails income and networks. Policy implication: investing in education can increase social capital, creating jobs, reducing poverty can improve civic engagement and networks, increasing home ownership enhances social capital, policies to build trust between different ethnic groups can build social capital.	<u>There are regional variations in social capital and a need to have public policies to foster its development.</u>

John and Brown 2022 The impact of longitudinal integrated clerkships on patient care: a qualitative systematic review Education for Primary Care (UK)	To examine the impact of Longitudinal Integrated Clerkships on patient care using quality of care measures.	A Systemic Review	Seven studies met inclusion criteria	High	Four themes identified. Advocacy with Health system – students acted as intermediaries, facilitating communication and coordinating patient care. Personalised medical care – students proved personalised care that met patients’ needs thru counselling and health education. Patients benefited from student companionship which fostered trust and emotional and social support, the therapeutic relationship led to patient being more compliant with medication and engaging with health services as required.	<u>Highlights that more study needs to be undertaken to understand the holistic impact of LICs on patient health.</u>
Kearney 2015 Challenges for Community Engagement: An Australian Perspective Educational Research for Social Change (AUS)	To explore and address the challenges of community engagement within the Australian higher education context.	Exploratory Case Study		Medium	Three main challenges are: limited appreciation of community engagement's value from all parties; mutual distrust between communities and engagement efforts; and insufficient support structures for sustained engagement, particularly regarding relationships, recognition, and reflection.	<u>Highlights the challenges, solutions for effective community engagement and insights for university leadership to integrate engagement into their mission and values.</u>
Kelly et al., 2014 Community-based medical education: Is success a result of meaningful personal learning experiences? Education for Health: Change in Learning and Practice (AUS)	Explore the characteristics and experiences within Community-Based Medical Education and Longitudinal Clerkships.	Qualitative Study		High	Suggest that CBME environment of CBME enhances learning through meaningful relationships and experiences. CBME immerses medical students in community settings, where they learn from primary care clinicians and follow patients through their care, enhancing their communication and clinical skills. LICs have been associated with outcomes such as students forming relationships and gaining experiences, which may influence their participation in primary care and rural training programs.	Emphasis on the social and professional context and relationships. <u>CBME provides an effective learning environment for medical students.</u>

Konkin and Suddards 2017 Students' experiences of role, relationships and learning in two clerkship models. Medical Education (CAN)	To understand the lived experience of medical students in Longitudinal Integrated Clerkships.	Qualitative Study	33 Students individually attended a reflective conversation.	High	Students discussed their experience moving from a LIC to a rotation-based clerkship (RBC). Students were challenged with larger, more complex environments that felt less integrated and more anonymous. Students felt uncertain, unclear in their role with less contact time with supervisors and patient care which led to a drop in motivation and engagement.	LIC students felt more like colleagues with responsibilities whereas with RBC students felt they left to their own learning. The transition from ICC to RBS was a challenge with a feeling of discomfort, role uncertainty and less motivation.
Latane 1981 The psychology of social impact The American Psychologist	Examine how individuals are influenced by others presence, actions or perceived behaviours.	Qualitative Study		High	<u>Social Impact refers to any change in an individual's emotion, thoughts or behaviours due to real, implied, or imagined presence or actions of others. Developed a theory to quantify how social forces shape people's behaviour.</u> The framework applies principles to describe changes in behaviour, emotions and psychological states caused by others present.	<u>Social Impact definition.</u>
Lee & Jung, 2018 Social Capital, Community Capacity, and Health The Health Care Manager (SK)	Aim to explore how social capital affects the capacity of individuals and communities to practice health behaviours.	Qualitative Study		High	Social capital plays an important role in enabling both individuals and communities to practice health behaviours by fostering trust, and cooperative relationships. Health behaviours are influenced by social circle; networks enhance communication and helps to resolve conflict and encourage mutual understanding.	<u>Highlights the significance of utilising social capital to enhance community capacity.</u>

Lewkonja 2001 The missions of medical schools: the pursuit of health in the service of society BMC Medical Education (USA)	Analyses mission statements from medical schools in the UK, US, Canada, Australia.	Qualitative Study		High	Discusses universal goals of medical schools. From the 15 th century “The pursuit of health in the service of society” Aberdeen SOM. Medical schools mission statements highlight education, knowledge advancement and service to the community but often lack outcome measures to the university impact. Using frameworks such as social accountability can enhance transparency and community expectations.	<u>Goals of medical education.</u> Emphasises that aligning medical education with societal needs and evaluation methods to demonstrate accountability.
Lovato et al 2009 Evaluating distributed medical education: What are the community's expectations? Medical Education (CAN)	Explore community members' perceptions of introducing an undergraduate medical education program affects the social, economic and development aspects of underserved communities.	Qualitative Study	8 interviews with key informants from health, education, business, community, media, politics.	High	Four key themes identified: Increased pride and status: The program enhanced the community's reputation and self-esteem. Partnership development: fostered collaboration among sectors and stakeholders. Community self-efficacy: empowered the community to believe in its ability to improve and grow. Community development: growth and progress were stimulated by the program.	<u>Beyond building a medical workforce, the program has built social capital and community cohesion.</u>
Mahoney and Yong., 2013 Patient participation in, and attitudes towards, community-based medical education Medical Teacher (AUS)	Explore patient attitudes toward involving medical students in private health care settings.	Qualitative Study	681 patients surveyed	Medium	Addresses the belief that private patients might be unwilling to accept medical students during their care. Findings 96% of patients agreed to having a medical student present during consultation. 46.7% expressed they enjoyed or would enjoy contributing to students' education. 72.1% agreed that medical students are acceptable in private and public healthcare settings (6.1% opposed). 32.8% said they would change their schedule to assist student learning.	Private health is not a barrier to clinical teaching; patients regard doctors willing to teach as significant. <u>The study challenges the assumption that private patients are less receptive to medical students.</u>

Mariam et al., 2014 Community-Based Education Programs in Africa: Faculty Experience Within the Medical Education Partnership Initiative (MEPI) Network Academic Medicine (AF)	Aim to review and evaluate the effectiveness of Community Based Education programs at Medical Education Partnership Initiative (MEPI) schools.	Qualitative Study	12 schools completed a questionnaire with open-ended questions	High	Students acquire professional skills (clinical, research, communication) in community settings. It provides contextual, hands-on learning, addressing workforce scarcity while preparing students for local healthcare challenges. It promotes equity in healthcare by training professionals to work in underserved, especially rural communities. <u>Key challenges include staff shortages, inadequate infrastructure, limited student engagement, planning, faculty development, technology integration, and curriculum enhancement. Need evaluation frameworks to strengthen CBE programs.</u>	The success of CBE relies on overcoming the resource challenges and adopting innovations to support healthcare training in more primary care settings.
Maley et al., 2009 Using rural and remote settings in the undergraduate medical curriculum: AMEE Guide 47 Medical Teacher	Explore how Rural and Remote Medical Education programs be designed and implemented to effectively address community-specific needs, overcome barriers and workforce retention in underserved areas.	Qualitative Study		High	Discusses different programs and preparatory steps, stakeholder engagement, formal agreement, budgets, program logistics, staff development, placements, multidisciplinary activities, general practice placement. Frameworks for contracts, evaluations, how to integrate programs, facilities for students.	<u>Sustainability includes collaboration, integrating clinical teaching, and using local resources for student learning, especially to non-urban centres.</u>

Mazotti et al., 2019 Diffusion of innovation and longitudinal integrated clerkships: Results of the clerkship directors in internal medicine annual survey Medical Teacher (USA)	Aim to evaluate and understand the growth and purpose of Longitudinal Integrated Clerkships in U.S. medical schools.	Mixed Methods Study	Survey electronically circulated to 123 US medical schools. 94 responses	High	Highlights: 37% of schools surveyed already had LICs lasting six months or more. Nearly half of medical schools planned to implement or expand LICs. Study identified reasons for implementation included, educational continuity, interprofessional education, workforce shortages and continuity of care.	The expanding implementation of LICs reflects their value in medical education. <u>LICs improve academic outcomes, patient centeredness, faculty satisfaction and patient support and align with contemporary medical education reforms.</u>
McElhinney & Bartlett, 2021 Disrupting the consultation: students empowering patients in a longitudinal clerkship Education for Primary Care (UK)	The aim is to investigate the experiences of patients who interacted with Longitudinal Integrated Clerkship students within the health system in Scotland.	Qualitative Study	Interview with 5 patients	Medium	How LICs influence patients' healthcare experience. Two themes to emerge students altered the structure of the consultation process through either seeing the patient first or being part of the consultation with the doctor challenging the traditional healthcare experience.	<u>Patients were seen as a person not a medical condition by students, students empowered patients by providing dialogue with doctors and contributed to patient education.</u>
McGrail and O'Sullivan., 2021 Increasing doctors working in specific rural regions through selection from and training in the same region: national evidence from Australia Human Resource Health (AUS)	To explore whether doctors working in a specific region also entered medicine from that/or trained in the same region.	Quantitative Study	Surveyed 6,6627 doctors	High	Growing your own may be a key workforce strategy. National scale evidence supporting selecting and training students in specific areas is more effective for the workforce than other rural training approaches. Longer region-specific training enhances retention.	Those selected from a specific region and having > 1-year rural training are related to 17.4 times the increased chance of working in the same rural region compared with < 12-week rural training and metropolitan origin.

McLean et al., 2010 A multi-university evaluation of the rural clinical school experience of Australian medical students Rural and Remote Health (AUS)	Aim to evaluate the experiences of student who attended a RCS across six universities in Australia.	Quantitative Study	125 Students completed a survey (75%)	High	Students were asked what they liked about their experience. 24% said excellent clinical teaching and hands on learning, 20% appreciated the exposure to patients, 10% valued independence and teamwork, although some students needed more support, 13% said the best part was lifestyle and friendships formed. Students also praised the medical supervisors through their respectfulness, teachings, balancing work and teaching their clinical skills.	Overall RCS environment was conducive to learning and developing clinical skills.
Mennin & Mennin, 2006 Community-based medical education The Clinical Teacher (NA)	To understand the aim of Community-Based Medical Education.	Descriptive Review		High	The aim of CBME is to provide medical education that directly addresses community health needs by integrating students, education, and community members into a learning environment. It aims to prepare future doctors with skills, knowledge and attitudes necessary to work in both community and hospital settings with emphasis on primary care. Advantages of access to diverse patients, practice skills, continuity of care, exposure to determinants of health, teachers who support student learning.	<u>CBME uses the community as a learning environment, giving students hands on experience to social, cultural and health issues.</u>
Mlambo et al., 2018 Transformation of medical education through Decentralised Training Platforms: a scoping review Rural and Remote Health (SA)	To examine decentralised training platforms strategies in medical education.	Qualitative Study		High	<u>Emphasises the need to adapt medical training for rural context to achieve medical students to support primary health care and community-based services.</u> Four strategies: rural workforce training in the community addressing local health needs, community engagement, leadership development and partnerships between universities and stakeholders to sustain models.	Advocates for DTP for enhancing medical education. Effective in rural contexts. Building partnerships between academic institutions and communities is crucial for their success.

Mylopoulos et al., 2020 Same but Different: Exploring Mechanisms of Learning in a Longitudinal Integrated Clerkship Academic Medicine (CAN)	Understand why Longitudinal Integrated Clerkships work.	Qualitative Study	32 Students Interviewed	High	How learning happens within LICS and traditional block models. Both contribute to critical learning outcomes. For LICs and traditional block courses the study found that both help students learn in similar ways. Instead of focusing on which model is better, the study highlights the importance of understanding how these learning processes work in both approaches. By examining these mechanisms, the study suggests we can better support student learning in clinical education.	While both groups developed these skills through longitudinal variable practice and continuity in relationships with preceptors and patients, LIC students benefited from formal curricular structures supporting these experiences, block students relied on informal, serendipitous opportunities. The findings underscore the importance of planned exposure and structured relationships in enhancing clinical learning across clerkship models.
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Newbronner et al., 2017 Creating better doctors: Exploring the value of learning medicine in primary care. Education for Primary Care (UK)	Explore the impact of primary care based undergraduate medical education on the development of medical students and new doctors as clinicians, and on students' preparedness for practice.	Mixed Methods Study	Individual and focus groups interviews 102 Final year students 27 Year 2 graduated doctors 1 First year GP trainee	High	Most students valued the mix of hospital and primary care placements with effective learning environments, hands on experience, supportive tutors, curriculum alignment and valued student-tutor relationships. Primary care offers diverse patients, supporting students to develop diagnostic and management skills with tutor feedback.	Students found primary care placements important for their development, particularly in clinical reasoning, decision-making, and patient management. <u>The study suggests that longer placements with mentor continuity enhance learning outcomes.</u>
Nestel et al., 2014 Community perceptions of a rural medical school: a pilot qualitative study Advances in Medical Education & Practice (AUS)	Explore local community perceptions of a new rural medical school.	Qualitative Study	12 interviews with community members	Medium	Members of the community are unaware of the intended engagement from the medical school. Participants wanted activities integrated into the community. Student led clinics, raising profile on mental health, students immersing themselves in community and vice versa.	<u>Highlights that community members would like to be involved in medical school community activities.</u>
Nimegeer et al., 2011 Addressing the problem of rural community engagement in healthcare service design Health and Place	Explore the challenges of rural community engagement with health service providers.	Qualitative Study	4 community groups and one service provider group	Medium	Highlights that rural health service changes are often contentious, with some communities opposing providers, while others engage positively through innovative methods like game simulations to create effective service models. A key finding is that community engagement is built on trust and ongoing commitment, and the reluctance to change often lies more with service providers' barriers like regulations and lack of persistence than with communities themselves.	<u>For successful co-production of rural health services, policies and research must focus on fostering collaboration between service managers and communities, treating the latter as equal, capable partners.</u>

Norris et al., 2009 Longitudinal integrated clerkships for medical students: an innovation adopted by medical schools in Australia, Canada, South Africa, and the United States Academic Medicine (USA)	To gather insights from medical schools using LICs their experiences to inform future implementation.	Quantitative Study	Sixteen schools in four countries on three continents responded to the survey	High	Most LICs are elective experiences lasting a median of 40 weeks with core content in medicine, surgery, paediatrics, and obstetrics-gynaecology, primarily in rural or ambulatory settings. Findings were positive feedback from students and faculty highlighting improved readiness for graduation and focus on patient-centred care without any difference in exam scores compared to traditional clerkships.	Highlights – <u>careful site selection, good faculty development and planning, ongoing evaluation. Outcomes studies are needed on the impact on community, learners, patients, educators and universities to support the idea of LICs.</u>
O'Doherty et al., 2022 Development and sustainment of professional relationships within longitudinal integrated clerkships in general practice (LICs): a narrative review Irish Journal of Medical Science (UK)	Review the literature pertaining to relationships in LICs, specifically to understand how they come about and how they affect learning.	Narrative Review		High	LICs articulate meaningful relationships patient, student, teacher and are central to learning and success of LICs. Relationships with peers, academic facilities, and supporting staff contribute to the functioning of a LIC.	<u>Key factors for success trust, mentorship, continuity, collaboration, feedback that supports learning, professional identity and patient centred care while addressing workforce retention and community engagement.</u>

O'Sullivan et al., 2018 A review of characteristics and outcomes of Australia's undergraduate medical education rural immersion programs Human Resources for Health (AUS)	Aims to describe the characteristics and outcomes of the rural immersion programs implemented in Australian medical schools.	Qualitative Study		High	The duration of immersion programs varied between 1 and 6 years, with longer immersion associated with higher rural work uptake, particularly among students with rural backgrounds. However, the evidence is largely based on cross-sectional studies and single-institution data with methodological limitations, such as small sample sizes and inadequate controls. While rural immersion programs are relatively linked to increased rural workforce supply, further long-term research is needed to strengthen national policies and optimise program designs.	Suggests <u>rural background students and longer immersion programs for metro background students enhance effectiveness of rural practice for graduates.</u>
Oswald et al., 2001 Evaluating primary care as a base for medical education: the report of the Cambridge Community-based Clinical Course Medical Education (UK)	Analyse the experiences, outcomes and challenges of the Cambridge Community-Based Clinical course.	Mixed Methods Study	12 students	High	Outcomes and challenges of the Cambridge Community-Based Clinical Course (CCBCC), a small-scale, innovative medical education program emphasising continuity, community-based learning, and learner-centred approaches. Reveals students performed well academically, developed professional skills and valued reflective and patient-centred learning. Challenges high costs, limited scalability, and resistance to non-traditional approaches.	<u>The study underscores the importance of long-term attachments to primary care teams in enhancing medical education but calls for further exploration of primary care's potential in shaping undergraduate medical training.</u>

Omotara et al., 2004 Assessment of the impact of community-based medical education of the University of Maiduguri on communities in three local government areas of Borno State, Nigeria: Community leaders' perspectives Education for Health (NG)	Evaluate the University of Maiduguri Medical Colleges community-based training program, which was expanded to three rural; local government areas.	Qualitative Study	Focus groups 16 community leaders from various villages	Medium	Community leaders noted the positive impact on community health. Final year students spend 8 weeks annually in underserved rural areas. Initially community reluctance then shifted to acceptance with the outcomes of empowering locals to form health cooperatives and preventative health practices.	<u>Successful collaboration between university and community resulted in wanting to expand the program to other areas.</u>
Pagatpatan et al., 2020 Teaching the affective domain in community-based medical education: A scoping review Medical Teacher	Explore how a medical education program teaches social skills in CBME programs.	Scoping Review	22 References Included	High	Highlights strategies for supporting social skills in CBME. These include reflection of experiences with learning objectives, practicing skills in the community build confidence and social responsibility, observing and working with role models fosters professionalism, community engagement highlights the community health needs.	<u>Developing social skills through CBME.</u>
Pink-Harper & Duong, 2017 Social Capital, Civic Engagement, and Economics in a Transitioning Economy: The Case of Vietnam Provinces International journal of public administration (USA)	Determine the impact of social capital has on economic growth.	Cross-Sectional quantitative Study		Medium	The study suggests that social capital plays a role, other factors like education and employment status are important for civic engagement. Challenges such as government control and reliance on informal networks complicate measuring social capital's impact. Further research is needed to explore how social capital influences economic growth, focusing on quality over quantity of associations, additional measures of economic performance.	<u>Social capital has a role in economic development, but the more significant influence is educational attainment and employment.</u>

Poncelet et al., 2014 Creating a longitudinal integrated clerkship with mutual benefits for an academic medical centre and a community health system The Permanente Journal (USA)	To integrate medical education with community health needs through sustainable partnerships between academic institutions and community health systems.	Quantitative, Comparative Observational study LICs students versus Traditional Clerkships	16 students	Medium	LIC is a clinical education model grounded in theories of social cognitive theory, situated learning, and workplace learning. Its foundation is continuity among students, patients, clinicians, and care systems. LICs align with primary care principles of patient-centred care, systems-based practice and develop partnerships between academic medical centres and community health systems for mutual benefit. LIC students excelled in clinical performance and internal medicine exams due to extended patient interaction and preceptor continuity.	Despite challenges of high costs and coordination efforts, the model is a sustainable approach to medical education fitted to future healthcare needs.
Preston et al., 2016 Building blocks for social accountability: A conceptual framework to guide medical schools BMC Medical Education	Present a framework to guide medical schools towards greater social accountability.	Qualitative Study	75 semi-structured interviews	High	Framework developed a practical guide for socially accountable practice at different levels, policy, schools, individuals. Three levels Environmental factors (macro): Factors outside the medical school, such as local and national health needs, workforce demands, and government policies. School factors (meso): Internal elements of medical schools, such as leadership, faculty, students, and policies. Community participation, rural placements, and links with underserved communities. People factors (micro): Individuals' experiences, such as professional backgrounds and connections to health systems, are essential for shaping socially accountable practices.	All levels are shared values in social accountability as a foundation.

Prideaux et al., 2007 Symbiosis: a new model of clinical education The Clinical Teacher (AUS)	Present concepts of a symbiotic curriculum.	Conference Paper		High	Effective clinical education relies on four key relationships: personal-professional, clinician-patient, university-health service, and government-community. At the center of these relationships are medical students, whose learning depends on mutual benefits and partnerships among all stakeholders.	<u>Limited exposure to patients in acute care setting.</u> This model emphasises mutual benefits between medical schools and health services, where both teaching institutions and healthcare systems gain from their collaboration.
Putnam, 2004 Bowling Alone Organisation for Economic Cooperation and Development: The OECD Observer	What is social capital?	Interview	Dr Putnam	High	Social capital refers to social networks and the associated norms of reciprocity. Social networks have value. Network can be positive or have negative impacts depending on their effects on society. Bonding social capital is the links between people who are similar. Bridging social capital refers to connections between people or groups that cut across social divides such as ethnicity, class, religion, or political affiliation. These networks foster inclusivity, enabling diverse individuals to collaborate and exchange ideas.	<u>Social networks can be a powerful asset, both for individuals and communities.</u>

Ramsey et al., 2001 From Concept to Culture: The WWAMI Program at the University of Washington School of Medicine Academic Medicine (USA)	To understand how and why the WWAMI program succeeded in addressing rural health shortages.	Qualitative Study		High	WWAMI program aimed to combat <u>dearth of doctors in rural and underserved regions</u> of USA. (Washington, Wyoming, Alaska, Montana). Shifted clinical teaching from hospitals to communities ensuring same medical education in rural and urban areas. Built partnerships with faculty, government, medical societies. Provided students with a seamless and interconnected path of education, training and support for healthcare professionals at all stages of their career.	Program success due to <u>visionary leadership, collaboration, and pioneering approach to regional medical education. Supporting healthcare, the continuum approach strengthens the pipeline of qualified medical providers in underserved areas and ensures long-term sustainability.</u>
Reeves et al. 2020 Increasing interest of students from under-represented groups in medicine-A systematised review The Australian Journal of Rural Health (AUS)	Describe the activities medical schools undertake to encourage underrepresented populations to apply to medical school.	Systematic Review	25 articles	High	There are few formally documented programs focused on improving access to medical school for students from under-represented groups although they exist but are not documented. Programs documented include short initiatives to raise awareness to others that include long term support through helping student meet academic requirements e.g. Rural Health Leaders Program.	Community engagement <u>initiates a pipeline to support under-represented students in medicine, emphasising the need for better evaluation of programs that guide students towards health careers and entry requirements.</u>

Robinson et al. 2017 Medical school outreach and mentorship for rural secondary school students: a pilot of the Southwestern Ontario Medical Mentorship Program The Canadian Journal of Rural Medicine (CAN)	The aim to evaluate the effectiveness of the Southwestern Ontario Medical Mentorship Program (SWOMMP) in increasing interest in medical careers among rural high school students.	Mixed Methods Study	45 students participated in a pre and post session survey		Strategies for addressing doctor shortages in rural Canada. Interactive sessions for rural high school students introducing medical careers with hands on workshops, led by medical students. Two sessions in small towns of less than 20,000. Results: after the session students' interest increase (58 to 71%). Less concern was finance and length of schooling. 64% enrolled in the mentorship program.	<u>Demonstrate how mentorship and outreach can increase interest in health careers.</u>
Somporn et al. 2018 Expectations of rural community-based medical education: a case study from Thailand.	Aim to explore stakeholders' expectations and concerns regarding the Southern Thai rural community-based medical education initiative.	Qualitative Case Study	21 semi-structured interviews participants included students, educators, policymakers, healthcare professionals and community	High	This study sort to understand perspectives across the relationship axes. By listening to stakeholders, the study wanted to ensure the program fits the local needs and is successful in keeping doctors. Three themes: A significant shift in Thai medical education. Seeing rural practice as a viable career path. Collaborating to improve education and healthcare in rural services.	<u>Highlights the importance of community engagement and government support to maintain Thai RCBME program to improve health services, and education.</u>
Shortall, 2008 Are rural development programmes socially inclusive? Social inclusion, civic engagement, participation, and social capital: Exploring the differences Journal of Rural Studies	Aim to clarify key concepts in rural development policy – social inclusion, civic engagement, social capital and participation.	Qualitative Case Study		Medium	Highlights social inclusion, civic engagement, social capital and participation. All have distinct meanings but are used interchangeably. Social inclusion = people being able to participate in political and social structures, which helps maintain stability in society. Civic engagement = activities done not for profit, but as individually or as a group, for social or political purposes. Social capital = networks of trust and cooperation created through civic engagement. Participation is key to the concepts.	<u>Definitions of social capital, social inclusion, civic engagement.</u>

Spier, M. 2017	Understand the five principles of social impact.	Presentation		Medium	Creating opportunities for marginalised groups, fostering positive change, and promoting equity through her “5 Principles of Social Impact”. Five principles – create opportunities focus on empowering marginalised groups by providing access to resources such as education, employment, or essential services, fostering equity and growth. Strategize with precision - Develop clear, actionable plans with defined objectives and measurable outcomes to ensure impactful and sustainable efforts. Foster Passion - Drive change through commitment, inspiring collective efforts and sustaining momentum. Adopt an Entrepreneurial Mindset - use creativity, resilience, and innovation to deal with challenges and solutions for achieving social goals. Be Purposeful in Actions - Align every action with the mission and values to create meaningful outcomes for communities.	Five principles to guide <u>individuals and organisations in building social impact initiatives</u> .
Stagg & Rosenthal, 2012 Why community members want to participate in the selection of students into medical school Rural and Remote Health (AUS)	Aim to understand what motivates community members to participate in the selection of medical students, how they feel about their participation, and their perceptions of who are the beneficiaries of their involvement.	Qualitative Study	Interview with 12 community members	High	Five themes: why community members want to be involved in student selection. Professional growth, personal growth, present the community, protecting student and public interest, personal investment in shaping future workforce.	Emphasises the value of <u>community engagement in student selection</u> .

Strasser et al., 2009 Canada's new medical school: The northern Ontario school of medicine: Social accountability through distributed community engaged learning Academic Medicine (CAN)	Aim to address the doctor shortage in Northern Ontario by training local students.	Descriptive Case Study		High	In 2001 the Northern Ontario government established a school of medicine to address the shortage of doctors. Using a rural distributed community-based education model and recruiting students from rural and remote and Aboriginal backgrounds. Unified community groups, organisations, universities, hospitals, health services, healthcare providers to collaborate aligning with its social accountability mandate.	<u>The school delivers education programs through Distributed Community Engaged Learning (DCEL), embedding students in community settings to better understand and meet regional healthcare needs.</u>
Strasser 2010 Community engagement: a key to successful rural clinical education Rural and Remote Health (AUS)	To evaluate the role of rural clinical education, particularly through the Northern Ontario School of Medicine Distributed Community Engaged Learning Model.	Qualitative Study		High	Challenges in Community Engagement: Universities can foster meaningful partnerships with diverse communities by empowering them to contribute to medical education, ensuring coordination through steering committees, maintaining continuous interaction, and ultimately enhancing the supply of healthcare professionals attuned to community needs.	<u>Community engagement integrated in rural education strengthens medical training and benefits the community.</u>

Strasser et al., 2015 Putting communities in the driver's seat: The realities of community-engaged medical education Academic Medicine	Explore the concept of "community" in medical education, focusing on community-engaged medical education.	Conceptual Analysis		High	CEME offers advantages but presents challenges. Building relationships with host communities varies across rural and urban settings, requiring understanding of local cultural, geographic, and social contexts. Effective CEME involves meaningful partnerships, regular dialogue, and adaptability to diverse community needs. It emphasises collaboration, where communities are treated as co-decision-makers. However, resistance to change is common among institutions accustomed to traditional norms, as seen in Flinders, NOSM, and ADZU SOM. Challenges include cultural shifts, gaining national accreditation, and overcoming institutional pushbacks.	<u>Describes CEME as a framework that involves community participation to improve medical education, meet community needs and health equity.</u>
Strasser and Hirsh 2011 Longitudinal integrated clerkships: Transforming medical education worldwide? Medical Education	To explore the development. Implementation and impact of LICs with their advantages to students, educators and community.	Conceptual Analysis		High	LICs model is a contrast to traditional block rotations. Have been successful in recruiting doctors to underserved areas and changing medical education. Advantages: evaluation seen as fairer, accurate and reflective of student performance. Doctor-student relationships promote connections, supporting learning and satisfaction for educators. Community placements align with the need for training venue. LICs recognised as transformative aligning with medical education reform to avail continuity, accountability and innovation.	Highlights LICs as a tool for improving medical education, advancing humanistic practices, community engagement, and addressing workforce shortages. It also advocates for further research to realise their full potential in transforming medical education.

Szreter & Woolcock 2004 Health by association? Social capital, social theory, and the political economy of public health International Journal of Epidemiology (UK)	Understand the role of social capital in public health.	Qualitative Study		High	Examine the role of social capital in public health and its relevance for policy and theoretical development. A framework is required that distinguishes between bonding, bridging, and linking social capital. Framework - bonding=close connections, bridging=broader, inclusive networks, linking=relationships are important to societal well-being. A balance of this framework promotes population health.	<u>Political, moral and historical contexts often determine if social capital will/will not enhance health outcomes.</u>
Talib et al., 2017 Medical education in decentralized settings: How medical students contribute to health care in 10 sub- Saharan African countries Academic Medicine (AFR)	Assess the impact of decentralised training and contribution of undergraduate medical students at health facilities.	Mixed Methods Study	61 interviews from 21 different sites	High	Impact of students on clinical sites in sub-Saharan. Students assist with clinical care reducing medical workload and improved patient experience. Staff appreciate working with students as it motivates them to engage in academic discussions, conduct research, and stay updated on medical advancements. Hosting students leads to staff recruitment, improved health services. Struggle with IT and space and consumable.	The study demonstrates <u>that students can improve both training environment and healthcare delivery in low resource settings.</u>
Teeters and Jurow 2018 Generating Equity- Oriented Partnerships: A Framework for Reflection and Practice Journal of Community Engagement and Scholarship	The aim is to offer a tool for formative evaluation that guides researchers through their collaborations.	Qualitative Study		High	Framework: Establishing Partnerships: Developing Trust: Working with language difference, Outcomes and sustainability. Sharing results and impacts effectively.	Framework for trust.

Thach et al., 2018 Cultivating Country Doctors: Preparing Learner for Community and Leadership Family Medicine	Identity strategies that training programs can adapt to prepare doctors for rural practice.	Qualitative Study	20 interviews	Medium	Build Connections to Rural Life: Medical schools can create groups where students interested in rural healthcare can meet and build a sense of belonging. Teach Skills for Rural Practice: During residency training, programs can focus on teaching how to manage medical practice and lead community health efforts, which are important for working in rural settings.	The goal is to support <u>doctors who feel more connected to rural communities to succeed.</u>
Thistlethwaite et al., 2007 Moving more of the medical school curriculum into the community Clinical Teacher	Advocate for shifting medical education into the community setting.	Conference Presentation		Medium	GP is ideal for student training. Chronic disease is primarily managed outside hospitals; health promotion and disease prevention occur in community settings. Community placements provide exposure to patients' environments, family, and social support systems.	<u>Emphasizes the need to adapt curricula to use community-based services to train future medical workforce.</u>
Toomey et al., 2011 Impact of a regional distributed medical education program on an underserved community: perceptions of community leaders Academic Medicine (USA)	To explore community leaders' perceptions of the impact of a distributed undergraduate medical education program in a small medically underserved community.	Qualitative Study	23 Semi structured interviews with community members	High	Explored the impact of Northern Medical Program on its host community over 3 years. Findings: education increased the ambition of local Aboriginal students to pursue medical careers, more interest in health sciences, admission processes adapted to include more rural students, growth in doctors improved healthcare access and population health, challenges with hospital resources and increased work for supervisors, economic and cultural development.	<u>Highlights the importance of distributed medical education programs in promoting community development and addressing healthcare professional shortages, particularly in rural, remote, and underserved regions.</u>

Vujcich et al. 2020 "[It's] more than just medicine": The value and sustainability of mandatory, non-clinical, short-term rural placements in a Western Australian medical school Medical Teacher (AUS)	Aim to investigate whether the program: (1) encouraged medical graduates to seek rural employment. (2) enhanced their ability to meet rural people's health needs; and (3) was sustainable.	Qualitative Study	28 students and 15 community hosts participants Semi structured interviews	High	Programs influenced students' interest in rural medicine through placements in rural areas. Placements highlighted the environmental and social diversity and the challenges for rural patients. It enhanced student empathy for rural patients, improved student communication, deeper understanding of rural health, and cultural sensitivity. Further fostered networks through shared experiences.	Study demonstrates that <u>short mandatory rural placements support rural career interest, helps inform career choices and enhances personal development</u> . Overall students developed an understanding of rural health.
Walters, Stagg et al. 2011 Community Engagement by two Australian Rural Clinical Schools Australasian Journal of University-Community Engagement. (AUS)	Aim to understand students, stakeholders and University views of community engagement.	Qualitative Study	58 participants via focus group and semi-structured interviews	High	Five levels of community connections – personal relationships, individual formal, collective structured engagement, strategic regional partnerships, and policy level engagement plus connectedness and leadership.	<u>Study provides a model of community engagement.</u>
Walters et al. 2011 Demonstrating the value of longitudinal integrated placements to general practice preceptors Medical Education (AUS)	To understand why GPs, teach, focus on how supervisory relationships in rural settings shape students, patient care, and preceptors' professional identities.	Qualitative Study	41 individual semi-structured interviews	High	Highlights the importance of the doctor–student relationship in precepting, which exceeds intellectual stimulation or recognition. Over time, students transition from passive observers to active participants, fostering mutual learning and enhanced patient care. Precepting also changes GPs, affirming their roles as clinical educators challenging the notion that financial incentives drive recruitment and retention.	Year-long placements help <u>doctor–student relationships grow, allowing students to take real clinical roles and GPs to strengthen their community and professional identity.</u>

Walters et al., 2012 Outcomes of longitudinal integrated clinical placements for students, clinicians and society Medical Education (AUS)	Aims to summarise current evidence regarding the outcomes of LICs for students, clinicians and community stakeholders.	Qualitative Study	58 articles reviewed	High	LICs help students develop advanced clinical, ethical, and patient-center skills, including better communication, empathy, and confidence in managing uncertainty. Continuity in supervision fosters learning, while practical experience prepares students for patient care and strengthens their sense of teamwork. LICs reduce time pressure, placements cost-neutral over time, positively influence student choices to rural practice. Academic outcomes are comparable to block rotations while developing patient centred skills, clinical ethics and interprofessional teamwork.	Seen as a pedagogical evolution in medical education <u>balancing scientific and empathetic approach to health care.</u>
Wilkins & Alberti, 2019 Shifting Academic Health Centers from a Culture of Community Service to Community Engagement and Integration Medical Education (USA)	To promote community engagement by academic centres to improve health outcomes and address inequities through collaborative partnerships.	Narrative Literature Review		High	Community engagement means working with communities to solve problems together, sharing knowledge and resources. Academic Health Centre's use this approach to improve health, address social issues, and make education and research more impactful for the community. Requires leadership, commitment, infrastructure, partnerships to sustain initiatives.	<u>Successfully community engagement supports integration, improves healthcare, research and a healthier community.</u>
Woodhouse, 2006 Social capital and economic development in regional Australia: A case study Journal of Rural Studies (AUS)	Understand if social capital support economic development?	Qualitative Case Study		High	Social capital enhances economic development through trust and cooperation. Societies with strong social capital foster collaboration, reduce opportunism, and support higher-risk, innovative economic activities. Suggest that both bonding and bridging social capital are important for successful community economic development outcomes.	<u>Suggest high levels of both social capital and economic development are associated with each other.</u>

Woolcock, 2001 The place of social capital in understanding social and economic outcomes Theory and Society (NL)	Explore how historical, institutional, social capital, influence societal outcomes of economic growth, equitable development, and governance.	Qualitative Study		High	Societal outcomes, economic growth and development, are shaped by historical and institutional factors. Social capital plays a key role in promoting fair growth, good governance, and teamwork across fields, making it a useful tool for tackling economic and social challenges.	<u>Highlight the importance of interdisciplinary collaboration and social relationships in shaping sustainable progress and addressing global challenges.</u>
Worley 2000 Why we should teach undergraduate medical students in rural communities Medical Journal of Australia (AUS)	Review evidence supporting rural placements as a long-term workforce strategy.	Literature Review		Medium	Enabling students to learn for extended periods in rural communities' universities can address the medical workforce.	<u>Promotes undergraduate training in rural communities to address the workforce and a way medical schools can address their responsibility to the health needs of their community.</u>
Worley, 2002 Relationships: a new way to analyse community-based medical education? (Part 1) Education for Health (AUS)	Aim to establish a framework for ensuring quality in community-based medical education.	Qualitative Review		High	Using Daniel Federman's on the quality and role of a good doctor highlights 4 axes doctor-patient, bench-bedside, and individual. These axes likely refer to fundamental aspects of medical education and practice that contribute to shaping competent and compassionate medical professionals. Through the proposed "four Rs" model, highlight the critical relationships—clinical, social, institutional, and interpersonal—that are essential for effective learning in CBME, and to articulate why this educational model is particularly attractive and impactful.	<u>Immersing students in these relationships is key to a good CBME environment.</u>

Worley et al., 2016 A typology of longitudinal integrated clerkships Medical Education (AUS)	The aim is to establish a baseline reference typology of LICs to provide further research into LIC processes and outcomes.	Mixed Methods Study	Data collected from 54 LIC programs completed a survey	High	Three typological clusters identified: Comprehensive LICs, Blended LICs, and LIC-like Amalgamative Clerkships. Variations were observed in program duration, student numbers, healthcare settings, and supervision types, with rural programs often supervised by general practitioners and urban ones by subspecialists.	<u>Highlights the vital role of medical education in society and the need to connect learning methods with clinical care and healthcare system improvements.</u>
Yeoh et al., 2022 Impact of clinical placement sites on general practice as a career preference for Australian medical students Australian Journal of Rural Health (AUS)	To investigate whether General Practice placement experiences/locations influence medical students' interest in pursuing a career in general practice.	Quantitative Study	520 medical students participated in an online survey.		The study reveals that the location of general practice (GP) placements (urban or rural) has little impact if medical students choose to pursue general practice as a career. Instead, the quality of students' placement experiences correlates with interest in becoming GPs. High-quality, hands-on, and engaging placements, supportive and knowledgeable supervisors, positively influence career intentions. Parallel consulting and procedural experiences are particularly valued by students.	<u>The findings suggest that enhancing the quality of GP placements through immersive, hands-on learning opportunities could help attract more students to general practice. Improving the quality of GP placements across all settings, rather than focusing solely on location, is key to enhancing student competence.</u>

Zipin et al. 2015 Educating for Futures in Marginalised Regions: A sociological framework for rethinking and researching aspirations Family Medicine (AUS)	Develop a framework for understanding the aspirations of young people in low socioeconomic regions.	Qualitative Study		High	Addresses how conditions, globalisation, and lived experiences shape aspirations and explore ways to foster aspirations through school- and community-based research and conversation. To understand aspirations, it needs to consider the social and cultural influences on students' perceptions. Rural students encounter structural barriers like fewer resources, limited educational opportunities, and economic uncertainties, which can decrease their ability to envision viable futures. The three modes of aspiration are doxic, habituated and emergent.	<u>Efforts for rural students should prioritise expanding access to education, mentorship, and community-driven initiatives while incorporating rural-specific placements to inspire aspirations and balance hope with realistic opportunities.</u>
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2.3 The Evolution of Medical Education Delivery

Globally, the primary objective of medical schools is to train highly skilled, competent doctors who are capable of managing the challenges of providing health care and adapting to changes throughout their careers (Lewkonja, 2001). The medical education model after World War II was heavily oriented towards specialist training at large hospitals in urban areas and did not educate doctors to practice in non-urban or rural communities (Maley et al., 2009). However, there has been an international shift away from hospital-based medical training to more learning in primary care settings (Crotty, 2005; Hays, 2008; Maley et al., 2009; Mariam et al., 2014; Oswald et al., 2001).

The uneven distribution of the medical workforce worldwide, has prompted various policies and programs to address this issue and meet the growing health needs of communities (Dussault et al. 2006; Australian Parliament, 2012). To address this issue, medical schools have instituted education programs that allow medical students to experience primary care placements in the community (Bartlett & Muir, 2018; Department of Health and Aged Care, 2024-e)

In Australia, the establishment of the Rural Clinical School (RCS) program, as discussed in Chapter 1, is an initiative funded by the Australian Government to support medical student learning in the community and address the existing workforce misdistribution (Department of Health and Aged Care, 2024-e). Similarly, Canada, the USA, South Africa and the Philippines have developed medical schools that aim to address the shortages of healthcare workers, particularly in primary care, and the inequities of healthcare for underserved urban and rural communities in their countries (Mariam et al., 2014; Ramsey et al., 2001). The fundamental goal of these initiatives is for students to gain experience and insight into rural health and pursue a rural career (McLean et al., 2010; Mlambo et al., 2018).

In summary, medical schools globally are increasingly integrating primary care settings alongside traditional hospital-based training to address the uneven distribution of the medical workforce and encourage students to practice in underserved areas.

2.4 The Limitations of Conventional Medical Learning Opportunities

Since the early twentieth century, most medical education has occurred in acute-care hospitals in large cities (Flexner, 1910). As healthcare in the twenty-first century has transitioned into the community sector, being undertaken in primary healthcare centres (GP clinics, hospital outpatient clinics and home-based care), medical schools have also begun to move medical education and curriculum delivery out into the community. Traditionally, medical students were taught in tertiary teaching hospitals that had associations with medical schools; here, teaching took place under the supervision of a senior clinician (Ash et al., 2012).

However, the teaching of medical students in tertiary hospitals has recently come under strain, influencing medical schools to broaden their placements from the tertiary hospital setting into the community, where there are more patients, whereas hospital care is predominately for specialised services (Ash et al., 2012; Worley et al., 2000). Changes in healthcare service delivery and funding for inpatient care have meant that tertiary hospitals predominantly care for very sick patients who require more complex, specialist care or same-day treatments (Ash et al., 2012; Hays, 2008). Patient care has become more sophisticated, the length of patient stays in hospital has shortened, and non-acute services, such as rehabilitation, are now delivered in community clinics (Thistlethwaite et al., 2007).

Moreover, very sick patients often do not want to be seen by medical students or have them take part in their care. There are also a limited number of procedures that a student can undertake in specialised medicine in tertiary centres, and this has contributed to problems of limited clinical exposure and learning for students in tertiary hospitals (Prideaux et al., 2007).

The delivery of health care in primary care rather than inpatient settings, such as outpatient services ('hospital in the home'), means that patients can stay in their homes while receiving shared care from visiting hospital staff and their local GP (Cubitt & Lim., 2025).

Further, with the increase in chronic health conditions, there is a greater emphasis on health promotion and person-centred care delivered in the primary care sector (Australian Institute of Health and Welfare, 2023a). Medical schools are seeking further clinical placements and are delivering their curricula in the primary care setting. The shortage of appropriate student medical training and supervision in tertiary hospitals and its high cost, paired with a shift to more care in the primary care sector and an undersupply and maldistribution of doctors, has led this transition. These changes in healthcare delivery have resulted in universities rethinking medical education delivery and establishing a typology of community-based medical programs in underserved rural and urban settings (Farnsworth et al., 2012).

In summary, since the twentieth century, medical education has primarily taken place in acute-care hospital in large cities (Flexner, 1910). Medical education has transitioned from acute-care hospitals to primary healthcare settings, including GP clinics, outpatient clinics, and home-based care (Ash et al., 2012). This shift addresses the limited hospital training opportunities and focuses on community-based education programs (Ash et al., 2012). It aims to increase medical services in underserved urban and rural areas, help address doctor shortages, promote patient-centred care, and improve chronic health management (Australian Institute of Health and Welfare, 2023a; Southey & Heydon, 2014). Enhancing healthcare access may reduce social disparities in these regions. Section 2.5 critically discusses Community Based Medical Education including Longitudinal Integrated Clerkships.

2.5 Community-Based Medical Education and Longitudinal Integrated Clerkships

In Australia the primary objective of university medical programs and Rural Clinical Schools is to educate students within the university system, ensuring there are sufficient healthcare professionals to meet the community's health needs (Department of Health and Aged Care, 2024-e., KBC 2020). The second mission is to conduct research to advance knowledge and health the health disparities that exist today (KBC, 2020). Encouraging lifelong learning, technology transfer, and engaging with the community are key to promoting social, cultural and economic development, is the third mission (KBC, 2020). These objectives aim to improve healthcare for all Australians while promoting education and research through the education system.

Primary health care represents the initial contact individuals or patients have with the health system, offering prevention, management of common illnesses, health education, and chronic disease care. In contrast, rural healthcare focusses on the delivery and accessibility of these services within remote areas facing specific access, workforce availability and infrastructure issues. CBME, students are placed in rural or urban communities for extended periods with additional opportunities for learning, including in the primary care setting. CBME involves community engagement where students, teachers, community members and other members of the community collaborate to provide medical education that meets the community's health needs (Mennin & Mennin, 2006). Students engage with people from diverse social, cultural and ethnic backgrounds, addressing their health needs with a combination of clinical skills, knowledge and disposition, while also meeting the health needs of the community (Kaufman et al., 1989; Mennin & Mennin, 2006). Somporn et al. (2018) describes an example of a rural CBME program in Thailand as a model where medical students undertake most of their learning activities and clinical placements within a rural health context. Here, members of the community, healthcare professionals, clinical teachers

and local government aim to produce community-oriented doctors who will stay and practice in the community.

An example of a CBME program that has developed globally over the past 20 years is longitudinal integrated clerkships (LICs) (Kelly et al., 2014; Worley et al., 2016). LICs represent an innovative model of clinical medical education that supports the educational principles of continuity of care, continuity of relationships and continuity of education (Hirsh et al., 2007). As described by Brown et al. (2019), LICs provide teaching and learning outside a tertiary hospital, often in general practices and smaller hospitals. Hudson et al. (2017) have concluded that continuity drives learning outcomes for students, patients, supervisors and other healthcare providers. LIC programs have evolved in response to workforce shortages, an increased number of medical students requiring clinical placement and the methods of teaching in the traditional tertiary block rotations and disciplinary silos (Bartlett & Muir, 2018; Mylopoulos et al., 2020). Mounting evidence of a lack of patient-centredness, poor skills acquisition, poor access to undiagnosed patients and fragmented medical care has motivated a change in the approach to clinical medical education (Hirsh et al., 2012).

The longitudinal clinical placement allows students to integrated curriculum disciplines through holistic patient care (Consortium of Longitudinal Integrated Clerkships, n.d.; Norris et al., 2009; Poncelet et al., 2014; Silagy et al., 2016). Poncelet et al. (2014) describes the theoretical underpinnings of an LIC program that aims to achieve these core goals. The first is situated learning, in which students acquire clinical skills by being present in the clinical environment, watching and constructing new knowledge. The second aspect involves situated learning, whereby students' knowledge and skill acquisition are promoted through observations of other clinicians in their clinical setting and modelling of these behaviours.

The LIC model of medical education is different to traditional six- to eight-week block discipline rotations, which limit patient and supervisor continuity and constrain educational development. It also highlights students' improved readiness for graduation, and their focus on patient-centred care (Norris et al., 2009). Hauer et al. (2009) report that students in the traditional block model can suffer from a lack of feedback and undertake tasks often of low educational value when working alongside junior doctors. Crotty (2005) argues that continuity of care is hard to achieve in a tertiary hospital, as students only see part of the patient journey. A study by Konkin and Suddards (2017) investigated the experiences of medical students transitioning from an LIC program to a three-to six-week tertiary hospital block rotation. The students described the move from a comfortable and supportive learning environment in the LIC program to a larger, more complex and sometimes turbulent tertiary setting. After the transition, the students reported feeling less connected to a team and having less involvement in patient care. Further, they had limited contact with their physician teachers. The results illustrate the importance of supporting medical students during this workplace transition. Changes in clinical placement models can significantly affect student learning (Konkin & Suddards, 2017). A study undertaken in Victoria, by Caygill et al. (2017) compared rural hospital block rotations with a rural LIC program and reported that LIC students felt more competent with their clinical skills and felt more equipped for an internship as a result of the repetition of fundamental medicine and access to more patients, compared with their colleagues undertaking a rural block rotation. Although this was a small study with 12 participants, it adds to the literature comparing rural block clinical placements with LICs in a rural setting and supports previous studies that report that continuity of care and supervision are influential learning tools.

Longitudinal Programs Globally

There is a steady stream of LIC programs being established globally, particularly in the USA, Canada, Australia, South Africa and, more recently, the United Kingdom (UK). The Consortium of Longitudinal Integrated Clerkships (n.d.) lists 111 LIC programs in 11 countries. Worley et al. (2016) reported that LIC programs worldwide more than doubled in five years, suggesting rapid diffusion of the LIC model. No single LIC model fits all contexts; rather, medical schools should adapt an LIC model that fits with their philosophy, mission and context. As described by Mazotti et al. (2019) and Beattie et al. (2022), the design of the LIC model can be changed to fit the environmental setting (rural or urban), supervisor and facility availability, administration and financial constraints.

Strasser and Hirsh (2011) report that the first LIC program was developed in the USA in 1971 as a rural workforce incentive for the Rural Physician Associate through the University of Minnesota. Medical schools in Australia, Canada, the USA, South Africa, the UK, New Zealand and, more recently, Japan and other Asian countries offer a variety of LIC programs with differing clerkship designs in rural and urban settings (Mylopoulos et al., 2020). There is debate about the optimal length of time for a LIC (Worley et al., 2016). A comprehensive LIC comprises a 38- to -52-week full academic year that covers the different curriculum disciplines in a general practice or acute care setting (Hauer et al., 2009; Norris et al., 2009; Worley et al., 2016). Students undertaking the PRCC program learn the speciality disciplines in general practice, are exposed to more clinical activity and experience more time with their supervisors. The studies described here provide insight into the variety of LIC programs, present some considerations for LIC models and emphasise the importance of collaborative medical education research that can produce evidence supporting LICs on a wider scale. Both LICs and CBME aim to improve medical education through holistic learning but differ in setting and goals. Integrating LICs into CBME enhances students'

understanding of patient care continuity, social determinants of health, and community health issues, fostering competent and compassionate healthcare professionals.

LIC programs have expanded globally, adjusting to the requirements of rural and urban areas. Australian university medical programs and Rural Medical Schools are responsible for training an adequate healthcare workforce to address national health needs. Community-Based Medical Education (CBME) contributes by placing students in rural or urban communities for clinical placements, focusing on collaborative learning and responsiveness to local health concerns. LIC programs have expanded worldwide and are now part of Community-Based Medical Education. This integration helps students learn holistic care and community health, preparing them to be empathetic, ready-to-practice doctors.

This research examines the social and economic impacts of a medical school providing short- and long-term placements in a rural area (MM4-7). The next section critically analyses the literature on the social and some economic effects of a CBME program, or LIC program on its students, clinical supervisors, staff and the community.

2.6 The Social Impact of Community-Based Medical Education programs including Longitudinal Integrated Clerkships: with insights into economic considerations

This section examines the social impact of a medical school on stakeholders (medical students, supervisors, community) within the context of medical programs, community based medical education (CBME), and LICs. In this study, social impact is defined as the positive or negative effects an individual's and/or organisation's activities, projects, or policies have on society and its people (Granovetter, 1973; Latane, 1981; Becker, 2001). This includes the implications of organisational actions on community well-being, economic conditions, and overall quality of life (Granovetter, 1973; Latane, 1981). Understanding social impact is

important because as one aspect of society thrives it can lead to improvements in other areas, fostering positive change. Social impact can create opportunities that are otherwise unavailable to the minorities or underprivileged groups, providing access to further education, gender equality and work, which in turn promotes economic growth (Spier, 2021). Identifying the social impact of a medical school highlights how it can improve health outcomes and justify government funding. This literature review does not address how to measure social impact but rather discusses the social impact of a university, medical school, and RCSs on its surrounding region and stakeholders. It also examines the economic impacts and the various methods for measuring the economic impacts of universities, medical schools and RCSs.

Economic impact refers to the effect of an event, policy, or project on the economy of a specific area. This includes changes in employment, income, and production of goods and services, often assessing the direct, indirect, and induced effects of the economic activity. Economic capital refers to the resources available to a community, such as income, employment, and investments, which support projects, local businesses, and economic stability (Cocklin and Alston, 2003).

2.6.1 Workforce Maldistribution and Healthcare Access in Australia

People in rural and remote areas of Australia have challenges accessing healthcare due to geographic isolation, poor infrastructure, higher living costs, access and limited public transport (AIHW, 2023b). Further, Australians in remote areas have higher rates of preventable hospitalisation than those in cities (very remote: 58.6, remote: 38.6, major city: 21.5 per 1000 people) (AIHW, 2023b). Due to the tyranny of distance, 44,930 rural Australians have no access to primary healthcare within one hour's drive from their home resulting in two-three times higher preventable hospitalisations in remote and very remote regions (AIHW, 2023; NRHA, n.d)

Factors that influence medical students to take up rural employment include having a rural origin, a positive educational and clinical experience during a rural placement and appropriate postgraduate training pathways and academic teaching and research opportunities (Greenhill et al., 2015; Maley et al., 2009; O’Sullivan et al., 2018; Strasser, 2016). A study by Campbell et al. (2019) found that medical students in Australia who undertook a year-long clinical attachment with further placement in a rural community were more likely to work in a small rural community after graduation than students who had only undertaken a one-year placement. A national cross-sectional study by McGrail and O’Sullivan (2021) supported a ‘grow your own’ (pp. 1–9) strategy, indicating that it may be preferable to select medical students from underserved rural areas and provide them with extended training (more than one year) in the same region to address local medical workforce shortages.

Australia's health system has a skilled workforce delivering quality care however, geographic disparities in service distribution create healthcare gaps that affect care and provider conditions (Australian Government, 2021; World Health Organization, 2021). Addressing these inequities is important. Community Based Medical Education (CBME), and Longitudinal Integrated Clerkships (LICs) contribute to more equitable and sustainable healthcare system by addressing workforce maldistribution as discussed above and improving healthcare access in rural areas. A study by Beattie et al. (2024) found that medical students at Deakin University, Australia who combined rural LIC with traditional block rotations were more likely to work in rural areas after graduation compared to those who only did traditional block rotations. The study emphasise that diverse rural training and a supportive environment are essential for developing a medical rural workforce, fostering community-connected learning. The study proposes "flipping" training models, placing students primarily in rural areas with occasional training in metropolitan centres. This approach would allow more medical students to participate in rural placements, addressing the current issue of limited

placement availability. However, there are challenges of adequate medical supervisors in rural areas and developing ways to expand placements to allow more students to undertake rural training (Beattie et al., 2024).

In summary, rural Australians have challenges accessing healthcare due to geographic isolation, limited transport, and reduced infrastructure (AIHW, 2023). These barriers lead to higher rates of preventable hospitalisations, poorer health outcomes, and greater health inequities, including more disease, injury, and mortality (AIHW, 2024). Inadequate healthcare increases cost and reduces workforce productivity, worsening economic disadvantage in rural regions (RFDS, 2023). Increasing the number of LIC students who train in rural areas can improve workforce outcomes and address healthcare access and distribution issues (Beattie et al., 2024).

2.6.2 Student Impact

Many studies discuss the benefits of CBME programs, including LICs, through the provision of authentic clinical learning opportunities. Fewer studies discuss the barriers and problems that students may encounter when undertaking an LIC program or transitioning from an LIC back to a block rotation. Even fewer studies discuss the impact that an LIC program has on students after they have graduated and are working in the clinical environment. As discussed above, medical students in the general practice setting have access to a broad range of patients and health issues, allowing them to be more independently involved with patient care and appreciate how patients manage their illness in their own social context. (Bartlett et al., 2019; Kelly et al., 2014). This setting provides authentic clinical learning opportunities, enabling students to engage in patient care and develop a richer understanding of the complexities of healthcare in the community.

Walters et al. (2012) report that students develop a sense of responsibility for their patients through the continuity of care which enhances their roles as members of the healthcare team. Golden et al. (2018) studied 35 medical students from two longitudinal primary care clerkships with differing times, supervision arrangements and continuity of patient care and described how the students perceived their roles. Students with greater continuity of interactions with patients in a familiar team felt that they contributed more to patient care and saw themselves as authentic members of the healthcare team. They also developed closer ties with team members compared with students experiencing short rotations (Bartlett et al., 2019; Burgis-Kasthala et al., 2018). Seeing patients over a longer period allows medical students to understand the biomedical and psychosocial contexts of their patients, facilitates a sense of responsibility for patients and contributes to more meaningful patient care (Asgarova et al., 2017; Brown et al., 2022; Poncelet et al., 2014).

Bartlett et al. (2018) explored students' perceptions of how learning occurred in LIC programs and identified four themes that supported medical student learning: (a) the feeling of acceptance in the primary care setting by the healthcare team, (b) the opportunity for more hands-on learning experiences, (c) the positive relationships developed between supervisors and other healthcare workers and (d) more confidence through taking on more responsibility. Newbronner et al. (2017) reported that the continuity of working alongside their supervisor in parallel consulting³ and sharing patient care allowed students to work more independently, gain greater confidence and begin to adopt a more doctor-like role. Hauer et al. (2009) report that block rotations can be of low educational value because students spend time predominantly with junior doctors, not physicians. In a well-designed and successful rural LIC program, relationships form between students, general practice supervisors and patients

³ Parallel consulting is a model in which students see patients in parallel with their supervisor. The supervisor joins the student after they complete their consultation so the student can present their findings (history, examination, thoughts on management) and the supervisor then concludes the consultation.

and serve effective learning (O'Doherty et al., 2022). The feeling of connectedness helps retain and increase the number of students participating in a rural medical program (Carrigan et al., 2023).

A study by Yeoh et al. (2022) reported that medical students who had a positive GP placement experience in either an urban or rural context were more likely to want to become a GP after graduation. This result shows that less emphasis should be placed on where a student undertakes a placement, with more emphasis on improving the student's clinical and learning experience; both rural and urban general practice and primary care settings are influential sites for clinical teaching and learning for medical students. Primary care and general practice are pivotal settings in which students have greater opportunities to learn and gain more exposure to clinical cases from various social and cultural backgrounds compared with a traditional block rotation (Hari et al., 2018; Mennin & Petroni-Mennin, 2006).

A scoping review by Pagatpatan et al. (2020) found that CBME programs, can improve student attitudes and perceptions and their understanding of working in the community, marginalised populations, working relationships and social determinates of health; this occurs through reflection. Further, supervisors should support this reflective learning process, which builds student confidence and social responsibility, understand the local social determinants of health including access barriers to healthcare by facilitating observation and engagement with role models (Pagatpatan et al., 2020). LIC involvement for extended periods in a primary care setting in small multidisciplinary groups with greater opportunity for practical, hands-on experiential learning supports student learning in small rural communities (Condon et al., 2017; Howe, 2002; Mlambo et al., 2018). This approach to medical education can provide medical students with experience in communities with underserved healthcare needs, allowing them to develop more compassion and better

communication skills and a greater ability to work in these communities (Hughes et al., 2017).

In summary, CBME and LIC programs provide medical students with authentic patient care experiences, enhancing their clinical skills whilst developing an understanding of the challenges of accessing health care including the social determinants of health (Bartlett et al., 2019; Kelly et al., 2014). By consulting different patients and conditions, students learn illness management and develop a sense of responsibility and connectedness, improving patient care and strengthening healthcare teams (Walter et al., 2013; Golden., 2018). However, challenges with transitioning between LICs and block rotations, and ensuring adequate medical supervision in rural areas needs to be addressed to benefit these programs (Hauer et al., 2009; O'Doherty et al., 2022; Pagatan et., 2020). Economically, CBME including LIC programs address workforce shortages by encouraging graduates to work in rural areas, supporting local healthcare and stimulating the economy through local spending of goods and services (Bartlet et al., 2018; Newbronner et al., 2017).

2.6.3 Supervising Clinicians

The social impact of LICs and CBME programs extends to supervising clinicians and their communities. The literature review revealed much research on the impact of LIC placements has focused on learning benefits for students. The aim was to examine the benefits and challenges faced by general practitioners when supervising medical students undertaking both longitudinal and short-term placements. A few studies also report the social and economic impact for supervising clinicians and the community in which they work. Hudson et al. (2011) found that GPs engaged in LIC programs as supervisors were conscious of their succession planning; and actively recruited the next generation of workforce to support their communities where they practised. Supervisors often become more reflective about their practice and improve their clinical knowledge and teaching skills, find their professional life

more meaningful, and experience improved morale in the clinical setting (Connolly et al., 2014; Cuncic et al., 2018; Hudson et al., 2011; Walters et al., 2012). However, Walters, Prideaux et al. (2011) caution that it takes time for the doctor–student relationship to mature. This was supported by Garth et al. (2019) highlighting those developing skills in time management, giving feedback, and discussing supervision experiences with colleagues took time. Supervisors reported feeling valued by registrars however faced challenges in balancing their clinical roles, increased workload, and time pressures. Personal friendships often develop through relationships built over time and the sharing of patient experiences, which can be emotionally difficult (Cuncic et al., 2018). However, GP workloads can be reduced when students take on more patient care and facilitate ancillary care, and GPs become more attracted to academic engagement and more willing to undertake research activities (Poncelet et al., 2014).

There are barriers for general practice clinics to support LIC programs. These include the financial burden of having students present, the need for extra space in the clinic for a student to consult in parallel, the time demands of supervising students, a lack of information about clinician responsibilities and the need to attend university faculty meetings (Blitz et al., 2018; Evans et al., 2019). Despite these challenges, Couper and Worley (2010) noted that the status of a rural GP practices improved when they engaged in LICs, becoming more attractive and respected. Doctors and staff members took pride in being a part of the academic community and contributing to the training of future doctors. Together, the studies provide a background for understanding the factors that maintain relationships between rural preceptors and programs.

The literature review on the impact CBME and LICs programs on supervisors highlights the benefits and challenges for supervising clinicians and the impact on GP practices. Supervisors have become more reflective, improving their clinical knowledge and

teaching skills and find their professional career more meaningful (Blitz et al., 2018; Connolly et al., 2013; Cuncic et al., 2018; Hudson et al., 2011; Walters et al., 2012). Further, supervisors engaged with LIC programs are aware of succession planning and the need to create a workforce for the community in which they practice (Hudson et al., 2011). However, there are some challenges in balancing their own clinical responsibilities, increased workloads within time constraints (Belitz et al., 2018; Evans et al., 2019; Couper & Worley, 2010). Despite these challenges, engaging in a LIC program improves the status of GP practices making them more respected with staff and associate doctors taking pride in contributing to the training of future generations of doctors and to support the healthcare for the community.

2.6.4 Patient Consultations with Medical Students

Limited literature addresses the perceived patient benefits from student consultations or why patients agree to student consultations. Mahoney and Yong (2013), surveying 681 patients attending private health care, revealed that 96% of the patients had allowed or were willing to allow students to be involved in their health care. Almost half of these patients wanted to contribute to the student's learning. Up-to-date knowledge of disease processes, empowerment in managing their own health care and companionship through listening have been reported as benefits that patients perceive through patient-student relationships (Beard et al., 2020; Evans et al., 2019; Hudson et al., 2012; McElhinney & Bartlett, 2021; Poncelet et al., 2014). Before the General Practitioner joined the consultation, students had time to speak with the patient about their health concerns. This allowed for a more detailed discussion of the patient's condition and enhanced the patient's health knowledge (Haffling & Hakansson, 2008). Patients appreciate more time to discuss their health problems and be thoroughly reviewed by the student with the GP present. Students reported roles as patient health coaches, improved patient chronic disease management, greater health literacy and knowledge of communicable and non-communicable diseases (Ganapathy & Dongre, 2018; Henschen et

al., 2015; Omotara et al., 2004). A systematic review by Dodsworth et al. (2022) explored patient experiences with medical students undertaking an LIC and concluded that students provide care, compassion, advocacy and education and that patients feel a sense of loss when the student moves to another placement. However, an alternate view from John and Brown (2022) argue that there was a lack of empirical evidence for the benefits patients receive from students undertaking an LIC program. After a review of seven studies, John and Brown (2022) identified four themes (patient literacy, counselling and health education, emotional support and social support) relating to how students undertaking a LIC program can affect patients' health processes. Even so, there are some cases where the patient preferred to see only the GP because of concerns about lack of privacy and student inexperience; these included mental health issues and consent to an intimate examination (Haffling & Hakansson, 2009).

Some literature (Dubé et al., 2019; Hudson et al., 2010) suggests that rural communities view supporting students as their responsibility to ensure that students have a positive learning experience in the hope that they may return to the region to work. A study by Vujcich et al. (2020) on the impact that a short rural rotation has on early-year medical students revealed that communities demonstrate considerable social capital in building relationships with students to support the rural program. Further, students gained greater insight into the complex health challenges rural patients face, including the difficulties in accessing healthy foods and travelling long distances for health care. The communities believed that supporting the program would inspire the community's younger population to take up healthcare careers in a hope that this may improve the healthcare workforce. Collectively, the studies described here outline perceived benefits and patient perceptions or expectations from a community-based medical program supporting LICs, ranging from

interactions with a CBME program to the critical role that patients and communities play in supporting student learning.

In summary, the positive social impacts of student consultations in healthcare include improved patient health knowledge, empowerment in managing their own health, and companionship through listening (Beard et al., 2020; Evan et al., 2019; Hudson et al., 2012; McElhinney & Barlett, 2021; Poncelet et al., 2014). Patients appreciate contributing to student learning, the increased time to discuss their health problems and the thorough reviews conducted by students with the GP present. Additionally, students acting as health coaches can improve chronic disease management and health literacy (Ganapathy & Dongre, 2018; Henschen et al., 2015; Omotara et al., 2004). However, there are alternate patient views from patients who may feel uncomfortable discussing personal issues or undergoing intimate examinations with students present, leading to concerns about privacy and student inexperience (Haffling & Hakansson, 2009; Hudson et al., 2010). Overall, the community support to students facilitates the development of social capital by enhancing students' understanding of health challenges faced by rural populations, and supporting community health (Vujcich et al., 2020; Dodsworth et al., 2022; John & Brown, 2022).

2.7 Community Engagement and Development

2.7.1 Community Engagement

Community engagement through connectivity is fundamental for community-based medical education (Carrigan et al., 2024). It forms the foundation of trust, relationships and collaborations, develops a continual genuine mutual commitment between a university and community (Nimegeer et al., 2011). These underpinnings, enable medical schools and universities to become more involved with their local communities enriching teaching and learning, enhancing curricula and research and supporting better health outcomes for the community (Strasser et al., 2009; Wilkins & Alberti, 2019).

There is a growing emphasis on universities to engage with local communities and for community engagement to be a core activity to generate mutually beneficial social, cultural and economic developments rather than an extraneous activity (Andrew et al., 2008). Flinders University recognised in its Engagement and Impact Strategy publication “Our active engagement with business, industry, government and the community is central to our mission to improve lives and to address the needs of society. Effective communication and productive partnerships will expand our capacity to address the significant economic, scientific and social challenges of our age.” It is important to note that, as a condition of funding under the RHMT program, Australian medical schools have a mandate to engage with the local community and stakeholders to support students’ experiences and training (Department of Health and Aged Care, 2024e). The Organisation for Economic Co-operation and Development (OECD, 2007) emphasises that successful engagement between a university and its community requires a range of stakeholders to be part of the steering committee with leadership from the community.

Moreover, leadership that favours a community engagement approach can be identified in institutional mission statements and strategic plans to promote, value and implement engagement, as noted by Kearney (2015). Community engagement involves a collaborative bidirectional relationship between the university and the community (Wilkins & Alberti, 2019), with interactions that benefit both the community and the university. Wilkins and Alberti (2019) and Teeters and Jurow (2018) argue that for reciprocity, university–community relationships must be built on mutual respect, trust and cultural humility. Kearney (2015) identifies three challenges for community engagement. First, university and community leaders must perceive community–university partnerships as vital to the success of educational programs. Second, communities must perceive programs as mutually beneficial. Third, positive partnerships must be sustained through authentic relationships,

public recognition of partnership achievements and reflections on the learning experiences to steer future activities. Examples of reciprocity between a university and its community can be found at Ateneo de Zamboanga University in the Philippines, where medical students continue a community health project across their four-year medical program; in Canada, where the NOSM involves a wide range of community members in selecting students, participating in student learning and supporting placements; and at James Cook University in Australia, which established an Indigenous Reference Group in a remote area to develop a set of engagement strategies to guide successful community partnerships (Duffy et al., 2013; Preston et al., 2016; Strasser et al., 2015). These examples demonstrate collaborative engaged activities with mutual social and economic benefits for universities and their local communities.

2.7.2 Collaborative Partnerships and Building Trust

The empowerment of a community to become a genuine contributor and the involvement of all stakeholders in school activities comprise key aspects of community engagement (Strasser et al., 2009). Butterfoss (2006) argues that an empowered community will take responsibility for its own health and social issues through participation, leadership and links to other individuals and organisations. Studies have indicated that community members view student-led clinics and community involvement in medical education as beneficial for health outcomes and enabling personal and professional growth among community members (Nestel et al., 2014). Nestel et al. (2014), explored local communities' perceptions and expectations around the establishment of a new medical school and opportunities for students. This study of 12 participants revealed that student-led clinics addressed community health issues, students immersed themselves in the community and community members contributed to student learning. Stagg and Rosenthal (2012) added to the literature about reciprocity with a small study exploring why community members were

motivated to be part of student selection for medical school. This study revealed a sense of personal and professional growth in the selection committee, along with a sense of contributing to the support and shaping of the region's workforce, as factors influencing participation. When community members provide their time, the university benefits financially and politically. Strasser (2010) argues that through interdependent partnerships, communities can be actively involved, help to improve the supply of healthcare workers who are responsive to the health and cultural needs of the community, increase access to rural health care and support local research.

Walters, Stagg et al. (2011) explored the views of stakeholders from two RCS sites about community engagement and reported that personal relationships developed between students and the community through clinical placements and those students shared their interests and expertise with the community. Community members linked students with the community, served as standardised patients for exams, supported students, and advocated for the RCS at various government levels. Strasser (2010) further proposed that community engagement is important but suggested that universities need to engage on a regular basis if they wish to be successful in providing a workforce responsive to a community's sociocultural needs, enhancing professional cooperation and stimulating health research grounded in the local community context.

Collaborative partnerships are fundamental for the establishment and continuation of CBME programs. Corbin and Mittelmark (2008) describe partnerships as collaborative working relationships where more is achieved when the partners work together. This engagement builds a sense of ownership and involvement among community members and helps to strengthen relationships between medical students and the community. Moreover, CBME contribute to the development of skilled healthcare workers as some students return to

the area to practice. Effective solutions can be achieved when the skills, resources and knowledge of the partners are shared (Corbin et al., 2018).

Brown et al. (2019) argue that for the successful implementation of a CBME program, stakeholders, including clinical supervisors, health services and community members involved with student learning and activities, need to be thoughtfully engaged and supported to provide medical students with positive clinical experiences and learning. This is important because engaging in and building relationships within the community builds a sense of community ownership of the students' learning and supports students in becoming part of the workforce (Thach et al., 2018). Program delivery and clinical attachments at rural medical school sites would not be possible without the support and willingness of the healthcare providers and clinicians within the region.

As Worley (2002 pp. 129-136) states, 'relationships do matter'; medicine cannot be learned in isolation. The interconnected relationships between teacher and learner, clinician and patient, health service and university and the government and community, along with the values and professional expectations associated with these, are important for a successful community-based medical program (Worley, 2002). Further, Worley (2000), argues moving medical education out of the tertiary hospital setting into the community requires strong leadership and adequate resources, including staff, facilities and information technology. These partnerships and relationships provide crucial benefits for all stakeholders involved in a CBME program. Moreover, building relationships within the community enhances social capital leading to a more cohesive and supportive community. CBME programs also stimulate the local economy by creating employment and increasing the demand for local services from the influx of students, staff and the medical school. Despite the challenges, the benefits of CBME and LIC programs stimulate local economies by contributing to the health workforce, creating employment and increasing the demand for local services, ultimately improving the healthcare for communities.

In summary community engagement and collaborative partnerships empower local communities to address the health and social issues through participation and leadership (Strasser et al., 2009; Butterfoss, 2006). Student led clinics and community involvement enhance health outcomes and enable growth among community members (Nestel et al; Stagg & Rosenthal, 2012). These partnerships support more healthcare workers, access to healthcare and facilitate local research (Strasser, 2010). Effective partnerships build ownership among community members, strengthen relationships, and enable the development of more skilled workers in the region (Corbin & Mittelmark, 2008; Barile et al., 2012). Thoughtful stakeholder engagement is important to achieve positive learning and experience (Brown et al., 2019). Further, relationships play an important role in the effectiveness of Community-Based Medical Education programs by building social capital and stimulating local economies, which in turn improves healthcare for communities (Worley, 2002).

2.7.3 Community Engagement and Social Capital

Small university campuses are complex and often play numerous roles in the community. As described by Charles (2016), universities provide a source of human capital, knowledge creation and social capital. Positive connections and relationships with their community are vital for the function of a university or a medical school. Social capital has been described as a form of value that allows groups to work together to achieve common goals (Coleman, 1990). The large volume of social science literature with many disputed meanings (Lee & Jung, 2018; Shortall, 2008; Szreter & Woolcock, 2004; Woodhouse, 2006) complicates a clear definition of social capital. Putnam (2000) describes social capital as the collective value arising from connections among individuals and social networks and the norms of reciprocity and trustworthiness that arise from these relationships. That is, social capital resides in relationships and the benefits derived from them. Putnam argues that social capital can have dual benefits for the community and participant and is both a private and

public good; its benefits are generated through trust, reciprocity and the sharing of information with networks. Social capital can benefit the individual or groups connected through it and sometimes bystanders.

When social capital is mobilised, cohesive communities form a collective and non-exclusive good for their members, whereby all members are equal and have the same rights and obligations, trust forms and reciprocity is encouraged for mutual benefit (Eriksson, 2011; Lee & Jung, 2018; Putnam, 2004; Szreter & Woolcock, 2004). Despite its importance, social capital theory is largely absent from the rural health service and rural medical education literature. Schoo et al. (2016) argue that the attributes of social capital are vital to the effective functioning of rural health services. Some literature (Iyer et al., 2005; Pink-Harper & Duong, 2017) describes social capital as an effective tool for promoting economic growth and development. This is achieved through the establishment of robust networks, meaningful relationships, and the acquisition of human capital, alongside the influence of education and employment status. These articles discuss rural development by examining the relationships among social capital, economic growth, rural development, and wellbeing. They also describe indirect effects involving civic engagement and participation. Economic growth may be associated with enhanced health infrastructure and better health outcomes.

Universities and RCS sites play a crucial role in creating human capital, knowledge, and social capital, which benefits both the community and the institution. However, there are potential negative impacts. Social capital can sometimes foster behaviour that worsens economic performance, act as a barrier to social inclusion and mobility, and divide rather than unite communities. Additionally, the resources required to sustain social capital initiatives, such as strong leadership and adequate staffing, can be challenging to maintain in small communities. Despite these challenges, the overall benefits of social capital in promoting community cohesion and economic development are substantial.

Worley et al. (2006) discuss a symbiotic model for Community-Based Medical Education (CBME), emphasising that reciprocal stakeholder relationships lead to shared benefits. CBME, which integrates medical training into the community setting, depends on collaboration between educators, healthcare professionals, students and community members. This study provides insight into the importance of relationships between stakeholders in the development of a medical education program and support the use of different frameworks to analyse the benefits arising from stakeholder relationships.

A study by Walters et al. (2011) exploring stakeholder views of community engagement found shared values and social cohesion between the rural medical school and the community. Working together improved education and health workforce outcomes and allowed innovative ideas from the community to support local policy changes. Forming ties with other groups can generate economic opportunities and build social cohesion for less advantaged groups (Woolcock, 2001). Achieving these outcomes requires leadership to actively engage with local and regional communities to benefit rural and remote areas (School et al., 2016). Farmer and Kilpatrick (2009) describe local rural GPs and nurses as influential drivers of community activity through bonding, encouragement of community members to work together and bridging; they bring skills and knowledge from outside the community to improve community health and social outcomes. Lovato et al. (2009) suggests that CBME programs in underserved areas can strengthen community partnerships across health, university, and government sectors, and enhance community pride and resilience by building social capital networks and cohesion. Community resilience is the ability to endure, adapt, and recover from crises. Social capital networks are cooperative relationships that support collective action toward common goals (Bourdieu, 1986). These approaches provide an examination of the dimensions of social capital including networks, trust, and norms.

Toomey et al. (2011) and Carpiano (2006) provide frameworks for evaluating social capital. Toomey et al.'s framework centred on networks and partnerships between communities and universities, highlighting connectedness, shared values, and community empowerment. Carpiano integrates social capital with public health, showing how social networks impact health outcomes. Both highlight the importance of social capital in community cohesion and rural medical program effectiveness.

Implementing these frameworks through community events, meetings, and focus groups enhances interaction, builds relationships, promotes inclusivity, and addresses local issues like healthcare and education access. In rural Australia, there are challenges such as sparsity and socio-economic disadvantages that may affect maintaining social network and social capital improvement need to be considered.

In summary small university sites contribute to their communities by enhancing human capital, creating knowledge, and fostering social capital. These relationships bring benefits such as improved health and economic opportunities. Maintaining these efforts requires strong leadership and sufficient resources, which can be difficult for small communities. Nevertheless, the positive impact on community cohesion is significant, highlighting the need for ongoing collaboration between university sites and their communities (Charles, 2016; Eriksson, 2011; Lee & Jung, 2018; Putnam, 2000; School et al. 2016; Walters et al., 2011).

2.7.4 Community-Based Research Through Community Engagement

Community engagement is a core element in community research (Ahmed & Palermo, 2010). Community-based research, as described by Cutforth et al. (2003), is conducted in partnership with community members to address a need identified by the community. Community members participate in the research process at every stage. Empowered communities and medical schools can increase research outputs and collaborate on grant

applications that lead to mutual benefits for the university and the community (Baquet et al., 2013). Conducting research in a rural community requires reciprocal, collaborative partnerships to address shared issues (Ahmed & Palermo, 2010).

Holzer et al. (2014) argue that community research often lacks community consultation, that communities do not trust the research process and that research findings are often not available to the community. Conversely, Baquet et al. (2013) highlight lessons from cooperation between a rural health service, university, and community partnership. Training in community engagement and cultural competency for academics improves collaboration. Effective communication and respect for cultural differences enhance research outcomes and community benefits. Collaboration and respect are essential for sustaining research programs and improving community health.

In summary, community engagement is significant in community research through collaborative and reciprocal partnerships to address issues relevant to both the community and university site (Ahmed & Palermo, 2010). Collaborative efforts can lead to increased research output and grant applications that benefit both the community and university site (Baquet et al., 2013). Establishing authentic and reciprocal research activities between the university site and community can result in improved health outcomes by fostering social capital, trust, and shared values (Baquet et al., 2013).

2.7.5 Supporting Rural Students in Health Science Careers

Nurturing rural students who are considering a career in health science and providing them with insight into a health career and the application processes and pathways is part of the RHMT program framework (Department of Health and Aged Care, 2024e). Reeves et al. (2020) explored community engagement activities undertaken by medical schools to support under-represented rural students interested in applying to medical school and assessed which, among a range of short and longer intermittent programs, were most effective. The study

found limited information defining program objectives and inadequate evaluations of outcomes. There was evidence for the effectiveness of engagement with students to raise awareness and support for them to achieve the necessary grades to be accepted into medical school; however, in the only program where the majority of students applied to medical school, only 50% were accepted.

Zipin et al. (2015) discusses the complexities of aspirations and challenges faced by younger people living in marginalised or from low socio-economic backgrounds. These young people face difficulties maintaining hope and self-belief and in investing in optimistic strategies to achieve their goals. Further, Zipin et al. (2015) highlight that educational policies, geographical barriers, economic constraints, and lack of mentorship can hinder rural students' ability to pursue a career. Addressing these challenges requires policies and programs to support rural students. A study by Robinson et al. (2017), discuss a Canadian outreach program for students who might not otherwise have considered a health career in medicine because of financial constraints, low school grades and the length of university study. This program, run by medical students, positively affected secondary students' attitudes to undertaking a career in medicine because they could discuss how to obtain financial support and bursaries.

The studies by Reeves et al. (2020), Robinson et al. (2017) and Zipin (2015), demonstrate the reciprocity of engagement between university students and the local community and show how secondary rural students can be supported with information to pursue a career in the health sciences. These programs illustrate how community engagement can empower secondary rural students with information and encouragement needed to pursue a career in health sciences, benefiting the students, local workforce and contributes to economic development of the community. Further, provide insight to the financial and

geographical challenges that need to be addressed for some rural students to achieve their academic goals.

2.8 Social Impact Summary

In conclusion, the transition of medical education from acute-care hospitals to primary healthcare settings, including Community-Based Medical Education (CBME) and Longitudinal Integrated Clerkships (LICs), has significant social and economic implications for communities. Many geographically isolated communities have challenges in accessing healthcare, leading to higher rates of hospitalisation and poorer health outcomes (AIHW, 2023). CBME and LIC programs avail medical students with authentic patient experiences, which enhance their clinical skills and sense of responsibility, resulting in improved patient care and larger healthcare teams (Bartlett et al., 2019; Kelly et al., 2014; Walter et al., 2013; Golden, 2018).

Beyond healthcare delivery, these programs contribute economically to many underserved regions. Encouraging students to work in underserved communities, stimulating the local economy through job creation and increasing demand for goods and services (Bartlett et al., 2018; Newbronner et al., 2017). Supervising clinicians benefit from improved clinical knowledge and teaching skills, although at times difficult balancing clinical responsibilities and increased workloads (Belitz, 2018; Connolly et al., 2014; Cuncic et al., 2018; Hudson et al., 2011; Walters et al., 2012). Further, community engagement and collaborative partnerships enable local communities to address health and social issues, improve health outcomes, and support local research initiatives (Strasser et al., 2009; Butterfoss, 2006; Nestel et al., 2014; Stagg & Rosenthal, 2012; Corbin & Mittelmark, 2008; Barile et al., 2012; Brown et al., 2019; Worley, 2002).

Small university sites contribute to their communities by enhancing human capital, generating knowledge, and increasing social capital through community engagement, thereby providing both social and economic benefits (Charles, 2016; Eriksson, 2011; Lee & Jung, 2018; Putnam, 2000; School et al., 2016; Walters et al., 2011; Baquet et al., 2013).

Overall, CBME and LIC programs play a fundamental role in improving healthcare access, reducing social disparities, and increasing economic development in underserved regions. Despite these findings, there remains a gap in research literature to the social impact of medical school sites in regions classified as MM4-7.

The following sections review the literature covering economic impact studies undertaken by universities and discuss reasons why universities undertake impact studies and the data that can be generated.

2.9 The Economic Impact of Community-Based Medical Education Programs

2.10 An Introduction

Although the primary role of a university is to deliver education and research, a secondary role is regional economic development through expenditure, employment, technology and innovation (Department of Education, 2023a). An aim of this study is to explore the economic interactions and economic development opportunities created by the presence of a medical school in a rural community MM4-7. The objective of this literature review is to assess the existing knowledge regarding the evaluation of the economic impact of universities including medical schools and rural clinical schools on their local communities.

This section is organised into three parts. Section 2.2 outlined the research strategy, literature review process for both social and economic impact. Section 2.11 provides a summary of the articles, and their ranking used in this literature review on economic impact. Reasons to undertake an impact study and some of the different approaches are discussed in Section 2.12. Section 2.13 covers economic impact models and their purposes. Section 2.14 provides a critical analysis of short-term impact studies, and Section 2.15 presents a critical analysis of the long-term benefits a university may have on its region.

2.11 Literature Review

Medical education particularly in rural settings has gained increasing attention due to its impact on workforce distribution and training. This literature review examines the key studies on the economic impact of both short- and long-term term studies of universities, community-based medical education programs, longitudinal integrated clerkships, and rural clinical schools on their community. Section 2.2 outlined the literature review methodology

for economic impact. This review integrates findings from 47 articles from Table 2.5, identifying reoccurring themes, methodological approaches and gaps in knowledge.

Table 2.5*Economic Impact Literature Reviewed*

Reference (Author, Source, Year)	Aims	Study Design	Sample Size	CASP Article Evaluation high, moderate, low quality	Key Findings	Themes (Comments)
Abel & Deitz, 2012 Journal of Economic Geography (USA)	Investigates how colleges and universities can enhance human capital.	Case Study Method involves using data from Postsecondary Education Data System to map and analyse degree production across various metropolitan areas.	283 metropolitan areas in USA.	Moderate	Colleges and universities play a vital role in enhancing human capital, <u>which is essential for regional economic success.</u> Universities enhance local human capital by producing skilled graduates and increasing skilled labour for research and development activities. The dual effect can increase local human capital in metro areas. The study analysed data from 283 metro areas to measure how degree production by over 4,000 higher education institutions impacts local human capital levels.	<u>Human capital</u> is essential for regional economic development and that universities significantly contribute by supplying and requiring skilled workers.

Abonyi, 2016 Journal of Education and Practice	What are the University of Development Studies (UDS) responding to the development of human capital development, building innovation and engaging in social, cultural and environmental development in Northern Ghana?	Interpretative research using semi-structured interview	20	Moderate	UDS has not linked research activities with regional industries or stimulated local businesses. To enhance UDS's role in regional development, the study suggests: Creating an enabling environment and policy support structures. <u>Active collaboration</u> between UDS, policymakers, and the industrial sector. Establishing more practical and vocational programs to strengthen ties with the industrial and business sectors.	The University for Development Studies has effectively aligned its teaching, research and service roles with the north Ghana region with focus on <u>human capital</u> and social, cultural and environmental development.
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Alkire, 2009 Development: “A Misconceived Theory Can Kill”	Capability Approach by Sen which focuses on expanding people's freedoms and capabilities as a measure of development, rather than just economic growth.	Book, Chapter 8		High	Highlights the importance of aligning development policies with the goal of expanding human capabilities and freedoms, as advocated by Amartya Sen. Human capabilities (the ability to do and be what one values) are influenced by development policies, markets, and social arrangements. This means that human freedom is, shaped by human actions and decisions. Amartya Sen argues that the goal of social arrangements should be to expand human capabilities and freedoms. He believes this approach is more effective than focusing solely on economic measures like primary goods (basic resources) or utility (happiness or satisfaction). Sen suggests that we can also evaluate development policies and practices to see if they genuinely aim to enhance human freedoms. This involves scrutinizing the intentions and effectiveness of these policies.	<u>Economic growth</u> includes expanding people’s ability to choice and ability to goods and services and expand their knowledge. <u>Referred to has human development.</u>
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Beck et al, 1995 Economic Impact Studies of Regional Public Colleges and Universities Growth and Change (UK)	Understanding economic impact studies of public colleges and universities.	Narrative review methodological issues with economic impact studies		High	Discusses issues to no one agreed methodology and associated definition of economic impact, <u>Economic impact studies should be designed specific to what is required, and any assumptions should be made explicit and be defensible.</u> Complete analysis should include the short- and long- term impacts.	<u>Economic Impact Study</u> Geographical area needs to be identified, and boundaries relate to where all interaction take place. <u>This is the counterfactual</u> <u>Rigour to calculations.</u> <u>Include Short and</u> <u>Longterm analysis.</u>
Benneworth & Charles, 2005 University spin-off policies and economic development in Less successful regions: Learning from two decades of policy practice European Planning Studies	Discuss how knowledge capital creates value in a region.	Case Study		Low	<u>Knowledge capital</u> is key to economic growth. Knowledge adds value and enhances community's economic performance. Knowledge can provide significant advantage to businesses and regions, policy and workforce development.	<u>Knowledge in regions can be harnessed for</u> <u>economic, social and</u> <u>technological progress.</u>
Bess & Ambargis, 2011 Input-Output Models for Impact Analysis: Suggestions for Practitioners Using RIMS II Multipliers 50 th Southern Regional Science Association Conference	Discuss the correct use of input-output models and multipliers.	Literature review of input-output models presentation		Moderate	Regional I-O models are tools for estimating total effects that an initial change in economic activity has on the local economy. RIMS II Type 1 and 2 multipliers, selection of study region, common mistakes	<u>Multiplier definition</u> <u>Need to understand the</u> <u>limitations of these</u> <u>models, fixed production</u> <u>patterns, bringing in</u> <u>additional survey</u> <u>information into the</u> <u>analysis will enable the</u> <u>user to provide more</u> <u>accurate results.</u> There are limitations to these models.

Blackwell et al, 2002 The Economic Impact of Educational Institutions: Issues and Methodology Economic Development Quarterly (USA)	The aim is to enrich the discussion of the issues inherent in the application of economic impact analysis to educational institutions.	Case Study of Xavier University, Ohio		High	Outlines how to calculate an economic impact study, consider both the direct and indirect spending using detailed data from various sources within the institution.	<u>Impact on human capital</u> six-seven years post attending local university.
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Brenner & Schiller, 2019 Regional Interaction and Effect of Universities Jahrbuch für Regionalwissenschaft (Germany)	Highlight the evolving role of universities and their interactions with regions they are located in.	Introduction article		Moderate	Innovation: Universities play a key role in fostering innovation, especially in creating new and groundbreaking innovations. As university's role evolves and their interactions with regions needs to, <u>Adapt to Changing Roles:</u> Continuously update their strategies and operations to reflect new tasks and responsibilities. <u>Engage in research</u> to understand how recent changes impact their interaction with local economies. <u>Collect and Analyse New Data:</u> Gather updated data on their economic and social impact. Use this data to reassess and refine their contributions to the region. <u>Focus on Migration and Qualified Labor:</u> Develop programs that attract and retain qualified individuals in the region. <u>Address Regional Needs:</u> Conduct studies on their impact in rural and more disadvantaged areas. <u>Enhance Regional Engagement:</u> Create strong networks with local businesses,	<u>The passage highlights the multifaceted role of universities in driving innovation and economic growth and development</u>, the need for more empirical evidence, and the importance of understanding the formation and impact of academic networks and regional engagement.
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					government, and community organisations. <u>Teaching-Related Collaboration:</u> The impact of university options on students' decisions to study and whether universities can attract and retain qualified labour in the region are also important areas of study. <u>Migration Behaviour of Graduates:</u> Many studies have analysed where graduates move after completing their education and how this affects the availability of qualified labour in the region.	
Brown & Heaney, 1997 A Note on Measuring the Economic Impact of Institutions of Higher Education Research in Higher Education (USA)	Compare two approaches to economic impact analysis (traditional economic base and skill base) and recommends using the traditional approach for more accurate results.	Economic Impact Analysis		Moderate	Economic-base approach has been refined over time to better measure the economic impact of universities, focusing on the new money they bring into the region and the resulting economic growth. Economic Base Approach measures the increase in the region's economic base due to new sources of money including federal grants and student fees. New funds into the region stimulate economic growth, leading to more jobs, higher income for residents.	The <u>objective of an economic impact study is to measure the increase in the region's economic activity due to the presence of the university/college.</u>

Carrascal Incera et al, 2022 Universities, students and regional economies: a symbiotic relationship Regional Studies (UK)	Examine the effect of student spending on goods and services in the region.	Economic Impact analysis	Model covered 41 UK regions and 4697 students and 2627 seven-day expenditure diaries.	High	Use a Multi-Regional Input-Output Model (MRIO) framework to understand regional effects of expenditure across different regions. The framework accounted for direct and indirect effects of student spending. The impact of \$1 spent by HEI students varies across different regions. This is due to the influence of the local industrial structure and nature of the expenditure.	This approach provides a comprehensive analysis of how student spending influences regional economies and the effects across different industries and regions. <u>Universities are catalyst for socio-economic development by creating knowledge, supply skilled labour, increase local demand for goods and services through institutions and student expenditure.</u>
Chakraborty & Edmiston, 2007 Assessing Economic Impact of a Regional University Journal of Internal Business and Economics (USA)	Analyse economic impact of a regional university on local community.	Economic Impact Analysis	1028 Student surveys Visitors = 88,137	High	Local Economic Impact (Emporia area): <u>Direct Injection: Emporia State University (ESU) and its related units spent between \$85 and \$98 million.</u> Generated Output: This spending created an additional \$101 to \$116 million in economic output. Earnings: It generated between \$30 and \$35 million in earnings. Jobs: It created between 1,341 and 1,557 jobs in the Emporia area.	Used financial records for university spend.

Cocklin & Dibden, 2004 Sustaining and change in rural Australia University of New South Wales Press Ltd	Sustainability of Rural Communities using Capitals Framework.	Book Chapter on			Rural Communities. The capitals are key to rural sustainability. For sustainability of rural areas Cocklin & Dibden use the concept of capital framework for analysis. <u>Discusses the capitals (natural, human, social, institutional economic) for sustainability.</u>	<u>Capital Framework for sustainability</u> Natural, human, social, institutional economic.
Cooper et al, 2021 Impact of an urban regional medical campus: perceptions of community stakeholders Canadian Medical Education Journal (Canada)	This study explored the impact of a Regional medical campus (RMC) in Windsor, Ontario, and compared it to a similar study in a remote area of British Columbia (BC).	Case Study	23 people (52% male) from different sectors health, business, education in semi-structured interview	High	Thematic analysis found positive themes • <u>Better healthcare</u> • <u>Improved community reputation</u> • <u>Economic and community development</u> • <u>More training and career opportunities</u> • <u>Increased community engagement</u> These results were compared to a remote site in British Columbia where a similar study was completed.	These results were compared to each other and found similarities increase in community pride and differences such as concerns around resources. Community members saw the benefits of regional medical school being established in an urban area like a remote area of British Columbia.

Davis & Bennett, 2008 Understanding the economic and social effects of academic clinical partnerships Academic Medicine (USA)	Conceptual Model for assessing aspects of impact.	Case Study		High	<u>Partnerships between Uni and hospital are powerful contributors through employment, buying of goods and services.</u> Contribute to direct, indirect and induced effects. Other effects include, Human Capital, Knowledge effect, Place effect e.g. building the environment through increased transport services, jobs growth.	<u>Model diagram explaining social and economic impacts of academic and clinical partnerships.</u>
Dalziel et al, 2018 From Economic Growth to Wellbeing Economics Chapter 1 Switzerland	Review to enhance the wellbeing of individuals beyond traditional focus of economic growth.	Narrative review		High	GDP growth often seen as the key indicator of progress, it does not always align with the broader aspects of wellbeing such as health, education, and social equity or environmental issues of the region. That type of metric can fail to address the quality of life for individuals and communities.	<u>Types of capital for wellbeing capital framework.</u> <u>Human, Cultural, Social, Economic, Natural, Knowledge, Diplomatic</u> Levels of Social interaction include, individual, family, community, market level, global level. Different types of capital provide various services and important for wellbeing, and choices affecting wellbeing are made at multiple levels of social interaction, from individual to global. This framework helps to understand how different factors and decisions contribute to overall wellbeing.

Deloitte, 2020 The importance of universities to Australian prosperity	An analysis of the benefits of university education, return on investment.	Report		High	Analysing the contribution universities make to Australia's economic and social prosperity. Claim for each \$1 invested in a student yields a lifetime benefit around \$4.	Deloitte, 2020 <u>The importance of universities to Australian prosperity.</u>
Drucker & Goldstein, 2007 Assessing the regional economic development impacts of universities: A review of current approaches International Regional Science Review (USA)	Assess the regional economic development impacts of universities.	Narrative Review		High	Impacts include: <u>Formulation and sharing of knowledge, human capital from students, faculty and researchers, regional leadership as staff participate on local boards and committees, physical infrastructure, buildings, research facilities, influence local milieu be it intellectual, social, cultural or recreational by attracting educated and creative professionals.</u>	<u>Multipliers/i-o tables only view backward affects</u> not wider impacts of community leadership, influences on international links.
Dyson & Kleynhans, 2017 A university in a small city: Discovering which sectors benefit Acta Commercilli (South Africa)	Review what sectors benefited from university spending to inform economic impact in the region.	Case Study		High	<u>Utilised I-O tables</u> and University spend to work out impact and to which industries over 3 years.	Only explored <u>university spend in the economy not stakeholders</u> (staff, student, visitors). Most industry sectors benefited except for agriculture/mining. Retail received the highest of 31% followed by business services 29.3%.

Elliott et al, 1988 Measuring the economic impact of institutions of higher education Research in Higher Education (UK)	Focus is on the methodological consideration in conducting and economic impact study.	Literature review discussing use of economic impact studies		High	Discusses ACE (1971) wrote first manual on how to do and economic impact study for universities (ACE). This manual laid the methodology for other HEI's and had major influence on the studies that followed. Economic impact studies are used to <u>1. Support budget threats</u> <u>2. Expectations of legislators to the role of the university</u> <u>3. Demonstrate effectiveness of university.</u>	<u>Highlights the basic objective of an economic impact study is to measure the increase in a region's economic activity attributable to the presence of the college or university.</u>
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Garrido-Yserte & Gallo-Rivera, 2010 The impact of the university upon local economy: Three methods to estimate demand-side effects Annual of Regional Science (Spain)	Discuss the benefits and limitations to three models ACE model, Ryan short cut, Input-Output technique.	Original paper		High	<u>Main reason to use these methods are a. it is the most used technique in this type of studies, allowing comparison between university and territories. b, it allows the assessment of direct, indirect and induced effects. Income-expenditure flows have positive effects in local economic development.</u> The classification has two categories – supply effects related to human capital and research and demand side effects relates to expenditure and its multiplier impact on local economy. <u>Nowadays universities recognised as important players in regional/local developments by interacting with government, private companies as key members to the economic growth & development of a specific territory.</u> <u>Need to demonstrate calculations for transparency.</u>	Highlights other regional effects- influence on <u>cultural environment, region's attractive image, region's identity.</u> Economic impact can be classified into two categories, <u>Impact on local expenditure</u> <u>Impact on knowledge.</u> Initially impact on expenditure will be greater however over time moves to benefits of knowledge to the region.
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Greenhill et al, 2015 Outcomes of Australian rural clinical schools: a decade of success building the rural medical workforce through the education and training continuum Rural and Remote Health (AUS)	Explore the impacts of the Rural Clinical and Training program to the community 10 years on.	Original paper	17 semi-structured interviews with directors and key informants from RCS programs.	High	<u>RCS and RMS programs have successfully integrated medical education into rural and regional areas of Australia.</u> The program has provided infrastructure development of learning facilities, accommodation. The RCS has provided education in rural areas and build strong networks and relationship with the health services and training providers. At least one third of students spend at least one year of their clinical training in rural and regional areas. There is a need for funded internship programs and training in rural and regional areas.	Parameter 1 – Delivering rural experiences to enhance the workforce focuses on providing medical students with rural clinical placements to improve their training and encourage them to work in rural areas Parameter 2 – Ensuring high-quality rural experiences for student through facilities, internet, accommodation, wellbeing of students. <u>Parameter 3 – Supporting rural academics/teachers and building training capacity, adjunct appointment, course opportunities to teaching clinicians.</u> Parameter 4 – Rural student recruitment, scholarships offered, support through rural student clubs. Parameter 5 – Community engagement and collaboration, some student undertakes community projects, develop collaborations with local healthcare providers, professional groups, build partnerships and advisory groups. Parameter 6 – Progressing the rural health agenda,
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						partnerships for research to encourage PhD students Parameter 7 – Aboriginal and Torres Strait Islander health, Parameter 8 – Monitoring and progressing evidence base, monitoring of workforce outcomes Parameter 9 – Maximising rural expenditure – all schools purchase goods locally and employ local staff.
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Johansen & Arno, 2016 The Long-Run Economic Impact of an Institution of Higher Education: Estimating the Human Capital Contribution Economic Development Quarterly (USA)	How universities use economic impact studies to demonstrate their value, focussing on short term spending and long-term human capital contributions.	Not determined	Survey online of alumni	Medium	Short-Run vs. Long-Run Approaches: <u>The short-run approach looks at immediate spending impacts, while the long-run approach considers the lifetime benefits of human capital. Both approaches together provide a complete picture of the university's economic impact.</u> Economic Impact of Education: Universities produce education, which is an investment in human capital. This means that by educating students, universities increase their skills and productivity, leading to higher earnings over their lifetimes. Local Area Definition: The study defines the "local area" as the state where the university is located. This definition is crucial because it affects the estimated economic impact. Counterfactual Challenge: The study aims to measure the impact of graduates who would not have been in the local area if the university wasn't there. Incremental Incomes: Only the additional income that graduates earn because of their education should be	<u>Economic Impact through short term impact study can be done every year with the same multiplier. However, the principal contribution of HEI is human capital, as graduates continue into working life resulting in a long run contribution.</u> This study developed a methodology to estimate long term human capital contribution through estimating working life earnings. Considerations were given to migration and the counterfactual estimates. <u>Economic impact estimate of long-term human capital impact of the university was approximately \$1.29 billion in 2010.</u>
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					included in the economic impact. Human Capital Contribution: Beyond short-term spending, universities contribute to the economy by increasing the long-term productivity and income of their graduates. These graduates then spend their income, pay taxes, and provide services in the state. Employment Conditions: Graduates are more likely to move if they are in states with low employment growth, high unemployment, or low pay for college graduates.	
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Hashem et al, 2022 What are the impacts of setting up new medical schools? A narrative review BMC medical education (UK)	The aim was to explore how new medical schools could improve the health outcomes of the local population and evaluate the potential contribution it may make to the local economy, workforce and to research and innovation.	Narrative review		High	<u>Medical schools can have a positive effect on the health, social, economic and research activity of a region</u>, but this literature less consideration to the inter-connections between the wider societal and economic impacts arising from long-term sustainable change being brought to a region. The social and economic impacts considered in this paper concentrate around four related benefits which have the potential to transform a region <u>1. improve social determinants of health, 2 economic sustainability, 3. addressing social accountability in the medical school 4. increasing research activity.</u> The findings suggest that medical schools can positively impact health outcomes and local economies, especially when they engage with the community and address non-clinical barriers to health.	Key themes from literature review included medical career choices, rural medicine, addressing healthcare workforce, this literature focused on increasing medical schools address workforce issues. Fewer papers (28%) explored broader impacts of social, economic and research outcomes. The economic contributions of new medical schools were limited to a few studies. For example, a study in Canada showed increased income for the medical school and local communities. There is a need for research on the long term and broader effects of a new medical school. While new medical schools have a significant impact on academic research and local health outcomes, addressing workforce shortages and retention requires comprehensive strategies and partnerships with local healthcare systems. <u>Additionally, their broader economic contributions and the need for effective evaluation</u>
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						<u>frameworks are essential for demonstrating their full impact.</u>
Hogenbirk, et al, 2015 The economic contribution of the Northern Ontario School of Medicine to communities participating in distributed medical education Canadian Journal of Rural Medicine (Canada)	Develop a mixed methods economic impact assessment Studied the economic contribution of the Northern Ontario School of Medicine (NOSM) to Northern Ontario communities.	Quantitative economic impact analysis	59 semi structured interview with leaders in education, healthcare and politicians in Ontario	High	<u>Total Contribution: The total economic contribution of NOSM in 2007/08 was estimated at \$67.1 million.</u> Expenditures: NOSM had expenditures of \$38.2 million, with \$36.3 million (95%) spent in northern Ontario. Medical students spent an additional \$1.0 million. Major Cities: The greatest contributions were in Sudbury (\$30.4 million) and Thunder Bay (\$26.7 million). Other Communities: An estimated \$10.0 million was spread throughout the rest of northern Ontario, with \$0.8–\$1.2 million accruing to the next three largest population centres. Per Placement Contribution: Economic contributions ranged from \$7,300 to \$103,900 per pair of learners per placement, with the 30-week <u>Measurement of output can be conducted at different phases. Comprehensive Community Clerkship resulting in the largest contribution per placement.</u>	<u>Community Impact:</u> Interviewees noted that <u>while the dollar amounts might be small to moderate, the broader economic implications were significant.</u> Recruitment and Retention: Training medical learners in northern communities was seen as potentially improving the recruitment and retention of healthcare providers. Other findings: <u>Some clinical teachers and learners had come to or returned to these communities specifically to teach or practice, indicating a positive impact on local healthcare service. Longer term impact should be analysed.</u>

Hogenbirk et al, 2021 Distributed education enables distributed economic impact: The economic contribution of the Northern Ontario School of Medicine to communities in Canada Heath Economics Review (Canada)	To estimate the economic impact of Northern Ontario School of Medicine on selected communities in Ontario.	Quantitative economic impact analysis	Sample size included communities in eight district economic zones	High	Direct program and learner spending in 2019 totalled \$64.6 million CAD. Economic impact was estimated to be \$107 million CAD. Employment impact included 404 full-time equivalent (FTE) positions supporting an additional 298 FTE positions. This design focuses on quantifying the financial contributions and employment effects of the medical school's activities within the local economy.	Through the establishment of programs NOSM has attracted people to the communities, increased local spending and knowledge base. <u>This study did not consider visitor spending, research student spending, or construction costs.</u>
Hogenbirk et al 2022 Ten years of graduates: A cross-sectional study of the practice location of doctors trained at a socially accountable medical school PLOS ONE	Examine practice location 10 years after the first class graduated from the Northern Ontario School of Medicine (NOSM), Canada. Outcome of medical learners from NOSM.	A cross-sectional study	Survey during undergraduate and postgraduate to collect sociodemographic data. Administration records were used to supplement survey data. Data set of 435 doctors	High	The study highlights the importance of regional training in retaining medical professionals in underserved areas. The study supports the positive association between the location of postgraduate training and the practice region, with general practitioners more likely to stay in the same region than other specialists. NOSM-trained doctors had a higher likelihood of practicing in northern Ontario and rural Canada compared to their counterparts who trained at University of Newfoundland.	Demonstrated the interaction of two mechanisms by which medical schools can increase the <u>proportion of doctors' practices located in poor regions: first, admit medical students who grow up in the region; and second, provide immersive UG and PG medical education in the region. Both mechanisms have enabled most NOSM-trained doctors to practise in the underserved region of northern Ontario.</u>

Loverage, 2004 A Typology and Assessment of Multi- sector Regional Economic Impact Models Regional Studies (USA)	Discuss the important principles and ethical considerations in regional economic impact modelling.	Critical review of economic impact models		Medium	There needs to be ethical standards, realistic projections and transparency in regional economic impact modelling to ensure accurate and unbiased results.	Taxonomy of multi-sector regional impact models <u>Economic base (cheap to purchase but can be manipulated), I-O (attention to industry detail, buy off the shelf may create sector that do not exist, can adjust national coefficients), Social account matrix (require more data, costly, however useful to understanding distributional impacts among different groups).</u>
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Lemky et al, 2018 A review of methods to assess the economic impact of distributed education (DME) in Canada Canadian Medical Journal (Canada)	Review the literature to identify economic assessment methods.	Review and Meta Analysis	No sample size however the literature review identified five economic impact methods used similar contexts, and the 2 methods identified potentially applicable for Canadian DME programs. (Canadian I-O model, Simplified ACE method)	High	The review identifies two main models to assess economic impact of Canadian Distributed Medical Education programs, those being <u>Canadian Input-Output (I-O) model and the Simplified ACE method</u>. Both methods are recommended for their <u>replicability, robustness, and scalability. Regular, long-term analysis is emphasized to fully understand the economic impact of DME programs</u>.	<i>Canadian I-O model:</i> More precise due to industry-based multipliers. Provides detailed outputs useful for decision-makers (e.g., Gross Output, GDP, Labour Income, Total Jobs, Total Indirect Taxes). <u>Allows comparison with other economic sectors.</u> Involves some estimation in spending allocation and visitor numbers. <i>Simplified ACE method:</i> Dynamic and captures long-term impacts, including benefits of students staying in rural areas. Can track economic impact of research by faculty and students. Uses a single multiplier, making it simpler but less precise. Easily updated at low cost, useful for trend analysis over time.
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Maltais et al, 2023 A Step-by-Step Process for Assessing the Economic Impact of Regional Medical Campuses in Canada Journal of Regional Medical Campuses (Canada)	Evaluate the economic impact of regional medical campuses.	Quantitative economic impact assessment Data used from three Canadian medical schools	Anonymous but factual	High	Explains the positive economic impacts of regional medical campuses in rural communities and small metro areas such as <u>increasing educational capacity, medical services and physician shortages.</u> Uses two methods – Canadian Input-Output model and Simplified American Council of Education model to assess economic impact. Used both models and found Canadian model is more complex to use compared to the ACE model. <u>Best to use common model for comparisons.</u>	This approach is systematic and relies on quantitative data to assess economic contributions of regional medical campuses. Spending calculation – crude, uses total number of students multiplied by number of months and average monthly expenses. Assumption that all learners are renting not living at home.
McHenry et al, 2012 Pitfalls of traditional measures of higher education's role in economic development Universities and Colleges as Economic Drivers (USA)	Critically examine the methodologies used in studies that assess the economic impact of colleges and universities.	Chapter discussing the methodological approaches to economic impact of colleges and universities	No sample size	Moderate	<u>Economic impact studies of colleges and universities often lack transparency and can be misleading.</u> Suggestions to improve studies do not make statements such as “For every \$1 the university spends return X amount; this statement can be misleading. The needs to be a more accurate methodology. Geographic areas need to be defined. Multipliers should be related to this defined area. Impact studies should be completed with the same rigorous standards as faculty research.	<u>Provides an overview of different impact studies. Need to consider the counterfactual, defining the local area under study, multipliers, local spillover effects, enhanced human capital.</u>

Pastor et al, 2014 Estimating the long-term economic impacts of Spanish universities on the national economy	Propose a methodology to estimate the human capital Spanish universities generated, technical capital, unemployment rates and long-term economic growth.	Quantitative economic impact study using a counterfactual analysis	81 universities and 1.6 million students	Moderate	The findings <u>highlight the importance of universities in enhancing productivity and economic growth through their contributions to human and technological capital.</u> Human capital – through a university-educated population comes increases higher number of employees which become more productive workers due to superior skills, earn higher salaries, which are more important than the impact on demand side because the effects last longer.	This paper discusses a new method to measure the long-term economic impact of universities. The methodology measures the economic impact of universities by calculating the value of the human and technological capital they generate and comparing it to a scenario where these contributions are absent.
Pink-Harper, 2015 Educational Attainment: An Examination of Its Impact on Regional Economic Growth Quarterly (USA)	Explore the role that human capital has on the long-term stability of the region's economic growth and development.	Quantitative economic impact Human Capital and Institutional Intellectual Capital Analysis measures the educational attainment of the population (human capital) and the contributions of institutions to predict economic growth and development.	Uses data from 23 counties	High	<u>Human capital and research universities are key drivers of economic development, particularly in smaller, non-metropolitan regions, and effective collaboration and supportive policies are necessary to gain their full potential. Having highly skilled and educated people can generate knowledge.</u>	<u>Highlights the importance of human capital, institutional intellectual capital and research universities in enabling economic growth, especially in non-metropolitan areas.</u>

Platford et al, 2014 Impact of the rural clinical school of Western Australia on work location of medical graduates Medical Journal of Australia (Australia)	To determine if medical students completing a year of the RCS of WA program is associated with working in rural.	Cross-sectional cohort study Compared outcomes between those students who participated in the rural placement program and those who did not.	1,107 graduates (258 graduates in the RCSWA program and 759 control graduates who did not.	High	The study found that a <u>significant proportion of RCSWA graduates return to rural areas to practice, which helps address rural medical workforce shortages.</u> Similar positive outcomes were observed in other rural clinical programs, such as those at Flinders University and the University of Queensland. <u>Urban-background graduates who participated in the RCSWA were nearly four times more likely to work rurally compared to those who did not participate, indicating the program's strong impact beyond initial intentions.</u> <u>Women and older graduates were more likely to enter rural practice after RCSWA exposure, which is a positive result.</u>	Compared outcomes between those students who participated in the rural placement program and those who did not. <u>The study supports maintaining and increasing funding for RCS programs to expand rural recruitment, suggesting that targeted additional funding from state and territory governments could further enhance rural workforce capacity.</u>
Seal et al, 2022 Influence of rural clinical school experience and rural origin on practising in rural communities five and eight years after graduation Medical Journal of Australia (Australia)	Examine how extended medical graduates' experience in rural clinical schools and their geographical origins influence their likelihood of practicing in rural communities five to eight years after graduation.	Cohort Study	1321 students	High	Study revealed rural student and extended rural placements influence working in a rural areas 5-8 years post registration. Study supports the developing rural training post-graduation such as regional training hubs and rural generalist training programs.	<u>Suggest that rural workforce could be enlarged by increasing the number of rural students into medical schools. Also complements building general practice and other specialities in rural areas.</u>

Sen, 2011 Local income and employment impact of universities: the case of Izmir University of Economics Journal of Applied Economics and Business Research (Canada)	Estimate the direct, indirect and induced effect of Izmir University in Turkey.	Case Study	200 students 372 staff (2003) 444 staff (2004)	Medium	Used previous i-o model to estimate direct and induced effects of a university on its region. The university claim to creating 372 jobs full time jobs in 2003-4 and 444 jobs in 2004-5. This study used different multipliers to estimate economic output. Gross Local Output Multiplier: 3.18 Local Disposable Income Multiplier: 3.08 Gross Local Output Expenditure Base Multiplier: 2.87 Local Disposable Income Expenditure Base Multiplier: 1.73 Basic Keynesian Multiplier: 1.59 These multipliers demonstrate the additional economic activity generated in the region. <u>The university presence supports creating jobs and generates local economic activity. With each unit of expenditure by the university leads to increases in local output and income.</u> In 2004 the university paid 5 million in wages spent 14.6 million on goods and services in the region. Most staff and student spending	<u>Interesting statement that economic impact studies rely on assumptions which are open to questions.</u> They are practical applications to arrive at conclusions. Several assumptions must be made and clearly stated during the research. The study did not indicate if students were new to the region or previous residents.
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					were within the region being studies.	
Amartya Sen, 2023 Video UNU WIDER	Growth enables people to pursue their interests.	Video discussing growth and social welfare	Presentation	Very informative video on growth	<u>Growth is closely related to social welfare. Good social welfare leads to having better health care, being healthy, having freedom, having a productive labour force, having education, education is central to economics.</u> Quality of human life to related to capability and wellbeing and to be part of society. Economic growth is the purpose to improve human life.	Theoretical concepts related to welfare, human capability and social development.

Siegfried et al, 2007 The economic impact of colleges and universities Economics of Education (USA)	The economic effect of colleges and universities.	Case Study Paper describes the methodological approaches & pitfalls common to impact studies and to suggest more productive ways to think about local impact of local university		High	Reasons for impact studies – <u>compete for funding, resist cutbacks, maintain tax-exempt status, fend off critics and bolster fund raising.</u> <u>Human capital</u> Dividends from human capital investment may accrue to society in a different way e.g. <u>higher earnings stream, for society it might be better health, social cohesion, or growth through technology and ideas</u> might be important. Indirect effect of human capital is <u>increasing the overall education level, and highly educated people enhance the productivity of other workers.</u> Higher education may affect crime, health and civic responsibility. Higher education on maternal care improves infant health. Recommendations: 1. <u>Universities stop claiming for every dollar the state spends the university returns x amount</u> – this is a meaningless statement. 2. The value of economic activity to a local area occurs when the activity employs residents who use their income to enhance their welfare	The true questions are “how much better off are the local residents of the community with the university/college, medical school site than not” Inputs to impact analysis include, direct spending and payroll, less federal taxes, expenditure on equipment, supplies and services, construction costs, spending in the local community by staff, faculty, students, public and private support for research grants, fees from students, & expenditure of visitors Other impacts that are evidenced in literature is the contribution to local culture, theatre, music performances, museums, art exhibitions, <u>This study notes there is no comprehensive list of college economic impact studies</u> There are so many studies, using different methods e.g. <u>io or eco base model and human capital impacts raises doubt around accuracy.</u> <u>Few studies of local impact articulate a counterfactual.</u>
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					3. Every study <u>should articulate the counterfactual</u> it uses at the beginning of the report and adhere to this. 4. <u>Geographical areas articulated explicitly and both multiplier</u> 5. <u>Appropriate multiplier</u> used to each type of expenditure 6. <u>Expenditure counted only once</u> 7. Institutions take credit for spill overs on the general effect on the general level of productivity e.g. reduced crime, enhanced health, civic responsibility but need to explain how increase in jobs occurred e.g. technology spill over.	<u>Defining the local area:</u> Need to delineate the geographical areas to analyse the economic impact because: The area should fit the purpose of the economic impact study, and the boundaries should be consistent throughout the study.
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Steinacker, 2005 The Economic Effect of Urban Colleges on their Surrounding Communities Urban Studies (USA)	The economic effect of urban colleges on their surrounding communities.	Case Study	One university site	High	In a small economy e.g. rural area, some distance from metro, students moving to the area to attend university bring new dollars with them, but they do not stay after graduation. There is little long-term increase in human capital, but short-term influx of student expenditure can be significant in such an isolated economy. It is the opposite in metro because the students are already spending, graduate, and more likely to stay due to availability of jobs adding to human capital.	<u>Small campuses can have a significant economic role in their local community through spending.</u>
REMPLAN, 2018 Monash Rural Health- Socio-Economic Analysis REMPLAN (Australia)	Socio-Economic impact analysis on the Monash Schol of Rural Health.	Case Study	Interviewed students/staff Focus groups at 5 RCS sites	Medium	Economic impact study on 5 RCS sites in Victoria. <u>18M direct effect across all sites, 98 new jobs.</u> <u>MRH generates \$0.92 cents across all regions for every one dollar of direct output (expenditure).</u> <u>Supports 6.7 jobs as flow on effect from every 10 direct jobs that are created through expenditure.</u> <u>Combined university and student expenditure = 21M, employment 125.</u>	<u>Does not provide calculation or i-o table.</u> Most expenditure on retail trade followed by accommodation and food services, manufacturing, arts & recreation.

Rickman & Schwer, 1995 A comparison of the multipliers of IMPLAN, REMI, and RIMS II: Benchmarking ready-made models for comparison Regional Science (USA)	A comparison of multipliers of IMPLAN, REMI, RIMS 2 Why models give different results.	A comparative study in regional economic analysis		Moderate	IMPLAN generates 2 types of multipliers type 1 and type 111 (induced) that it is slightly different from type 11. REMI = uses non-surveyed data only National Statistics to bench mark its IO tables, and an econometric model. REMI II = static I-O table that uses local region co-efficient All 3 models differ – they use different sources of data to build their models, use different ways to work out coefficients, different ways to calculate multipliers. They are all off the self-software. REMI does give you more features and data for 10-year period. All models require some technical expertise to use them.	<u>IMPLAN, REMI & RIMS II models use different rules and techniques to calculates economic impacts.</u> They also use different data sources. This can result in different results.
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Rossi & Goglio, 2018 Satellite university campuses and economic development in peripheral regions Studies of Higher Education (UK)	Exploring if satellite university sites make a specific contribution to economic development locally.	Case Study		High	Satellite sites brought demand for <u>goods and services</u> . The university increased demand for culture, sport, and entertainment, enhancing the area's appeal. Its presence also increased the graduate population by attracting students who might not otherwise attend university and retaining graduates in the region. Sites <u>can contribute through research and community engagement</u> . Research on local topics and including local partners in the research. Other contributions, <u>holding local conferences and events generated public interest and participation</u> .	Highlights the non-monetary benefits a satellite university brings to a community.
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Stimson et al, 2003 Leadership and institutional factors in endogenous regional economic development Investigaciones Regionales	Introduces a framework called Regional Competitiveness Performance Cube to demonstrate economic performance of a region or city.	Seven Case Studies		Medium	This paper suggests that for a city or region to develop sustainably, it <u>needs strong leadership and effective institutions</u>. These factors improve resource use and boost competitiveness and entrepreneurship in the area. The paper introduces a model called the Regional Competitiveness Performance Cube to represent the economic performance and development path of a city or region. <u>The model shows that economic development depends on how well the area uses its resources and fits into the market. This process is influenced by the interaction between leadership, institutions, and entrepreneurship.</u>	<u>Leadership</u> recognises a problem, collaborates, guides strategy, implements goals, monitors progress. <u>Institutions</u> establish environments that support stability, providing conditions for economic activities to occur and expand. “<u>Sense of place</u>” refers to the psychological and cultural bonds people form with a location, influencing their decisions to live, work, or visit, and reflecting its atmosphere and significance.
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Uyarra, 2010 Conceptualizing the regional roles of universities, implications and contradictions European Planning (UK)	A review and critique on current perspectives on the roles of universities in regional economic wellbeing and innovation.	Narrative review		Medium	This paper focusses on the different roles that universities play in regional innovation to understand connections and identify gaps in research. <u>Five key roles</u> <u>Knowledge producers.</u> <u>Collaborative partners/shifting to more collaborative research between universities and local corporations.</u> <u>Entrepreneurs.</u> <u>Developers – contribute to economic development.</u> <u>Regional innovation</u> relies on collaborative local networks and institutional support, highlighting the connections among partners to drive progress.	Examines how universities and key stakeholders contribute to regional innovation. Universities increasingly take active roles beyond direct involvement, focusing on economic development and innovation. Universities support regional development by meeting local needs and contributing to social, cultural, and environmental progress. Their main mission in regional areas aligns closely with advancing local development. The text notes the challenges universities encounter in participating in regional development, including limited evidence of effectiveness, difficulties with integration, and constraints related to national systems and reputational considerations.
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Vaiciukevičiūtė et al. 2019 Higher Education Institutions impact on the Economy Journal of Business Economics and Management (Lithuania)	HEI impact on the economy.	Quantitative economic impact analysis	13 Universities representing 87% of students studying at university (public and private) in Lithuania	Medium	Conducted the impact study to demonstrate <u>that university investment is important as many academics are lowly paid and minimal research funding available. Many academics and students emigrate to other universities outside the country for better education and pay. Lithuania universities have 87% of all students but do not have the level of research performance as other European countries.</u> Economic impact using i-o table for a period 2010-2016 average GDP \$298,48 million euros.	Used an io table to calculate Lithuania economic output. Demonstrated positive impact on the national economy. Research not able to inform the reader of where the spending went to.
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Valero & Van Reenen, 2019 The economic impact of universities: Evidence from across the globe Economic of Education Review (USA)	Study looking at how university formation is correlated with economic growth. Use the WHED data base (World higher education database) contains location of 1,500 region across 78 countries.	Regression analysis	Studied 1,500 region across 78 countries	High	A 10% rise in a region's universities per capita is linked to a 0.4% increase in regional GDP per capita, with positive effects also benefiting neighbouring areas. The study attributes GDP growth not only to university-related spending, but also to higher human capital and increased innovation. Ways in which universities effect growth to an area: Skilled human capital drives innovation and generates spillover effects by collaborating with local industries, exchanging ideas through events and publications, and shaping policy via government reports. Consumption by students, staff and university through buying goods and services that have a material impact on GDP.	<u>Universities contribute to regional economic growth, not just locally but also in neighbouring areas.</u> <u>Economic benefits of universities likely outweigh the costs.</u> Further research is needed to fully understand the mechanisms through which universities impact economic growth.
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Watson et al, 2007 Determining Economic Contributions and Impacts: What is the difference and why do we care? The Journal of Regional Analysis & Policy (USA)	Discusses the importance of standardizing terminology in regional economic analysis, specifically focusing on three key metrics: economic contributions, impacts, and benefits.	Narrative review presenting a standard set of terminology for use in regional economic assessments		High	Economic Contributions: measures the total economic activity generated by a specific entity or event within a region. It includes direct, indirect, and induced effects. For example, a new factory's economic contribution would include the jobs it creates, the business it brings to local suppliers, and the additional spending by employees in the local economy. Economic Impacts: assesses the net change in economic activity resulting from a specific action or event. It focuses on the difference between the economic activity with and without the event. For instance, the economic impact of a new policy might be measured by comparing the region's economic performance before and after its implementation. Economic Benefits: evaluates the positive outcomes that result from an economic activity. It often includes non-monetary benefits such as improved quality of life, environmental improvements, or increased social cohesion.	<u>Discusses the importance of using the terms, economic contribution, economic impact and economic benefit correctly. Often used interchangeable and if not used correctly can be misleading.</u> This article proposes a standardised definition, so research has credibility. <u>When doing an eco-assessment, it is important to state what type of analysis is being performed, what is being included, the measure of direct effects and how the regional model is being estimated.</u>
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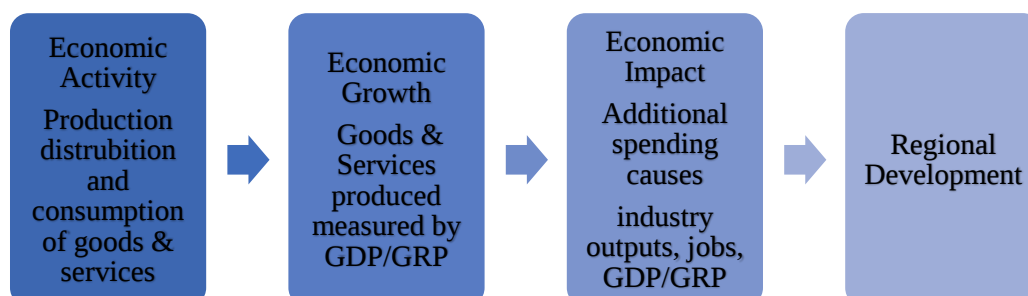
2.12 Economic Impact Studies and Economic Growth

Economic impact studies are an important way to assess how much economic growth has occurred because of the presence of a university (Beck et al., 1995). Much of the literature on the economic impact of universities demonstrates a benefit to the community (Drucker & Goldstein, 2007; Dyason & Kleynhans, 2017; Elliott et al., 1988; Johansen & Arano, 2016; Lemky et al., 2018; Rossi & Goglio, 2018). A university can contribute to economic growth and regional development in the local region through expenditure; sharing of knowledge by researchers, faculty and students; investment in infrastructure; new technologies; and increases in human capital (Dyason & Kleynhans, 2017). Steinacker (2005) emphasises that university sites are significant contributors to their regional economies. They possess resilience to economic downturns, maintain a consistent presence, and generate revenue through various sources such as tuition fees, endowments, and government funding. Furthermore, regional university sites attract human capital by drawing students and staff, thereby bringing in professionals and contributing positively to the local economy.

Figure 2.2 provides a simplistic schematic diagram outlining economic activity. The figure demonstrates how spending and production of goods and services in a region leads to economic growth, resulting in industries increasing their outputs, creation of more jobs and enhanced gross domestic product (GDP) / gross regional product (GRP). This cycle results in regional development.

Figure 2.2

Economic Activity, Economic Growth, Economic Impact and Regional Development



While there is substantial literature addressing the short-term economic impacts of universities and colleges, much of the research on long-term impacts related to the creation of human capital, investments, and technology remains theoretical (Garrido-Yserte & Gallo-Rivera., 2010; Pastor et al., 2014). Some case studies have been completed in metropolitan and regional areas, mostly in Europe, Canada, South Africa and the USA (Beck et al., 1995; Dyson & Kleynhans., 2017; Hogenbirk et al., 2021; Cooper et el., 2021). However, little is known in the Australian context regarding long-term impacts; even less literature is available on the short-term economic impacts that a medical school site has on its region. Many economic analyses are conducted by corporate services commissioned by large universities (Deloitte., 2020).

Some economists consider that economic growth should be viewed less as an increase in income and more in terms of increases in political, cultural, and social freedom (Dalziel et al., 2018). However, as argued by Sen (2023), economic growth is closely aligned with social welfare. The purpose of economic growth is to improve the quality of life and free individuals from deprivation, illiteracy, premature death and oppression, even if gross domestic product (GDP) cannot measure these indicators. The freedom to undertake activities and decisions at a

personal level (e.g. purchase commodities or join clubs) is central to wellbeing; society and individuals value these freedoms and understand how they affect lives. The availability of education and health care is beneficial for social welfare and improves people's capabilities and the quality of their lives (Alkire, 2009; Sen, 2023). Investment in social welfare, health care, education and the labour force increase productivity and generates income for economic growth (Sen, 2023). Without investment in human development, economic growth is unsustainable and unethical, and inequality will widen. Brenner and Schiller (2019), highlight that the relationship between a university and its region has evolved from teaching and research to forming academic networks with local businesses, government, and community to promote innovation, social development, and economic growth.

2.13 Economic Impact Models

Many economic impact models have been used by universities and higher education institutions (HEIs). Two different approaches exist in the literature. Short-term studies often use a short-term expenditure approach, a mathematical approach that calculates the economic impact by estimating direct, indirect and induced expenditure (Lemky et al., 2018). Since the 1990s, more attention has been paid to a long-run approach that explores the long-term impact that growth in human capital, innovation, and research has on regions (Beck et al., 1995; Johansen & Arano, 2016). Measurement of the economic impact of a medical school can address different phases: the start of school construction, the implementation phase and after the school commences operations (Hogenbirk et al., 2015). The various economic impact studies by universities and HEIs, using different models, are discussed in section 2.14 of the literature review. In 2018, Monash Rural Health commissioned REMPLAN to analyse the economic impact of its eight clinical teaching sites in Victoria, Australia. This study was the only Australian socio-economic impact analysis found from the perspective of the Australian Rural Clinical School program. This study found that five sites in Victoria had an \$18 million

direct effect and created 98 new jobs. It also reported that Monash Rural Health generates \$0.92 for every dollar spent across all regions (REMPLAN, 2018).

In summary economic impact studies used by universities and higher education institutions (HEI) typically follow either a short-term expenditure model, which estimates direct, indirect and induced financial contributions, or long-term impact assessment examining human capital development, research and innovation.

The following sections further discuss and critically analyse the main approaches.

2.13.1 Reasons to Undertake an Economic Impact Study

Understanding the economic impact of a university on the local community is important because it articulates the university's economic contribution to the community and neighbouring regions and can support further government investment (London Economics, 2016). Many universities aim to measure and forecast regional growth to demonstrate their economic impact.

2.13.2 Justification of Government and Industry Funding

Universities have completed many economic impact studies to demonstrate to state and Federal legislators, university administrators and the community how a university supports local businesses, industries and communities. This support can involve local employment, attract new businesses or maintain existing ones, knowledge creation and innovation aimed at maintaining funding or seeking grants (Abel & Deitz, 2012; Drucker & Goldstein, 2007; Lemky et al., 2018; Maltais et al., 2023; Siegfried et al., 2007). Brown and Heaney (1997) and the Association of Public and Land Grant Universities (2014) emphasise the importance of responding to state and Federal legislators' requests for budget accountability to ensure that funding is not redirected. Vaiciukevičiūtė et al. (2019), in a case study for Lithuania, illustrate how important it is to understand the economic value of a university; when little funding is provided, low-paid academic staff seek employment in other countries and students migrate

permanently. The authors write that it is essential for the Lithuanian Government to understand the value that universities bring to the local and global economy and their ability to address local and global issues, such as climate change and food disparities, to ensure that the tertiary education sector continues to be funded.

2.13.3 Demonstration of the Importance of Partnerships

Davies & Bennett, (2008) developed a conceptual model that assesses how academic and clinical partnerships support social and economic growth through expenditure, human capital, knowledge and environmental effects. This conceptual model provides insights, and a holistic picture of the benefits gained through academic and clinical partnerships and aims to promote further partnerships in other regions to help secure funding streams and support grant applications. The authors propose a mixed methods approach (using quantified economic effects and qualitative social effects) to provide evidence for the importance of local partnerships, support funding reforms and encourage local community partnerships for economic and social development. The model classifies the social and economic impacts into the five domains: economic, human, social capital, knowledge and place. The economic impacts are measured using an input-output model. Human capital focused on health care and educational missions of Academic Clinical Partnerships (ACPs), highlighting university hospitals' roles in delivering care and providing training. Social capital was assessed through qualitative methods like stakeholder interviews. Knowledge effects were gauged via grants, innovation income, reports, and research publications. Lastly, place effect is evaluated through local governance, community activities, economic impact, transport services, and environmental policy contributions to the built environment (Davies & Bennett, 2008). Figure 2.3 is Davies & Bennett (2003) conceptual model of social and economic effects of academic partnerships demonstrating the outputs in the inner ring and the societal effect (economic, social, place, knowledge and human) in the outer ring. This output may affect in different

ways for example knowledge output from research may be global and social and place effects are more local.

Figure 2.3

Conceptual model of economic and social effects of academic and clinical partnerships



Note. From Davies & Bennett, 2003 (<https://doi.org/10.1097/ACM.0b013e3181723033>)

2.13.4 Regional Growth Forecasts

Pink-Harper (2015) studied 23 non-metropolitan communities in the USA with a local research university and a further 23 non-metropolitan communities without a research university. The two groups of communities had similar populations and economic statuses. Non-metropolitan communities with a local university reported higher education levels, which led to economic growth through training, innovation, new businesses, jobs, and collaborations between the community and university. Higher education levels, improved access to education, community engagement, and job creation can drive economic growth. By investing in education and fostering partnerships between universities, local governments, and communities, nonmetropolitan areas can achieve sustainable development through local

spending and industry collaborations (Pink-Harper, 2015). The study supports findings by Hoyman and Faricy (2009) that groups of educated individuals can promote economic growth in non-metropolitan regions. However, Pink-Harper (2015) did not find evidence of economic growth in rural areas with populations of less than 11,000 because of limited data available for comparisons. Rossi and Goglio (2018) analysed the regional growth impact of 449 students and staff in a small university campus in Italy. The study found increased expenditure that stimulated a demand for local goods and services, such as sports and entertainment activities. Local mature-aged students had greater access to a university education and gained knowledge that facilitated their entry into the workforce. Sixty-nine research projects were conducted by the satellite university's faculties, showing that such a site contributes not only economically but also academically. These projects include local topics like timber and beekeeping and a small number of the projects had a national or international focus. Rossi and Goglio (2018) discuss that consolidating all resources, such as human capital and spending, into a single large university can be efficient. However, they also highlight that smaller university sites uniquely contribute to local economies by generating new businesses, engaging with the community, and promoting research and projects that benefit the local area. These studies provide insight into the benefits that regional universities can have on local communities. Undertaking an economic analysis could provide evidence of regional development.

2.14 Short-Term Economic Impact Studies

A short-term economic impact study measures new economic activity associated with an industry or university and attributable to its presence (Brown & Heaney, 1997; Elliott et al., 1988; Lemky et al., 2018). These studies are often referred to as short-term economic impact studies because the measurement is over a short period. Universities contribute to the local economy where they are based through the direct, indirect and induced effects of their

expenditure and the employment they generate (Sen, 2011). A mathematical model has been used to calculate the direct expenditure impact that the university and its stakeholders have on the local economy as other sectors respond to the demand for additional goods and services, causing a multiplier effect (Blackwell et al., 2002; Brown & Heaney, 1997; Drucker & Goldstein, 2007). Job creation, industry spending and GDP can be calculated in a short-term economic impact study (Watson et al., 2007). The drawback of a short-term study is that the Input-Output (I-O) table and multipliers measure only ‘backward’⁴ links from spending and do not capture a university’s ‘forward’ links, such as human capital, regional leadership and capital investment (Drucker & Goldstein, 2007). Furthermore, it reflects an economic effect but not the social effects.

Knowledge about how to conduct a short-term impact study draws on the seminal work of the American Council of Education (ACE) in 1971 and the two economists, Caffrey and Isaacs, who developed the ACE model (Elliott et al., 1988; Goldstein & Drucker, 2006). Their manual for how to conduct a short-term economic impact study has been adopted by universities globally and remains a model that institutions use today (Chakraborty & Edmiston, 2007; Garrido-Yserte & Gallo-Rivera, 2010). Elliott et al. (1988) emphasise that this methodology relates to short-term economic impact and ignores long-term economic impacts, such as the increases in human capital, infrastructure and technology. However, Garrido-Yserte and Gallo-Rivera (2010) and Maltais et al. (2023) argue that the use of common models allows results to be compared between universities and regions. Table 2.5 outlines the framework design by ACE and the basic steps to undertake short-term economic studies (Johansen & Arano, 2016). Studies often capture immediate impacts of community engagement, educational opportunities, cultural enrichment, direct spending, job creation,

⁴ As an industry grows from receiving direct spending, it demands more goods, services, materials (inputs) that benefits other manufacturers and suppliers of goods and services. I-O tables capture the effect from this spending.

industry spending, and GDP. However, less studies capture the long-term benefits such as human capital development, regional leadership, and capital investment.

Table 2.6

The American Council of Education Short-Term Economic Model

Step	Action
Step 1	Identify the region for the study.
Step 2	Survey staff and students on their expenditures while residing in the region.
Step 3	Identify incoming funds and grants from outside the identified region.
Step 4	Total the expenditure of Steps 2 and 3.
Step 5	Select a multiplier and apply it to total expenditure.
Step 6	Estimate the tax revenue generated from the university's economic impact.

Note. From Brown and Heaney (1997) (<https://www.jstor.org/stable/40196244>)

Elliott et al. (1988) (<https://doi.org/10.1007/BF00976857>)

No comprehensive list is available of short-term impact models used by different universities (McHenry et al., 2012). Table 2.7 describes some short-term methods used by universities to analyse their impact on the local region. Further, provides the name of each model, the instrument used in the methodology, some disadvantages, the origin of the model and, where possible, which university has used it. The table does not include an in-depth description of how the models work but only an outline. Siegfried et al. (2007) and Watson et al. (2007) emphasise that the methodology should be descriptive in a short-term impact analysis so that accurate and meaningful comparisons can be made. Maltais et al. (2023) suggest that universities should develop a national and international economic impact database to assemble the experiences and knowledge of various universities about how to conduct an economic analysis. Standardised tools for measuring economic impact in academia would facilitate the comparison of different university sites' economic impacts on their communities. Additionally, the short-term economic impact models currently in use vary in terms of models, multipliers, and input-output tables, making it challenging to compare the economic performance of one university site against another. For universities to effectively compare their economic impacts, either between their own sites or with other institutions,

there needs to be an agreed-upon methodology for assessing regional impacts. Different short-term economic impact models have their own strengths and weaknesses, depending on the study's context and goals. The literature highlights IMPLAN and REMPLAN as common tools. REMPLAN is dominantly used by Australian universities, local governments, and businesses to analyse economic contributions within Australia using data from the Australian Bureau of Statistics (Deloitte, 2020). In contrast, IMPLAN is commonly used by United States of America universities, government agencies, and businesses, relying on United States based data for economic assessments. Some of the advantages of utilising I-O modelling approach is that it is less expensive than some other approaches and provides estimated impacts from local industries (Loverage, 2010).

Table 2.7*Typology of Short-Term Economic Impact Models for Universities*

Name	Methodology (data, I–O table, multipliers)	Disadvantage	Origin and university studies
ACE model	Single fixed multiplier. Surveys participants. Measures direct and indirect effects of university, students, staff and visitor spending.	Time-consuming to gather data. All spending is considered new and results in a higher impact.	USA around 1970 US universities Brandon University
Simplified ACE model	Uses a single fixed multiplier. Surveys participants. Measures local businesses related to the university and jobs generated.	Time-consuming to gather data. All spending is considered new and results in a higher impact.	USA from 1970 Canadian universities University of British Columbia
Canadian I–O model	Uses Type 1, 2 and 3 multipliers and I–O table. Linked to industry multipliers.	No regional multiplier all is set for the national level.	Canada from 1968 Canadian universities
Impact Analysis for Planning IMPLAN	Uses Type 1 and 3 multipliers linked to US-based industry multipliers. Utilises an I–O table. Uses US based data.	US-based multipliers only.	USA from 1992 US universities
RIMS 11 Regional I–O multiplier	I–O table, Type 1 and 2 multipliers. Applied to university expenditure. Measures gross output, value added, income and jobs.	Requires detailed data.	
REMI 1 (I–O model)	Uses Type 1 and 2 multipliers. Non-survey based, uses National consumption data.	Cannot survey local participants.	USA from 1992
REMI 11 (I–O model)	Uses Type 1, 2 multipliers. Non-survey based, uses local coefficient consumption data.	Requires detailed data.	USA from 1992
REMPLAN	Uses I–O table and Type 1, 2 and 3 multipliers. Uses the Australian Bureau of Statistics and surveys.	Uses only one expenditure consumption table for comparison.	Australia Monash University
Economic base theory	Exports out of the region, taken as growth. Basic activities taken as activities that bring income into the region. Non-basic activities taken as all other economic activities in the region. Economic growth measured through exports from the region.		USA mid-1950s Northern Ontario School of Medicine University de Sherbrooke – Saguenay – Quebec

Note. From Bess and Ambargis (2011), Garrido-Yserte and Gallo-Rivera (2010), Johansen and Arano (2016), Lemky et al. (2018), Maltais et al. (2023), McHenry et al. (2012) and Rickman and Schwer (1995).

This study utilised an input-output (i-o) table with type 2 multipliers for the year 2018. A notable limitation of this study is the time constraint, as it represents a snapshot in time for that specific year. Consequently, the input-output tables reflect only the period in question. To

replicate this study, it would be necessary to obtain updated input-output tables and understand the current expenditures of staff, students, university, visitors and government funding provided. This study employed data from the Australian Bureau of Statistics and Input-Output tables relevant to the East Gippsland region, comparable to the methodologies used by REMPLAN in Australia and IMPLAN in the United States of America.

The next section provides an in-depth discussion of four examples of short-term impact studies undertaken by universities, the methodology used, the findings from the analyses and their limitations.

Dyason and Kleynhans (2017) conducted a short-term economic impact study for the Potchefstroom campus of North-West University in the Tlokwe region of South Africa. This large campus hosts 21,500 full-time in-person students. To collate and evaluate the direct expenditure from the university campus, the expenditure was allocated across a standard industrial classification system (a table with a list of industries) and combined with an I–O table to capture the economic effect over a three-year period. The study quantified how university expenditure stimulated the local industry by sector. The retail, transport, catering and accommodation sectors grew over three years; construction and manufacturing experienced less growth. The authors concluded that as the university campus became more established, fewer services were required from the manufacturing and construction industries. Their findings were limited to university direct spending and did not measure the expenditure of students, staff or visitors. This spending would have added to the long-term economic impact through job creation, human capital and innovation.

Hogenbirk et al. (2015) evaluated the economic contribution of NOSM to the Northern Ontario region of Canada. There was an estimated contribution of 67 million Canadian dollars to the community in 2007–2008 (single fiscal year). The direct, indirect and induced spending in the region were assessed using Type 2 multipliers. Beyond short-term

economic contributions, there was a long-term benefit for the region; some students who had trained at NOSM were returning as practitioners who further contributed to short- and long-term economic activity in the region. Hogenbirk et al. (2021) used the same Type 2 multipliers for expenditure and revealed an increase in the economic contribution of 60% from 2008 to 2019 (from 67 million to 107 million Canadian dollars). This result was attributed to the expansion of education programs and increases in student enrolments and research funds.

In 2018, the Monash University School of Rural Health conducted an analysis of the regional economic impact of the RCS using REMPLAN (Regional Economic Modelling Program) software. The results revealed that every dollar of expenditure in a region generated a further 92 cents across the region (REMPLAN, 2018b). For every ten Monash University School of Rural Health jobs created, an additional 6.7 positions were created as a flow-on effect. This study included three large regional sites in Victoria (Mildura, Bendigo and Gippsland) and expenditure from the Head of School located in Melbourne (outside a regional centre). The Gippsland region includes the townships of Warragul, Traralgon, Leongatha, Sale and Bairnsdale, whereas Mildura and Bendigo are regional towns. The expenditure from the Head of School was distributed across the regional sites for modelling of the economic benefit. The data demonstrated to legislators and interested stakeholders the economic impact and job creation generated by the establishment of three regional university sites in rural Victoria.

A short-term study by Carrascal Incera et al. (2022) examined the effect of student spending in the UK. The sample included 4,697 students from 42 different regions in the UK. A multi-regional I–O table was developed to analyse the contribution of student expenditure to job creation and local gross value added (GVA) for each region. The total student spending of £45 billion (in 2015, equating to 68 billion AUD) contributed to all regions generating an

increase in GVA and jobs. Regions with higher increases in GVA and jobs were regions with wider ranges of industries absorbing direct spending from students.

These four examples provide insight into the approaches that universities can adopt to analyse their economic impact. Dyason and Kleynhans (2017) quantified the university's direct spending in the region but did not analyse the long-term impact, such as jobs created or additional human capital that could support further regional growth. Hogenbirk et al. (2015) examined the university expenditure across different sectors and emphasised a long-term impact from the establishment of the university but did not use visitor spending in the region because this was thought to be minimal. The Monash University study used a standard software package to undertake an analysis of the university's overall impact. The data from smaller campus sites was included in larger sites' data, and no analysis was available for the more remote sites such as the SRH-B. A note of caution is due here; the REMPLAN software package averages household expenditure and does not break down expenditure for different types of households, such as couples' households with one member unemployed or group households with a least one adult member employed. Further analysing households can provide more accurate information. Carrascal Incera et al. (2022) only evaluated student expenditure in different regions and did not include university, staff or visitor expenditure. These examples demonstrate the importance of identifying the data used in the analysis, the analytical processes and how the methodological rigour was maintained so that accurate comparisons can be made (Watson et al., 2007). I-O tables are fundamental for economic evaluation, but a unified approach or detailed explanation of the analysis is needed for comparability.

2.14.1 Limitations of Short-Term Economic Impact Studies

Universities use various short-term methodologies (outlined in Table 2.7) to measure their institution's impact on a region. No standardised economic impact measure exists. As

Siegfried et al. (2007, p. 556) observe, universities should be cautious about making claims such as, 'For every one dollar the university receives from the government the university returns one dollar 50 cents to the state'. Siegfried et al. argue that these statements are meaningless and that it is better to report the study's details, including the region where it was undertaken, the data collection process, what I–O table and multipliers were used and the results. Providing this information allows more transparency about how economic impact studies are completed. Garrido-Yserte and Gallo-Rivera (2010) and McHenry et al. (2012) support this view, maintaining that caution is advised when there are jurisdictional claims of economic contributions because unless the methods used for economic impact studies are disclosed, the results can be skewed in favour of the university. Hashem et al. (2022) examine the contributions of new medical schools to health, social, economic, and research impacts. They caution that the variation in economic models and the context in which studies are conducted may pose challenges in relating the findings to other studies.

Previous studies on the short-term economic impact that a university has on a region have only assessed direct and indirect and induced expenditure effects; they have not considered wider social impacts or long-term impacts, including on human capital, community leadership and investment in infrastructure, innovative technology and the regional environment (Davies & Bennett, 2008; Drucker & Goldstein, 2007; Johansen & Arano, 2016; Hogenbirk et al., 2015; Pastor et al., 2016).

In summary, universities use different short-term economic models to assess their impact; however, there is no one standardised approach raising concerns about transparency, accuracy and long-term effects on human capital, infrastructure and regional development. The next section critically analyses the literature about some long-term impacts a university may have in its region.

2.15 Long-Term Economic Impact Studies

Although most studies have focused on short-term economic benefits, others have considered the long-term impact of HEIs and the benefits they bring to local and regional communities (Benneworth & Charles, 2005; Pink-Harper, 2015). There are several ways that universities provide long-term benefits: (a) more educated and skilled students and citizens, (b) research collaborations, (c) development of technology and innovation and (d) infrastructure built in the region (Goldstein & Drucker, 2006; Pastor et al., 2018; Rossi & Goglio, 2018; Valero & Van Reenen, 2019).

2.15.1 Increase in Skilled Students and Citizens

The term ‘human capital’ refers to graduates and staff with education, training and personal and technical skills who contribute to the community and support greater economic productivity and investment in a region (Abel & Deitz, 2012; Cocklin & Dibden, 2004; Davies & Bennett, 2008). A general population with enhanced knowledge and skills generates more employment opportunities and is more productive than unskilled workers (Rossi & Goglio, 2018; Valero & Van Reenen, 2019). Abonyi (2016) and Pink-Harper (2015) have shown how educated graduates who remain in a region can contribute to the local economy through spending and help to enhance the regional economy’s businesses and enterprises through new knowledge. Little literature is available to guide the assessment of the long-term impact of universities on their region from a human capital approach. A few examples are given to illustrate the data, methods and results showing the impact of educated graduates and staff.

Blackwell et al. (2002) estimated the human capital effect by studying local and non-local students at Xavier University in Cincinnati, Ohio. Using the university’s alumni register, the authors analysed the percentage of students living in the region six years after graduation. The results revealed that 26% of non-local graduates (students from outside the metropolitan

area) and 84% of local graduates were residing in the region after six years. The authors concluded that the university contributed to long-term growth in the region through educated graduates residing locally beyond its contributions to short-term economic activity through direct and indirect expenditure. The study did not report the number of graduates or where they were employed. Johansen and Arano (2016) estimated the economic impact of college students who remained in the region by using an equation developed by Mincer (1974) to estimate work-life earnings after graduation. The authors concluded that the long-term effect included an additional 1.29 billion USD (1.41 billion AUD) in an unnamed state of the USA. Although both studies demonstrated the long-term benefits of graduates remaining in the region, Johansen and Arano (2016) argued that their long-term impact study was superior because other studies failed to consider the earnings of graduates throughout their working lives. Capturing earnings information provides a better estimate of the long-term impact of human capital in a region.

2.15.2 Research and Innovation

Other studies (Davies & Bennett, 2008; Drucker & Goldstein, 2007) indicate that having more educated and skilled people in a region supports technological innovations that can promote development for local industries and support economic growth. Abel and Deitz (2012) assert that universities play a role in increasing the demand for skilled workers through their research activities and community projects developed by the institution. Local businesses can partner with universities to support new technologies and create regional jobs (Abel & Deitz, 2012). Research projects in partnership with local industry can address local health or environmental issues (Rossi & Goglio, 2020), and universities that collaborate with local industries and government departments can develop further research projects (Pugh et al., 2016). Holding conferences in a region promotes networking, increases the number of

visitors, provides a foundation for new research activities and helps to establish a progressive regional identity (Uyarra, 2010; Valero & Van Reenen, 2019).

The OECD (n.d.-b) identifies regional leadership as a major contributor to economic growth. However, to become an effective leader within the community, all sections of the community should be consulted, power should be shared within groups, and groups must be willing to collaborate with other individuals, industries and institutions (Stimson et al., 2003). Stimson et al., (2003) argues that sustainable development of a region is reached through strong, proactive local leadership and effective institutions.

Collectively, the studies described here outline how universities can bring long-term benefits to the region in which they are located. There is no single method in the literature to quantify or qualify the long-term impacts of human capital, knowledge creation, technology and innovation. However, most literature supports the argument that the university's presence is a key advantage for community development. Table 2.8 summarises some of the short and long-term impacts on a region from a university's presence.

Table 2.8*Examples of Short-and Long-Term economic effect from universities*

Effects from impact studies	
Expenditure	Human capital
Sen (2011)	Drucker and Goldstein (2007)
Johansen and Arano (2016)	Pink-Harper (2015)
Hogenbirk et al., (2015)	Blackwell et al., (2002)
Hogenbirk et al., (2021)	Johansen and Arno (2016)
Chakraborty and Edmiston (2007)	Davis and Bennett (2008)
	Abel and Deitz (2012)
Gross domestic product	Research and Innovation
Carrascal Incera et al., (2022)	Hogenbirk et al., (2021)
Pastor et al., (2018)	Rossi and Goglio (2018)
Valero and Reenen (2019)	Abonyi (2016)
Jobs	Benneworth and Charles (2005)
REMPLAN (2018b)	Pugh et al., (2016)
Carrascal Incera et al., (2022)	McGrail et al., 2023
Dyason and Kleynhans (2017)	Infrastructure Development
	Greenhill et al., (2015)
Industry sales	
Dyason and Kleynhans (2017)	

Note. Adapted from “*The impact of the university upon local economy: Three methods to estimate demand-side effects*” by Garrido-Yserte and Gallo-Rivera (2010).

<https://doi.org/10.1007/s00168-008-0243-x>

2.15.3 Infrastructure Development

Developing infrastructure which includes physical structures and education facilities for medical schools and university sites can positively impact economic growth and employment. The Rural Clinical Training program in Australia enabling healthcare students to undertake various lengths of placement, through this program has established infrastructure in rural communities to facilitate high quality teaching and learning facilities (Greenhill et al., 2015). Adequate and well-functioning education centres significantly improve education and health by training medical professionals in an effort to improve the local rural medical workforce

(Greenhill et al., 2015). Further, the development of RCS's supports the local community, facilitates the use of education facilities, supports interdisciplinary training and fosters community engagement. Rural Infrastructure is important to accelerating economic growth and sustaining a rural workforce.

2.16 Economic Impact Summary

This review has shown that universities, medical schools, community based medical programs including longitudinal integrated clerkships contribute to their communities in ways that go beyond the provision of education, research and innovation. Economic impact studies are a valuable tool for assessing a region's economic growth due to the presence of a university. Short-term expenditure models can measure the direct, indirect and induced effect of expenditure of the university and its stakeholders and show how this supports economic growth. The results can provide valuable information to justify funding, promote partnerships and identify areas of growth in the region attributable to the university's presence.

The presence of a university has long-term regional impacts through changes in human capital and staff involvement in the community. Long-term impact studies can measure the impact of graduates and staff in fostering research and industry collaborations. Studies that measure intangible benefits from graduates and staff, such as leadership, cultural diversification and artistic talents, are less common; because these benefits are more difficult to measure, the outcomes are often theorised. This review has shown that the economic impact of a university's presence occurs not only through the quantitative effects of expenditure, job creation, human capital, innovations and research but may involve a qualitative impact through collaborations, leadership, networks and cultural and artistic diversification.

Research indicates the various methods available to assess economic impact. This review identifies different methodologies and data used to analyse universities, colleges including

medical school's effects on regions and metropolitan areas. Due to varying methods and region sizes, comparing results is difficult without consistent metrics. Medical schools should adopt a unified methodology to compare their economic contributions with other universities. Many business studies on large universities lack methodological details, complicating comparisons with smaller studies.

There is limited literature addressing the impact of smaller university sites and Rural Clinical Schools on the communities in which they are situated. Rural Clinical Schools (RCSs) are not universities. The Rural Health Multidisciplinary Training (RHMT) program funds 21 universities, creating a network of 19 RCSs and 16 University Departments of Rural Health (Department of Health and Aged Care, 2024-e). This network provides infrastructure and academic connections for healthcare student training. This study focuses on an MM4-7 region, unlikely to attract or sustain a university. Methods used aim to capture social and economic impacts in a small rural town, differing from large metropolitan areas with universities.

Chapter 3 describes the study location of East Gippsland, the researcher's standpoint and the research design, including the methodology. The rationale for the research design is presented, together with the data collection process, which is based on hearing the stories of East Gippsland stakeholders about their experiences with the SRH-B. The chapter presents the mathematical approach used for the economic analysis, including the multipliers. It further outlines how the social and economic analyses were undertaken and how methodological rigour was maintained.

Chapter 3: Methodology

3.1 Introduction

This study aims to investigate the social and economic impact of a Rural Medical School on its local community using a convergent parallel mixed methods critical case study approach. As discussed in Chapter 2, a review of the literature revealed minimal research on the social and economic impacts that a medical school situated in a rural community, particularly in terms of understanding the perspectives of stakeholders. This study seeks to address the research gap and explore the social impact and its economic contributions a medical school has on a rural community.

This chapter describes and justifies the study's research design and methodological approach. It describes the methods used to collect and analyse data. Section 3.2 describes the study location. Sections 3.3 to 3.5 describe the researcher's role and reflexivity and give the research paradigm chosen for the study. Sections 3.6 to 3.13 explain the methodology and research design and provides context to the case study. The qualitative and quantitative data analysis is discussed in Sections 3.14 to 3.16 and the convergence of the data in Section 3.18. The chapter concludes with the strategies used to maximise rigour and trustworthiness, and the study's limitations are outlined in Section 3.19 to 3.20.

3.2 Study Location

As described in Chapter 1, the SRH-B is primarily located in Bairnsdale in East Gippsland (see Figure 1.4). The case boundary for this study is the East Gippsland local government area (LGA), as it is where the social and economic interactions take place between stakeholders (staff, students, healthcare professionals and community members) and the SRH-B. In this study, the terms municipality, region and LGA are used interchangeably and refer to the East Gippsland region.

The population is concentrated in the south-west part of East Gippsland (the Gippsland Lakes area) and is sparsely distributed elsewhere. Table 3.1 provides demographic information and remoteness classifications for East Gippsland. The Australian Statistical Geography Standard—Remoteness Areas (ASGS—RA; Department of Health and Aged Care, n.d.-a) uses population data from the 2011 Census to determine five remoteness categories. The modified Monash model (MM; Department of Health, 2023c) is an updated model endorsed by the Australian Government to categorise metropolitan, regional, rural and remote areas by their geographical remoteness and town size. The MM model is a seven-scale classification system that further differentiates areas in inner and outer regional Australia based on town size. Further it is aligned with the 2021 Census data and designed to better distribute health workforce programs such as bulk-billing incentives and workforce incentive programs. The MM model had been developed but not implemented when the online questionnaire was developed at the start of this study. The categories for East Gippsland are given in Table 3.1.

Table 3.1

*Australian Statistical Geography Standard - Remoteness Areas and Modified Monash Model
Classification Scales for East Gippsland*

Modified Monash model	Australian Statistical Geography Standard	Town (population)
MM1	Metropolitan area: ASGR-RA 1 Major city	-
MM2	Regional centres: inner (ASGS-RA 2) and outer (ASGS-RA 3) areas that are within a 20 km drive of a town with over 50,000 residents	-
MM3	Large rural town: inner (ASGS-RA 2) and outer regional (ASGS-RA 3) areas that are not MM2 and are within a 15 km drive of a town with 15,000 to 50,000 residents	Bairnsdale (15,684)
MM4	Medium rural towns: inner (ASGS-RA 2) and outer regional (ASGS-RA 3) areas that are not MM2 or MM3 and are within a 10 km drive of a town with 5,000 to 15,000 residents	Lakes Entrance (5,145)
MM5	Small rural towns: All remaining inner (ASGS-RA 3) and outer regional areas	Omeo (411) Orbost (6,727)
MM6	Remote communities: remote mainland areas (ASGS-RA 4) and remote islands less than 5 km	Mallacoota (1,183)
MM7	Very remote communities: (ASGS-RA 5)	-

Note. From “Modified Monash model” by Department of Health (2020).

<https://www.health.gov.au/sites/default/files/documents/2020/07/modified-monash-model-fact-sheet.pdf>

“*Australian statistical geography standard-Remoteness area*” by the Department of Health and Aged Care (2021) <https://www.health.gov.au/topics/rural-health-workforce/classifications/mmm>

3.3 Researcher Positionality

It is important to acknowledge my positionality as an insider-outsider researcher in this study and the influence this has on the research process (Schwartz-Shea & Dvora, 2024). As emphasised by Braun and Clarke (2013), research is a subjective process, and the researcher's positionality influences their role and interaction with the data in knowledge production. A researcher's positionality is shaped by their life experiences, education level, ethnicity, age, gender, nationality and class privileges. It is my responsibility as a researcher to acknowledge how my personal and professional background, values and views influence the researcher–participant interactions, my interpretations of participant responses and their experiences through all phases of the research, including the development of the research questions and the collection, analysis and interpretation of data (Jacobson & Mustafa, 2019). As an insider I belonged to the SRH-B academic faculty and worked alongside other SRH-B colleagues and many healthcare professionals working in East Gippsland. Being an insider brought some benefits to the research as some participants appeared to provide information more freely than the participants whom I did not have an association with. In contrast I had an outsider stance compared to most community participants who undertook the questionnaire and interview. The community participants were any person who had an association with the SRH-B, and who lived in the East Gippsland LGA. Despite the limitations of not having a deep understanding of the community participants' experiences, their responses provided valuable insights and perspectives to the questions being asked.

I have resided with my family in the East Gippsland municipality for the past 25 years. I am a woman of English ancestry, attended the local primary and secondary school in the Gippsland region and took the opportunity to go to university after vocational training as a nurse in Melbourne. I spent my childhood on a sheep farm in East Gippsland and understand how resilient a person needs to be to run a farm business, especially with the changing

seasons and hardships farmers face. After secondary school, I was unsure of what I wanted to do and fell into a nursing career. This opportunity allowed me to live in Melbourne and have experiences very unlike living in a rural area. Living and working in Melbourne afforded me the opportunity to further my education while working as a nurse. After working in Melbourne for several years, I wanted to return to a rural area and worked remotely as a Bush Nurse in Swifts Creek, a 60-minute drive from Bairnsdale. As a Bush Nurse, I worked independently, attending to patient care in the remote areas of Swifts Creek and Omeo. I viewed the establishment of the SRH-B in 2003 as a great initiative for the region, which had difficulty attracting or retaining healthcare workers. I was fortunate to gain a position with the SRH-B in Bairnsdale in the initial stages of its establishment. I held an academic appointment with Monash University and a clinical appointment with Bairnsdale Regional Health Service (BRHS). In addition to these roles, I had appointments on academic and education committees with the SRH-B and BRHS. In 2023, I resigned from my position at SRH-B but maintained a clinical role with BRHS.

3.3.1 Reflexivity

Reflexivity is a strategy used by researchers to critically reflect on their role and the knowledge created in a study (Berger, 2015; Braun & Clarke, 2013). The process of personal reflection allowed me, as the researcher to consider how my positionality may affect the research processes, the questions asked and the interpretation and analysis of the results (Bradbury-Jones, 2007; Cayir et al., 2022). Berger (2015) and Braun (2013) describe reflexivity as a strategy for quality control through an understanding of how the researcher's position may influence the generation of knowledge. Being reflexive in all phases of the study can enhance the trustworthiness and credibility of the research findings (Braun, 2013).

Reflecting on my positionality with many of the participants, I observed the participants I had an association with, spoke more openly about their experiences. I had worked in the local

healthcare settings or at the SRH-B with many participants who completed the online questionnaire or participated in interviews and had an association with some community participants., it left me thinking if this openness was because of our professional or community association. Moreover, having had an association with the participants allowed my insider role to understand and make meaning of the participants responses.

I reflected continuously on the impact of power relationships on recruitment and the perceived control in the research process, including the selection of participants, the construction of the interview questions and data collection, analysis and interpretation. In the interviews. I did not presume to understand the lived experience of the participants, who each had unique experiences and interactions with the SRH-B. I remained reflective and open to alternative interpretations of the data by reflecting on my assumptions based on the participants' interviews responses. Additionally, I recognised my insider role contributed to a deeper understanding and meaning of the participants responses.

Berger (2015) proposes three ways a researcher can influence research:

1. Certain participants may be more willing to participate because of their association with the researcher.
2. The researcher–participant relationship may influence the information the participant is willing to share.
3. The researcher's background and worldview may drive them to pose questions and interpret and analyse the data through a particular lens.

Reflecting on my positionality and how it could influence the research processes was an important consideration in each phase of the study. Having an awareness of this allowed me to better understand my positionality to enhance the accuracy and quality of the study to gain credible results and maintain researcher trustworthiness. To mitigate any influence, I

may have had on the research study, I adhered to several procedures and maintained a degree of self-awareness throughout the research process. These activities included:

1. Writing memos about my thoughts at the end of each participant interview, which helped me to reflect on my discussions with participants and my position in the research
2. I challenged my assumptions and engaged critical reflection and discussions with supervisors to facilitate meaningful insights. These reflections and discussions helped ensure my interpretations remained grounded in the participants' perspectives.
3. Maintaining consistency in the questions and prompts during the interview process to avoid influencing the participants or directing information
4. Having another researcher, not known to or with an influence on the participant, conduct the interview when the researcher knew a student and there was a perceived imbalance of power. This occurred for students in a group interview where I contributed to their assessment.

In 2018, the SRH-B underwent a review of its governance, curriculum delivery and research activities. This was a time of uncertainty and, at times, grief for staff, stakeholders and community members, and this was reflected in some data from the questionnaires and interviews. Some staff were made redundant because of the review. The participants' views about their interactions with SRH-B during the review were not always supportive of the changes. When the participants provided their views about the SRH-B restructuring, I acknowledged the participants' concerns and tried not to pass judgement or comment on the events, keeping the aims of the research in mind. I wrote field notes and reflected on the comments after each interview and during the analysis phase. All participant responses were acknowledged, valued and included in the qualitative data. It was during and after the

interviews that reflexivity became critical to the credibility and trustworthiness of the study.

Below is an excerpt from my interview diary reflection:

30th April 2018. Interviewing participants is becoming very difficult with the change in governance at the SRH-B. I have managed to maintain an equilibrium throughout the interviews by maintaining the interview protocol, anticipating some negative conversations and writing notes after each interview. The tension in the SRH-B is at times very grim and it is hard not to be biased and want to agree with the participants' responses around change. I am unsure how the interviews in the GP clinics will transpire as the change in governance will directly affect them. I have reflected on every step taken throughout the recruitment and interview phase. I have tried to maintain a positive attitude to the local change but find myself procrastinating because of the negative atmosphere around me.

Practising active acknowledgement and engaging in reflexivity during the research process helped to ensure that the study was credible and trustworthy and held me accountable.

3.3.2 Motivation to Undertake the Study

The motivation to conduct this study developed when the SRH-B was being established and SRH-B staff were engaging with the healthcare providers, clinicians, businesses and the communities of East Gippsland. I was employed by the SRH-B to help build and coordinate different academic years and teach clinical skills to medical students. When the SRH-B was being established, I was impressed by the goodwill and support displayed by the different sectors of health professions and the community. By facilitating student placements and teaching, supporting open days, funding scholarships, attending community advisory committees and welcoming students into local clubs, the East Gippsland community, including the healthcare services and local clinicians, supported the SRH-B. It was because of these generous relationships and support that I became increasingly interested

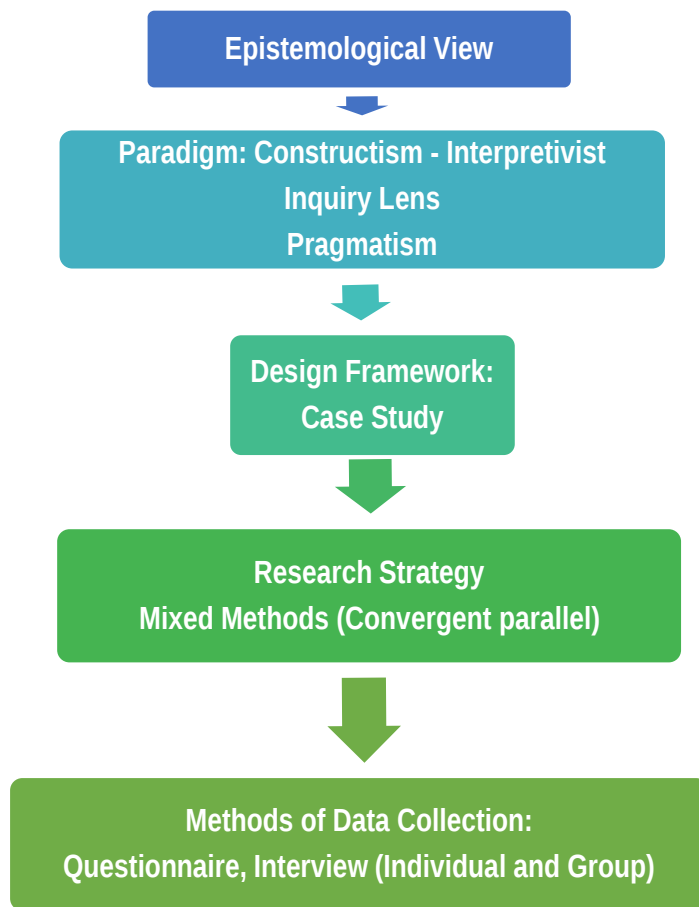
in exploring the relationships and why they existed. I was also interested in what it means to a rural community to have an RCS present and developed a genuine curiosity about the impact of the RCS on the East Gippsland community. The acts of goodwill and support and the reasons why they occur are not represented in the literature.

3.4 Research Design

The primary aim of the study was to explore the social and economic impact that a medical school providing 450 student weeks per year has on a rural area classified as MM4-7. A further aim was to explore how knowledge of the social and economic impacts can shape strategic directions, develop further opportunities and maintain sustainability for the medical school situated in a MM4-7 region. Figure 3.1 outlines the research methodology chosen for this study to address the research aims. As outlined by Tashakkori and Teddlie (2010), a research design is a strategic framework created to answer the study question. It encompasses a planned sequence of events to guide how the study will be conducted to answer the research questions (Durrheim, 2006). A research design framework includes elements of the research strategy and methods that outline how the data will be collected and analysed; how this is developed and delivered is deeply connected to the worldview of the researcher (Saunders et al., 2015).

Figure 3.1

Research Methodology



3.5 Research Paradigm

This study was designed using a constructivism-interpretivist research paradigm (Cohen et al., 2018; Creswell, 2014; Goodrick, 2016). Combining constructivist and interpretivist epistemologies with a pragmatic approach provided diverse insights from participants' experiences, addressing the study aims (Patton, 2015). Pragmatism enhances constructivism by ensuring that socially constructed knowledge is practical and adaptable, making it useful in real life across domains such as education, healthcare, and research (Hickman et al., 2011).

As described by Creswell (2014), a social constructivist actively seeks and constructs multiple meanings and views based on the participants' experiences. Participants' knowledge and

understandings emerge from their own lived experiences, beliefs, as well as social interactions (Creswell, 2014). Interpretivism focuses on understanding the subjective meanings, including cultural nuances within individuals' social contexts. That is, individuals create meaning through their experiences and interactions. By adopting this research philosophy, researchers embrace an emic perspective allowing a deeper engagement with participants' viewpoints and experiences. This approach allowed for the development of multiple perspectives and rich interpretations from the participants experiences, contributing to in-depth knowledge relevant to answering the research question (Creswell, 2014). Additionally, employing different research methods provided flexibility, ensuring a comprehensive exploration of participants' views while mitigating the limitations inherent in relying solely on one methodological approach (Creswell, 2014).

3.6 Case Study

The Case

To meet the aims of the study, a mixed methods critical single case study approach was chosen (Yin, 2014). The rationale for selecting a critical single case study design is to investigate and analyse in-depth the impact that the establishment of a medical school located in a MM4-7 location has on the region. Yin (2014) describes a case study as 'an empirical inquiry about a contemporary phenomenon (e.g., a "case"), set within its real-world context, especially when the boundaries between phenomenon and context are not clearly evident' (p. 18). This critical case study examines the SRH-B, a medical school providing 450 students weeks per year (the case), in detail. It explores the impacts on the community within the context of East Gippsland region (MM4-7) in Australia, where all the interactions between the SRH-B and stakeholders took place (Saunders et al., 2015; Stake, R. E. 1995). Numerous studies and reports exist on the contributions that large university sites make to their region. However, there is minimal evidence providing insights into the impact a medical school

providing 450 student weeks per year has on a region classified as MM4-7. Analysing this case study in its context will provide opportunity to explore the interactions between the SRH-B and East Gippsland, generating rich data that will contribute to the advancement of knowledge and understanding of the impacts a medical school has on its community. The case was chosen because it provides a multiplicity of evidence by exploring both the social and economic impacts. Additionally, this research results and methods can be repeated at a later date to observe changes over time and used by other medical schools in similar situations to demonstrate performance or comparability. Focusing on the SRH-B and its interaction with the East Gippsland region provides insights and in-depth understanding of the connections, perceptions and interactions that exist between a medical school and the community in which it resides (Crowe et al., 2011; Feters et al., 2013).

Case Boundary

Defining the boundaries of the case was considered first as it represented where all the social and economic interactions took place with the SRH-B (the case). The case boundary was determined based on the demographics of the region (LGA of East Gippsland), the participants (who resided in the region and who had an association with the SRH-B), the timeframe from 2016-2019, and the organisations with which the SRH-B interacted in a social, cultural and business context within the LGA of East Gippsland.

The SRH-B is located within the geographic LGA of East Gippsland. This geographic area was chosen because it is where all the interactions took place, and statistics about the economy and society is accessible and available. The SRH-B is co-located on the Bairnsdale Regional Health Service site in the township of Bairnsdale. The health services offering clinical placements for medical students, along with the social clubs they participate in and SRH-B, are all located in the same area. Furthermore, it is within the LGA of East Gippsland

where staff employed by the SRH-B reside, as well as community members and business owners connected to the SRH-B.

The next stage was to identify the sample from the East Gippsland region to be studied. It was important to identify those groups of participants who had an association with the SRH-B whilst residing in the region. The sample was identified through mapping the groups of people who had interacted with the SRH-B and resided in East Gippsland. The purposive sample list includes four groups of participants: students, staff, healthcare professionals and community and business owners. To ensure a reliable representation, it was important to include local community members who has an association with the SRH-B. This included local members of parliament, local council members, community group members residing in the region and who had interacted with the SRH-B activities, medical students who had undertaken placement, other healthcare students associated with the SRH-B through utilising the SRH-B facility, or undertaking educational activities, SRH-B staff living in East Gippsland, and healthcare professionals involved with SRH-B or its students. Another factor to consider was the specific timeframe of the case study, which spanned from 2016-2019.

Table 3.2 outlines the case study boundaries and provides descriptions of the case, the participants and the context. Before moving onto describing the methods used for this case study, it is important to provide context in which the case study was undertaken including the establishment of the Monash University, School of Rural Health including the SRH-B, its medical education training programs, the East Gippsland regions economic profile, social factors and health services available in the region. Additionally, the establishment of the SRH-B within the East Gippsland region has enhanced clinical education and provided benefits for the community through various community engagement activities.

Table 3.2*Case Study Boundaries and Descriptors*

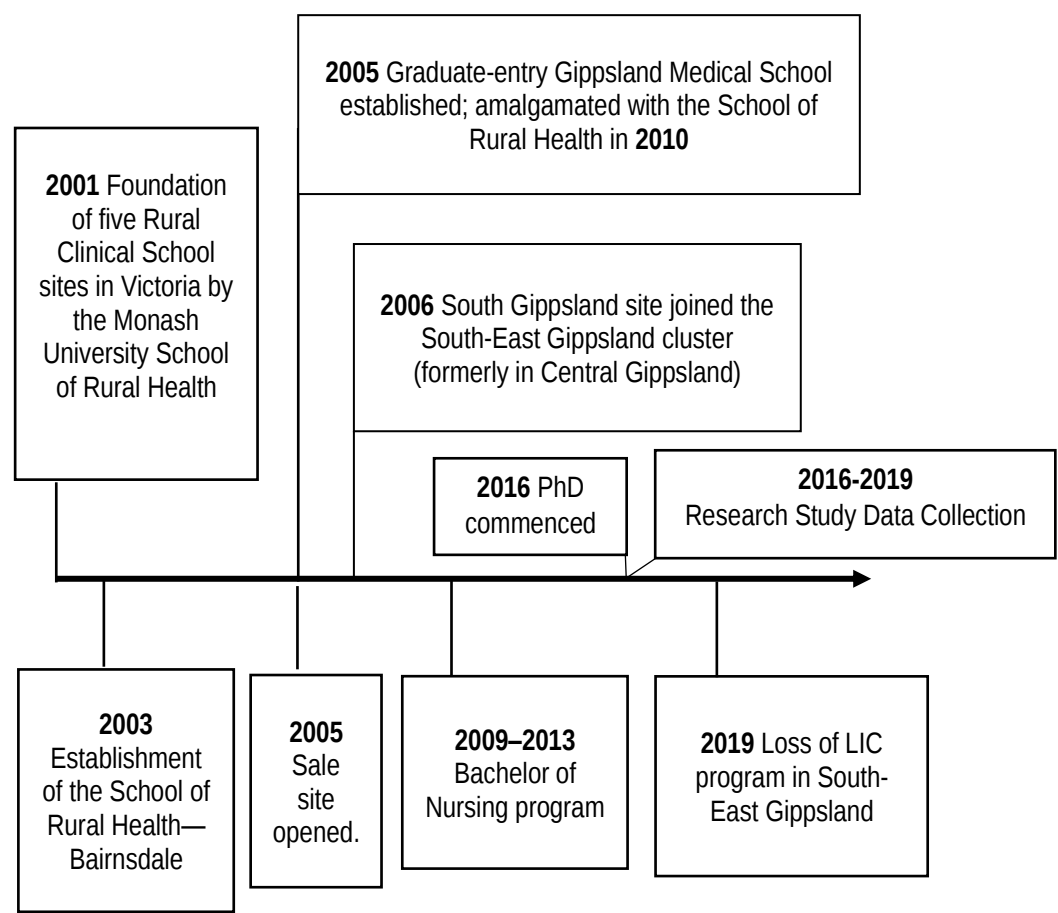
Element	Description
Case	Medical School providing approximately 450 student weeks per year (Monash University School of Rural Health—Bairnsdale)
Case study elements	Medical school (Monash University School of Rural Health—Bairnsdale) and students, staff, healthcare professionals and community members who have a connection with the school: • any healthcare student who has undergone training at the school • academic and professional employees of the school with casual or fixed-term positions • healthcare professionals involved in student supervision or teaching of any healthcare student at the school • community members and business owners who are involved with the school, including patients, local members of council, local member of parliament, general practice managers, administrators, managers of other rural training pathways in the region, librarians and community members involved with student–community activities. • Study timeframe 2016–2019
Case study context	The East Gippsland region in which the school is located and where the interactions between the medical school, staff, students, healthcare professionals and community members including business owners take place. These stakeholders can provide insight into the social and economic impacts a small rural school has on its community.

Note. Table design taken from “Case Study Research Design and Methods – Fifth Edition” by Yin (2014).

3.7 Establishment of the Monash University School of Rural Health—East Gippsland

Figure 3.2

Establishment of the Monash university School of Rural Health-Gippsland



The Australian Government’s Rural Health Multidisciplinary Training (RHMT) Program began in 2004 to address the shortage of health professionals in rural and remote area of Australia by providing training opportunities for medical, nursing, dental and allied health students in these regions (Department of Health and Aged Care, 2024e).

Monash University receives RHMT program funds and as part of the funding agreement 25 per cent of the university’s Commonwealth-supported medical students must undertake a minimum of one year in a rural area classified by the Australia Statistical Geography Standard – Remoteness Area (ASGS-RA) 2-5. Additionally, the university must ensure at least 50% of

Commonwealth-supported medical students complete a rural placement lasting a minimum of 4 consecutive weeks at some point during their medical course. Another core requirement of the funding is that 25 per cent of the University's Commonwealth-supported medical allocations must be granted to students who have resided in a rural region of Australia for five years consecutively or ten years cumulatively (Department of Health and Aged Care, 2024e). International and local students undertake placements in East Gippsland. Students whose parents were not originally from Australia but who emigrated to Australia and have had children born in Australia are also eligible to be part of the RHMT program. Whilst international students are not eligible under the RHMT program they can elect to undertake a two-week rural placement in year two as part of their Medical Doctorate. During this placement, students are introduced to the rural clinical environment undertaking placements in the acute and community healthcare settings. These medical students bring cultural diversity to a region that has not previously experienced multiculturalism. This allows local communities to engage with and understand medical students from different cultural backgrounds.

In 2001, the Monash University School of Rural Health established five sites in Victoria: Bairnsdale, Traralgon, Bendigo, Mildura and a Head of School office in Moe (33 km from Traralgon). A Melbourne office at the Monash University Clayton campus provided a base to liaise with faculty staff and students (Solarsh, 2005). Monash University has a high intake of domestic and international medical students ($n = 314$ in 2024; Monash University, 2024-a; Monash University, 2024-b).

The SRH-B site was established in Bairnsdale with the appointment of academic and professional staff and the construction offices adjacent to the Bairnsdale Regional Health Service. The first intake of medical students was in 2004. In 2005, a further rural campus was established, attached to Central Gippsland Hospital in Sale. A third RCS site in Leongatha,

South Gippsland, later amalgamated with the Bairnsdale and Sale campuses. The South Gippsland campus had been part of the Gippsland RCS cluster and was located closer to Traralgon; however, after a threat of disbandment, it joined the East Gippsland campuses of Bairnsdale and Sale to form the South-East Gippsland site.

Until 2019, the SRH-B offered a year-long clinical placement for medical students interested in completing their fourth year in East Gippsland. This model of education, adopted by the SRH-B for the undergraduate and graduate program, was based on the successful Parallel Rural Community Curriculum (PRCC) model developed by Flinders University for the Riverland in South Australia (Worley et al., 2000). Graduates undertaking the PRCC program stay in the region for the entire academic year and engage in clinical learning in general practice and a small rural hospital (Worley et al., 2000).

In 2018, a review of the Gippsland RCS by Monash central faculty and the Head of the Rural Clinical School resulted in staff restructuring, amalgamation of sites under one director in the Gippsland region, and discontinuation of the longitudinal program. The changes were designed to enhance the delivery of medical education and training in rural and regional areas, making it more efficient and effective. From 2019, medical students rotate to the SRH-B site for one semester (18 weeks) rather than the full academic year (36 weeks). The second semester is divided between speciality placements in another rural region. Table 1.2 shows the Year 4 clinical rotation placements.

Table 3.3

School of Rural Health—Bairnsdale Longitudinal Integrated Clerkship Program and Tertiary (Metropolitan) Block Model

Metropolitan block model	Tertiary block model: 9 weeks, women's health	Tertiary block model: 9 weeks, children's health	Tertiary block model: 9 weeks, general practice	Tertiary block model: 9 weeks, psychiatry
SRH-B LIC program in 2005-18	Bairnsdale: LIC 36 weeks: women's health, children's health, general practice, psychiatry			
Restructured LIC program 2019-24	Bairnsdale: general practice: 18 weeks Undertaken in East Gippsland Region		Rotation: 6 weeks, psychiatry	Rotation: 6 weeks, children's health
			Placements in Psychiatry, Children's and Women's Health in another rural region outside East Gippsland	
Year 2 Students' 2-week placement May and October yearly	2003-2018 12–22 students per rotation	2019- 2024 8-12 students per rotation		
Year 5 Students 6-week placements x5 rotations (Rotations include Surgery, Medicine, Emergency, Aged Care)	2005 to 2024 2–5 students each rotation			

Note. LIC = longitudinal integrated clerkship; SRH-B = School of Rural Health—Bairnsdale.

Data from Monash Rural Health (2017).

3.7.1 Establishment of the Monash University Graduate Medical School in Gippsland

In April 2006, the Federal and state governments of Australia and Victoria (respectively) announced the provision of \$12 million to establish a graduate-entry medical school at the then Monash University campus in Churchill, located 142 km east of Melbourne. The Monash University graduate-entry medical school, Gippsland Medical School (GMS), had an initial cohort of 57 ($n = 57$ in 2008), received Federal support for graduate students to undertake a preclinical foundation year in medicine before completing their remaining clinical years at another Monash University rural or metropolitan site (Clough, 2012). Addressing the medical practitioner shortage in rural Australia was the motivation for the establishment of

the graduate-entry medical school. The graduate program operated in parallel with the well-established Monash University, RCS sites in Gippsland and offered a different style of curriculum delivery (Clough, 2012). The GMS amalgamated with the RCS in 2010 after financial difficulties and was vying for placements alongside the RCS (Clough, 2012). The GMS came under RCS governance, and the two medical schools delivered a united undergraduate and graduate medical program in the Gippsland region.

The SRH-B program was enriched by the inclusion of GMS students as fourth-year medical students with diverse undergraduate backgrounds that included journalism, pharmacy, engineering, nursing and the arts. Further changes to policy in 2014 streamlined the admissions process for biomedical students who had undertaken a Monash University medical sciences course. The GMS has continued to expand and admits 73 graduate students each year (Monash University, 2024). In 2022, a Gippsland Partnership Program commenced between Federation University and Monash University's Churchill campus, enabling Gippsland students studying biomedical science at Federation University to enter the Monash University medical program in Churchill (Federation University, n.d.). Figure 3.2 provides a schematic outline of the establishment of the Monash University School of Rural Health in Gippsland. Appendix A provides a historical overview of the development of Monash University's RCS program.

3.7.2 Programs to Train Health Workers

Prior to the establishment of the SRH-B, there was little education available for health professionals in East Gippsland. Professional development for local clinicians required them to travel outside the region to maintain or update their knowledge and skills. The Division of General Practice, an organisation to support GPs and their training, relied on pharmaceutical or specialist companies to provide education. Undergraduate and graduate medical placements were ad hoc; placements were available for medical students who were John Flynn scholars

supported by the Australian Government or who knew a local clinician who was willing to supervise a student (Young et al., 2011).

Undergraduate nurses undergoing placements were predominantly from Monash University. From 2009 to 2013, its Churchill campus ran a satellite training hub through the SRH-B for local Bachelor of Nursing students who could not travel to Churchill because of family and work commitments. The sale of the Churchill campus to Federation University in 2013 saw the satellite hub closed and undergraduate nursing training relocated to Churchill, meaning that local nurses were unable to complete their Bachelor of Nursing in East Gippsland. Although there has been much outcry from the local health service and the community because of this closure, nursing training continues to be delivered by Federation University only at Churchill (McRae, 2014).

Professional development, including postgraduate training for registered nurses, remains under the same arrangement. Registered nurses either attend local educational activities provided by local nurse educators or travel out of the region to another training centre. Further, prior to the establishment of the SRH-B, there was no simulated learning suite for students from different disciplines (medicine, nursing, paramedics and allied health) to practice their procedural skills or develop critical thinking skills. Allied health student placements were sporadic, although they are now consistent because of arrangements with other universities. Section 3.7.3 provides a short introduction to the East Gippsland region where the SRH-B is located.

3.7.3 The East Gippsland Region

This research was conducted in the East Gippsland⁵ LGA of the state of Victoria. East Gippsland is in the eastern part of the state and is the LGA with the second-largest area in Victoria (State Government of Victoria, 2024). It is important to provide some information

⁵ The name East Gippsland was chosen by the Polish explorer Pawel Strzelecki, after he crossed Gunaikurnai country, in honour of the Governor of New South Wales, George Gipps.

about the region's human geography and industry and the unique challenges of the healthcare and education sectors. In June 2021, East Gippsland had a population of 48,715 (ABS, 2021a). Almost 40% of the East Gippsland population is aged 60 or older, compared with the regional Victorian average of 22.4% (ABS, 2021a). Figure 3.3 shows a map of East Gippsland with its main towns.

Figure 3.3

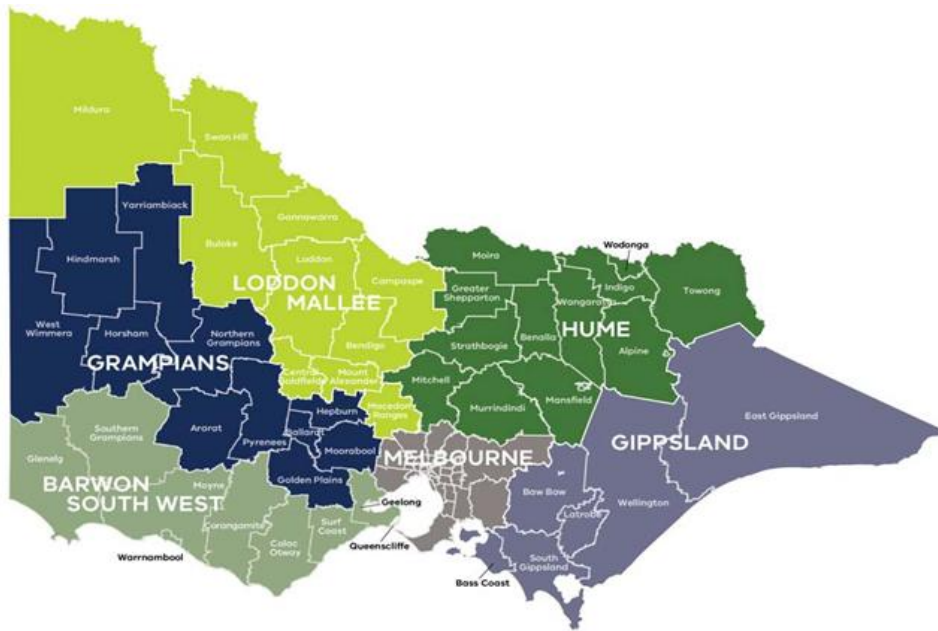
Maps of Australia, State of Victoria, and East Gippsland-Local Government Area



Map of Australia with Local Government Areas

Note. Taken from “Australia map with Local Government Areas”

(https://upload.wikimedia.org/wikipedia/commons/d/d7/Australian_local_government_areas.png)



Map of the State of Victoria with Local Government Areas

Note. From Regional Development Victoria (2024). (<https://www.rdv.vic.gov.au/regional-development-australia/about-regional-development-australia>)



Map of East Gippsland – Local Government Area

Note. Taken from “East Gippsland Catchment Management Authority (2024).” (<https://eastgippsland.rcs.vic.gov.au/this-region/>).

3.7.4 First Nations Peoples of East Gippsland

The first peoples of Gippsland were the Gunaikurnai people. There are five clans of Gunaikurnai people. In 2010, the Federal Court and the state of Victoria recognised the Gunaikurnai people as the traditional owners of Gippsland (Victoria State Government, 2024). There are approximately 1,683 First Nations people living in East Gippsland, constituting 3.5% of the East Gippsland population (ABS 2021a). In East Gippsland, 2.8% of Aboriginal and Torres Strait Islander adults have completed university or higher education compared to 9.6% in Victoria. Further, more First Nations people in East Gippsland are in the lowest householder earnings category (earning \$1,2779) per week compared to the Victorian population average of \$1,565 (ABS 2021a)

Despite challenges, there is a strong First Nations community committed to progressing the education of their youth. The Centre of Excellence for Aboriginal Health in East Gippsland was established in partnership with the SRH-B and is led by local Aboriginal community leaders who aim to support young Aboriginal people considering a career in health care. The partnership involves young Aboriginal students visiting the SRH-B to undertake educational activities in health promotion and wellbeing and medical students acting as role models who provide advice on health careers. Medical students are placed in the Aboriginal Community Controlled Health Organisations in the region and develop cultural understandings, attitudes and skills to support their learning and contribute to addressing the health issues of First Nations peoples of East Gippsland.

3.7.5 Demography

The region is a gateway to vast waterways and mountains in the high country (East Gippsland Shire, 2024). East Gippsland Shire is a predominantly rural area. The East Gippsland region begins 370 km east of Melbourne, the capital of Victoria, and covers an area of 20,940 km². The region has many small townships and communities, and the population is

unevenly distributed. Most residents live in or around the central townships of Bairnsdale, Lakes Entrance and Orbost or in the south-east coastal region; the remaining region is sparsely populated (East Gippsland Shire, 2024). Given the large geographic area, there are challenges in providing services for people living outside the central townships. For this reason, the remote townships have become important sites to support health care, retail trade and education.

3.7.6 Economic Profile of East Gippsland

It is important to provide information about the district's economic profile. Bairnsdale is the largest commercial centre, whereas Lakes Entrance is the main tourist township. Other significant townships include Orbost, Paynesville, Omeo and Mallacoota (.id consulting, 2024). East Gippsland has a Socio-Economic Indexes for Areas (SEIFA) score of 963, which indicates that the region is disadvantaged according to the latest data (ABS, 2021f). The neighbouring Wellington Shire has a similar population ($n = 45,639$) in 10,817 km² (half the area) with a SEIFA score of 973; the City of Melbourne has a SEIFA score of 1,086. A lower score means a higher level of disadvantage (ABS, 2021f).

3.7.7 Industry and Manufacturing

In East Gippsland, 18,654 people are employed by businesses or organisations (REMPLAN, 2023). Healthcare and social sciences industries support the largest number of jobs (3,315), followed by retail trade (1,936) and education and training (1,801). Mining (63) supports the fewest jobs (REMPLAN, 2024). Manufacturing is the largest output-generating sector in terms of gross sales or income at \$1,147 million per annum (17%), followed by construction at \$1,030 million (15%) and agriculture, forestry and fishing at \$792 million (12%) (REMPLAN, 2024). East Gippsland has an abundance of raw vegetables and fruits, which are sold as fresh produce or for further processing. Other primary industries include beef and fishing; until 2020, they included timber industries (East Gippsland Shire Council,

2024.b). The gross regional product (GRP) was \$3.377 billion in 2021/2022 (REMPLAN, 2024). In recent years, the local economy has been affected by drought, fires, the end of the native timber industry, the COVID-19 pandemic and floods, resulting in fewer people visiting the region and a loss of productivity (East Gippsland Shire Council, 2024b.). Prior to COVID-19, the region benefited from tourism through employment ($n = 1,350$ in 2020–2021), direct spending (\$68.4m in 2020–2021) and visitors from diverse cultural backgrounds (.id informed decisions, 2024).

3.7.8 Education

In contrast to the Victorian average of 29.3%, only 13.7% of the East Gippsland population has completed a bachelor's degree or higher (ABS, 2021a). Notably, 10.7% of the population has only completed Year 9 or less; this compares to the Victorian average of 7.9%. This suggests that many East Gippsland students leave school early and take up employment or other training, such as apprenticeships. Interestingly, 13.9% of employed people aged over 15 years in East Gippsland are technicians and trades workers, higher than the Victorian average of 12.6% and the Australian average of 12.9% (ABS, 2021-a).

3.7.9 Social Determinants of Health in East Gippsland

Rates of chronic disease, drug abuse, alcohol consumption and smoking are significantly higher in the region than the Victorian average (.id consulting, 2024). Smoking, excessive alcohol intake and a sedentary lifestyle are more prevalent in rural and remote areas of Australia. The main long-term health conditions in East Gippsland, compared with regional Victoria as a whole, are arthritis (13.6% and 11.2%, respectively), mental health conditions (10.5% and 10.9, respectively) and heart disease (6.4% and 5.0%, respectively; .id consulting, n.d.). East Gippsland also has significantly higher levels of domestic violence, with 2,304 incidents per 100,000 population, compared with the Victorian average of 1,129 per 100,000 (.id consulting, 2024).

3.7.10 Health Services in East Gippsland

Health care is provided by the main hospital, BRHS, in Bairnsdale. Smaller hospitals exist in the townships of Orbost and Omeo, and GPs visit Outreach and Bush Nursing Centres to service the health needs of people in more remote areas. Given the size of the geographical region and the ageing population, regional hospitals and outreach centres have a vital role to play in providing acute and follow-up care. Retrieval services and emergency transport services serve patients requiring specialist care that cannot be provided within the region. The number of available GPs in East Gippsland is 128 full-time equivalents per 100,000 people (or one GP for every 381 residents), compared with the Victorian average of 113 per 100,000, indicating that the region is slightly better resourced (Gippsland Primary Health Network, 2022). The vast majority of GPs in East Gippsland live and practice along the coast and in the lakes regions.

There are 15 general practice clinics and 12 Aboriginal health, mental health and community health centres, along with smaller associated satellite health services, situated in more remote areas of East Gippsland. Table 3.4 provides information about health services in the region.

Table 3.4*Health Services in East Gippsland*

Health service	Number	Location
Hospital	3	Bairnsdale (1), Orbost (1), Omeo (1)
General practice clinic	15	Bairnsdale (7), Lakes Entrance (2), Orbost (1), Omeo (1), Mallacoota (1), Paynesville (1), Metung (1), Bruthen (1)
Aboriginal Community Controlled Health Service	3	Bairnsdale (1), Orbost (1), Lakes Entrance (1)
Community-based mental health service	2	Bairnsdale (2)
Community Outreach Health Centre	7	Bairnsdale (1), Lakes Entrance (1), Bruthen (1), Cann River (1), Mallacoota (1), Paynesville (1), Omeo (1)
Bush Nursing Centre	6	Swift Creek (1), Buchan (1), Dargo (1), Ensay (1), Gelantipy (1), Cann River (1)
Aged care facility	6	Bairnsdale (3), Lakes Entrance (2), Paynesville (1)
Other: private services (audiology, chiropractic, counselling, osteopathy, natural health, physiotherapy, podiatry, psychology, speech pathology, physiotherapy)	-	Private services throughout East Gippsland

Note. Exact numbers of other healthcare professionals were not available, given ongoing changes in the private sector. Data from healthdirect (2024).

<https://www.healthdirect.gov.au/australian-health-services>

Throughout the academic year, SRH-B medical students undertake clinical placements at regional general practice clinics, local Aboriginal Community Controlled Health Services, hospitals, aged care facilities, Community Outreach Health Centres, community mental health centres and Bush Nursing Centres. The private services listed in Table 3.4 are not ordinarily used for student placements. Many health professionals from the East Gippsland region who are engaged in clinical work have academic associations with the SRH-B, and community and business members with social and commercial connections with the SRH-B are located throughout East Gippsland.

3.7.11 Community Engagement

As discussed in Chapter 2 involving communities actively through engagement can not only improve rural clinical education but also brings advantages to the communities themselves. The East Gippsland region has an abundance of sporting and social clubs offering connections and engagement with the community. Many of the medical students undertaking longitudinal placements become involved and immersed themselves in local community activities. Students became members of the local gym, played netball, badminton and football for local clubs. Beyond the sporting clubs' students became members of local choirs and church groups, tutored primary and secondary students, and attended school camps for Aboriginal students in the area. Many of the staff are also active members in various clubs in the community that reinforced community engagement. These collective community activities brought reciprocal benefits for the SRH-B, medical students, staff and the community members.

3.8 Methodology: Mixed Methods

Using a critical single case study approach for the research design allowed the freedom of using a wide range of research methods (Thomas, 2016). As argued by Thomas, a case study can be generous in the methods choices by including observations, diaries, questionnaires, interviews and statistical analysis of the data. A case study design enables the collection of data using a mixed methodology that includes qualitative social impact and quantitative economic impact perspectives (Zucker, 2009). Table 3.5 outlines the study's research methods.

Table 3.5

Research Methods Used to Address the Study's Aims

Aim	Method	Participants	Analysis
1. To explore the social impact of a rural medical school on stakeholders and the community of a rural region (MM4-7) using the case of SRH-B in East Gippsland.			
1a. To explore stakeholder and community relationships and interactions with the SRH-B and their underpinnings	Questionnaire	All of the following: • students • staff • healthcare providers • community	Descriptive statistics (for numerical questions) Thematic analysis (for open-ended questions)
	Interview or group interview Diary of field notes and reflections	Equal representation of the following up to saturation: • students • staff • healthcare providers • community	Thematic analysis
1b. To explore stakeholder and community perceptions and expectations of the role of the SRH-B in relation to educational activities,	Questionnaire	All of the following: • students • staff • healthcare providers • community	Descriptive statistics (for numerical questions) Thematic analysis (for open-ended questions)

Aim	Method	Participants	Analysis
community engagement, the health workforce, access to health care and research	Interview Diary of field notes and reflections	Equal representation of the following up to saturation: • students • staff • healthcare providers • community	Thematic analysis
2. To explore the economic impact of the SRH-B on stakeholders and the community			
2a. To identify the economic effect on the community attributable to the presence of SRH-B	Questionnaire	All of the following: • students • staff • healthcare providers • community	Descriptive statistics (for numerical questions) Thematic analysis (for open-ended questions)
	Interview Diary of field notes and reflections	Equal representation of the following up to saturation: • students • staff • healthcare providers • community	Thematic analysis
2b. To explore economic development opportunities for the SRH-B in East Gippsland	Questionnaire	All of the following: • students • staff • healthcare providers • community	Descriptive statistics (for numerical questions) Thematic analysis (for open-ended questions)
	Interview Diary of field notes and reflections	Equal representation of the following up to saturation: • students • staff • healthcare providers • community	Thematic analysis
3. To explore what the results mean for strategic directions, opportunities and sustainability for SRH-B and the East Gippsland community	Questionnaire	All of the following: • students • staff • healthcare providers • community	Descriptive statistics (for numerical questions) Thematic analysis (for open-ended questions)
	Interview Diary of field notes and reflections	Equal representation of the following up to saturation: • students • staff • healthcare providers • community	Thematic analysis

The implementation of a mixed methods approach using qualitative and quantitative data (from interviews, questionnaires, field notes, Census data, and reports) strengthened and enriched the study. Combining information from various sources results in divergent perspectives often provides greater insight into unexplored facets of the phenomena (Saunders et al., 2015; Tashakkori & Teddlie, 2010). The use of data from a range of sources, perspectives and levels to converge and fulfil the research aim is referred to as triangulation (Patton, 2015). Here, the qualitative research focused on understanding the meaning that participants gave to the phenomena being studied (Johnson et al., 2007; Saunders et al., 2015), whereas the quantitative research statistically analysed the numerical data. The qualitative responses obtained from the research participants contributed meaning to the statistical data, and the statistical data can contribute meaning to the participants' stories, thus providing multiple perspectives (Thomas, 2016). The individual participants own interpretations of their experiences with the SRH-B allowed a more complex analysis of the data (Creswell, 2014). Integration of the two approaches can provide greater insight when answering the research question, facilitate triangulation and provided a more in-depth and comprehensive understanding of the phenomenon being studied (Creswell, 2014; Creswell et al., 2011; Fetters & Molina-Azorin, 2017; Heale & Forbes, 2013).

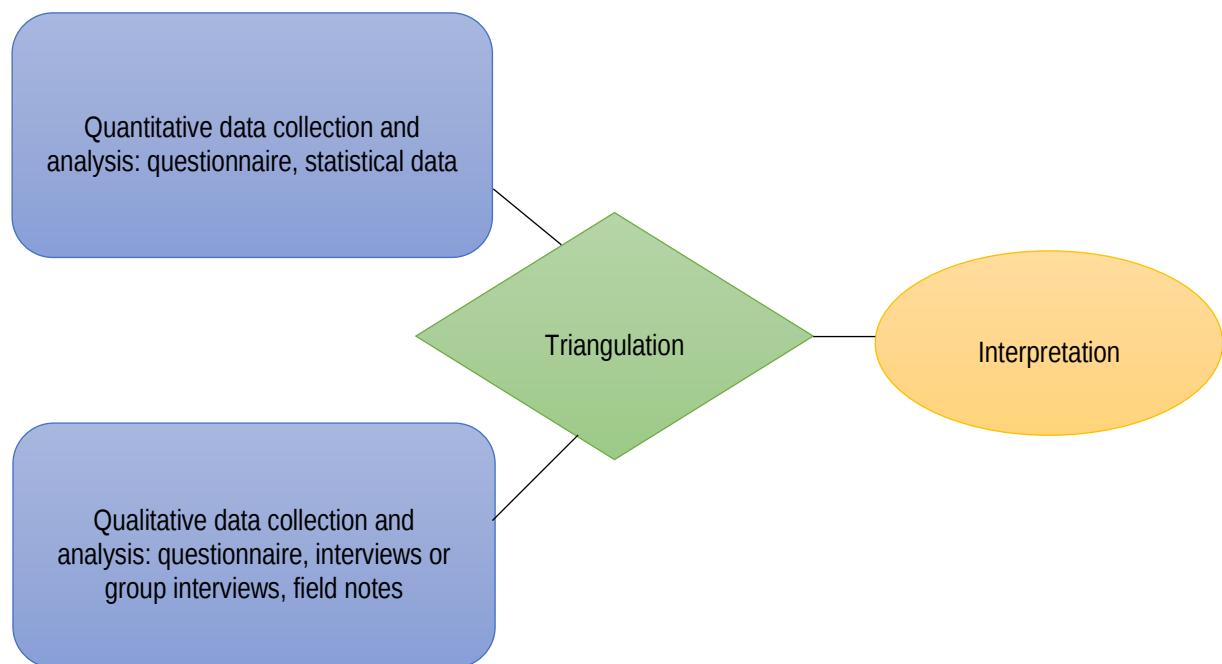
3.8.1 Convergent Parallel Mixed Methods

Creswell (2018) describes three mixed methods designs (convergent parallel, explanatory sequential and exploratory sequential) differing in the order of the phases and the purpose of each phase. This research adopted a convergent parallel mixed methods approach in which quantitative data were collected using an online or paper questionnaire and qualitative data were collected using interviews to explore the participants' experiences and the associated meanings from their interactions with the SRH-B (Creswell, 2014). For both methods, data collection and analysis are considered independent (Creswell & Plano Clark,

2018). The quantitative data from the online questionnaire and qualitative data from the interviews were collected in parallel in a single phase (Fetters et al., 2013). The quantitative and qualitative data were first analysed independently, and the data were brought together and compared during the interpretation phase (see Figure 3.4).

Figure 3.4

Convergent Parallel Mixed Methods Design



Note. Data taken from “Research Design” by John Creswell (2014).

3.8.2 Ethical Considerations

A low-risk ethics application was submitted to Monash University Human Research Ethics Committee (MUHREC), and approval was granted on 31 March 2016 (CF15/4669 – 2015002012; see Appendix C). Mutual acknowledgement was granted by the James Cook University Human Research Ethics Committee (H6691), as required for PhD research. Three amendments were granted (18 September 2017, 24 October 2017 and 21 June 2018) by MUHREC with mutual recognition by the James Cook University Human Research Ethics Committee. The three amendment submissions were for minor alterations to the participant interview questions, permission to advertise for participants on the Monash University Moodle learning and teaching site and permission to use TRINT (artificial intelligence) for transcribing participant interviews.

Organisational approval for this project was received from Monash University's Deputy Dean (Bachelor of Medicine, Bachelor of Surgery), Monash University's Head of the School of Rural Health and the Director of the Rural Clinical School - East Gippsland before submitting the ethics application to MUHREC. Organisational approval for advertisements inviting participants to the study was received from the chief executive officers (CEOs) of Bairnsdale, Orbost and Omeo hospitals. The CEOs received an explanatory letter outlining the research aims, a copy of the consent form and the advertisement for display.

3.9 Pilot Questionnaire

The researcher drafted the questionnaire and interview questions after discussions with her supervisors. After the questions were developed, she sought final comments from her research supervisors. After some minor changes to the questionnaire and interview questions, piloting was undertaken. Three academic and administrative staff from Sale, Victoria and three students piloted the online questionnaire and interview questions. All pilot participants participated in interviews via telephone rather than face to face because of distance. The

participants from Sale were chosen because they live and work in the Wellington LGA rather than in East Gippsland and were attached to another Monash University School of Rural Health site. The participants from Sale had similar roles to the East Gippsland participants. Feedback was sought from the participants about the clarity of the questionnaire, the sequence of questions, the length of the interview and the online administration of the questionnaire. From this consultative and testing process, only minor alterations to the sequencing and language were required for the questionnaire and interview questions.

3.10 Identification of Key Participants and Sampling Strategy

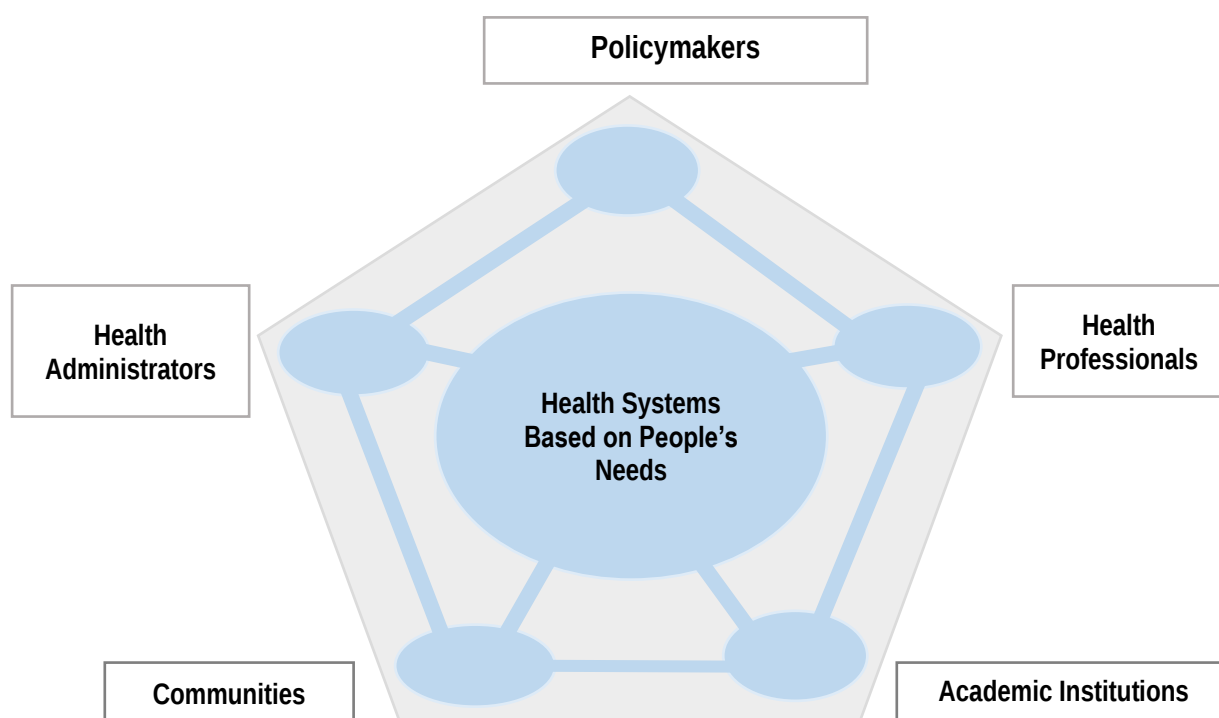
3.10.1 Participant Identification

The researcher and the supervisory team identified stakeholder groups who had an association with the SRH-B and determined the inclusion and exclusion criteria. Four stakeholder groups were identified: students, staff, healthcare providers and community members (including business owners). All stakeholder groups had associations or interactions with the SRH-B and who lived in the East Gippsland region. The four stakeholder groups were identified as having perspectives and experiences that could best answer the research question. The framework for identifying potential participants was derived from three sources described below.

The first source was the Partnership Pentagram (Boelen, 2000, 2004; see Figure 3.5). This conceptual framework was developed by the World Health Organisation and identifies stakeholders (policymakers, health managers, health professions, academic institutions and communities) who together can support the health needs of a community. Supporting a community involves (a) identifying its health needs (centre of the pentagram), (b) encouraging the five main groups (points of the pentagram) to support community needs and (c) encouraging collaborations between groups to provide health care to benefit the community (dotted lines) (Boelen et al., 2007).

Figure 3.5

Towards Unity for Health-Partnership Pentagon



Note. Data taken from “Challenges and opportunities for partnership in health Development” by Charles Boelen (2000). Document WHO/EIP/ SD/2000.9

The second source was the RHMT program specification of key partners to engage to support student training (Department of Health and Aged Care, 2024e). The key partners are identified as the local community, state and territory health bodies, non-government organisations, universities, local health professionals, academic and professional staff and community members.

The third source was the Monash Rural Health Strategic Plan 2016–2026 (Monash Rural Health, 2016), which aims to educate a future rural health workforce by working closely with partners in rural communities. The partners are identified as the community, other health institutions in the region, government and the private sector.

3.10.2 Sampling Strategy

This study used purposive or non-probability sampling to select participants (Patton, 2015). The rationale for undertaking a purposive sampling strategy was that those participants who have a specific association with the SRH-B hold different and important views and experiences about the phenomenon being studied and, therefore, need to be included in the sample (Campbell et al., 2020; Robinson, 2014). The judgement as to the most appropriate participants to be invited to take part in the study and who best would provide in-depth information addressing the study questions was based on the researcher's prior knowledge and experience with the SRH-B and after discussion with the supervisory team (Teddlie & Yu, 2007). Further, participants needed to reside in East Gippsland as this was the case boundary. A limitation of the researcher selecting the sample is that the researcher may make presumptions about participants and the inclusion criteria and potentially exclude other groups who could provide data. To avoid this limitation, a clear inclusion and exclusion criteria framework was developed with descriptors of the participants to be invited to participate in the study.

3.10.3 Participant Inclusion Criteria

The inclusion criteria required participants to have an association with the SRH-B or have interacted with it and to reside in the East Gippsland region during their association. Because of their roles and experiences, such participants could best answer the research questions. Table 3.6 and Appendix D gives the detailed inclusion and exclusion criteria for the four groups of participants. Four main groups were identified who could best provide data:

- past and present healthcare students from the disciplines of nursing, medicine, allied health and paramedicine
- past and present SRH-B staff members (academic and administration)

- health professionals who had assisted in curriculum delivery, supervision or used the SRH-B facility. This included healthcare professional who had an association with the SRH-B including healthcare executive staff.
- community and business owners, including any community member (local politicians, local council members, local club members, local leaders, business owners) living within the East Gippsland region, who had an affiliation or provided a service to the SRH-B.

Table 3.6*Participants inclusion and exclusion criteria*

Participants	Inclusion criteria	Exclusion criteria
Students	Students who have been involved with SRH-B programs (medical nursing, allied health and paramedicine students) Students who have used SRH-B facilities (undergraduate and graduate students from other education providers)	Students not involved with SRH-B programs or who have not utilised SRH-B facilities
Monash University staff	Monash University academic and professional staff based at SRH-B who have assisted in the delivery of SRH-B programs (e.g. medical practitioners, nurses, allied health and administration) Monash University academic and professional staff based at SRH-B who have utilised facilities (e.g. medical practitioners, nurses, allied health and administration)	Monash staff who are not based at SRH-B
Healthcare professionals	Healthcare professionals, groups and professionals who have assisted in and supported the delivery of SRH-B programs including direct supervision, and teaching (e.g. medical practitioners, nurses, allied health paramedics, bush nurses in the hospital, community health and general practice clinics) Healthcare providers, groups and professionals who have utilised SRH-B facilities (e.g. hospitals, ambulance service and subsidiary hospital support groups). These healthcare providers do not have to have an appointment with SRH-B but employed with either a General Practice, Community Health Centre or Hospital where students are undertaking placement	Healthcare providers, groups and professionals that have not assisted in the delivery of SRH-B programs. Healthcare providers, groups and professionals that have not utilised SRH-B facilities
Community and business partners	Community individuals and business owners that have assisted in and supported the delivery of SRH-B programs (e.g. farmers, primary and secondary schools, veterinarians, general practice patients exposed to SRH-B students, politicians and public servants)	Community individuals and business owners that have not supported the delivery of the SRH-B programs (e.g. farmers, primary and secondary schools, veterinarians, general practice patients exposed to SRH-B students, politicians and public servants)

3.10.4 Invitation to Participate

Before data collection, participant recruitment advertisements were placed across East Gippsland. Advertisements placed in public places allowed potential participants with insights into the SRH-B and its activities to self-select to take part in the research (Patton, 2015; Saunders et al., 2015). Appendix E gives an example of an advertisement. Permission from the Chief Executive Officers of BRHS, Orbost Regional Health and Omeo District Health was required to place advertisements on staff noticeboards. Local GP clinics involved with the SRH-B were approached to advertise the research project. One clinic allowed advertisements to be placed in its waiting rooms, but others declined to display advertisements because of a no-advertising policy. Advertisements were displayed at the local library and placed in newsletters and on student university communication platforms and SRH-B websites. The local newspaper also ran an advertisement that reached more dispersed community members in East Gippsland.

It was envisaged that an equal number of participants from the four nominated groups would be invited to participate in the study to ensure that no single group overly influenced the data (Creswell, 2014). It was expected that 15 participants from each of the four groups would be interviewed, with the potential to include more participants depending on data saturation and whether new themes or ideas were emerging (Creswell, 2014). Consistent with the ethics requirements, potential participants in the research study contacted the researcher by email or phone or in person. The explanatory statement and consent form were sent to the participants via email or provided in person or via a reply-paid envelope to facilitate the return of the consent form.

3.11 Questionnaire Design

The questionnaire (Appendix F) included demographic questions, followed by questions about economic expenditure over one year and a small number of social impact

questions. The questionnaire was presented in different formats with between 14 and 42 questions depending on the participant group (student, 42; staff, 30; healthcare provider, 18; community and business, 14 questions). The first part included questions on gender, age, profession, spouse, dependents, rural origin, length of stay in East Gippsland, and residential location prior to residing in East Gippsland; all known to be crucial factors in influencing the workforce and predicting participants' economic contributions. The next part sought information about how participants were connected to the SRH-B and the benefits to them associated with connection to the SRH-B. A further part sought information about monetary spending and financial gain in the region, investments (e.g. buying housing, renting accommodation, building a business), the frequency of visitors, how often participants left the area and spending on consumables, entertainment and other services in the region. The final part asked for participants' thoughts about the future direction of the SRH-B and how SRH-B education programs and activities had benefited the East Gippsland community. The participants had the option, at the end of the online questionnaire, to provide their names or remain anonymous.

Students were asked to recall their expenditures during placement. The students who answered the questionnaire had undertaken a longitudinal placement and were asked to recall expenditures over one year. To address recall bias, it is important to acknowledge that some students may under- or over-report their expenditures (Polit & Beck, 2020). To facilitate the participants recall of the amount spent for one year, the questionnaire was designed to prompt the type of spending (i.e. fuel, entertainment, groceries). The students' estimated expenditure was compared with ABS statistics for unemployed singles' weekly expenditure. It is not possible to eliminate recall errors. However, by (a) using the questionnaire prompts and (b) comparing the expenditure data to ABS statistics; efforts were made to ensure the validity of the student expenditure data.

3.12 Interview Design

A semi structured interview with open-ended questions allowed participants to tell their stories and describe their experiences and feelings and provided data to address the research aims. Whereas the questionnaire predominantly explored the economic impacts of the SRH-B and its stakeholders on the community, the interviews explored the stakeholders' relationships and their perceptions and expectations of the SRH-B and their origins. As with the online questionnaire, the open-ended interview questions addressed the key research areas of leadership and advocacy, community engagement, the workforce, economic impact and strategic direction. All participants were asked the same 13 questions (see Appendix G).

Some interview questions explored participants' perceptions of future directions of educational activities and community engagement. The final questions sought participants' thoughts about the resources required to support the SRH-B's activities, with the aim of providing an understanding of where resources should be assigned to further support the East Gippsland community.

3.13 Data Collection

Data collection with questionnaires and interviews ran from November 2016 to September 2019 inclusive. Data were collected from November 2016 to September 2019, as the longitudinal program ran small cohorts of 8-12 students. Year Five and Year Two students on short-term placements were invited to participate during this time. In 2020, due to the COVID-19 pandemic, there were no short-term (1-2 weeks) medical placements, and the year four medical students transitioned to undertaking 18-week placements instead of 36 weeks. The year five medical students remained on placement, but clinical attachment was sometimes cancelled due to the hospital regulations and exposure risk to COVID-19. Participants who had read the explanatory statement and signed the consent form were contacted, thanked, and sent a link to the online questionnaire. The questionnaires were

completed using the Qualtrics (<https://www.qualtrics.com>) web-based platform. A paper version of the questionnaire was available for participants who did not have internet access; however, all participants completed the questionnaire online.

After the participants were sent the online questionnaire, they were contacted a week later and invited to a face-to-face, telephone or videoconference interview. Some participants chose not to complete the online questionnaire but were willing to complete the face-to-face interview. At the end of the interviews these participants were again invited to complete the online questionnaire. Seven participants chose not to complete the questionnaire. Table 3.7 gives the number of participants who completed the questionnaire and interview and their age distribution. Healthcare professionals were the participant group with the largest disparity between completing the questionnaire and attending an interview. Time constraints, a failure to recall or loss of the email with the attached questionnaire were the reasons provided by the participants who did not complete the questionnaire.

Table 3.7

Participants for the Online Questionnaire and Interview

Participants	Questionnaire	Interview	Age (years) from Questionnaire participants only					
			≤25	26–29	30–39	40–49	50–59	≥60
Students	19 (M 53%)	20 (M 50%)	19					
Staff	12 (M 33%)	11 (M 36%)			3	1	6	2
Healthcare professionals	10 (M 10%)	15 (M 13%)			2	4	3	1
Community	15 (M 33%)	17 (M 35%)				4	2	9
Total	56 (M 36%)	63 (M 35%)						

The interviews were conducted in a place of the participant's choosing, mostly in the workplace, in a neutral setting or at the SRH-B. One group of two community members and another group of five healthcare workers expressed their preference for a joint interview. The interview questions were sent to participants prior to the interview. During the interview, if participant responses were unclear or were thought to be worth probing for deeper meaning, the participants were asked to clarify their responses. This process helped to avoid researcher

influences that could affect the data (Thomas, 2016). A strict process was adhered to in delivering the questions, and a comprehensive diary of field notes and reflections was maintained. A member of the supervisory team conducted one group interview because the participants were students for whom the researcher was responsible for assessment, which could have influenced the participants' responses. After the interview, the participants were given the option to review their transcript; one participant accepted this option. At the time of the interview, this participant had said that they were tired because of a busy work schedule and did not feel they could provide considered answers.

Field notes were written after each interview. The field notes contained reflections, ideas and themes interpreted from the participant's responses and reflections about their influences on the study. Other field notes included recommendations for activities thought to be outside the scope of the study. The field notes helped me to iteratively strengthen my interview strategy and ask further probing questions. The field notes became important to the study by providing another avenue for reflection and insight into how to improve the interview approach and technique. Each field note included the date and location of the interview, impressions and recommendations for further research and program opportunities and notes about missed opportunities and emerging themes. Writing reflections provided me with an awareness of my potential influence, as did dialogue with my supervisors (Clarke & Braun, 2013). Field notes were helpful for reflection on the restructuring of the SRH-B and how the situation was evolving and affecting the participants and their responses. Problems arising, such as needing to take phone calls during the interviews or attend to patient care, were also recorded in the field notes.

The responses from the online questionnaires, and interviews created a large volume of data for analysis. All participants who completed the questionnaire participated in an interview. One qualitative question was included in the questionnaire and one quantitative

question in the interview to obtain further insights and create a better understanding of participant perspectives on the research questions. Qualitative data were transcribed verbatim by the transcription service and checked for accuracy. The quantitative data were aggregated from the questionnaire, transferred to spreadsheets and checked for accuracy prior to analysis.

The students included any healthcare student who had undertaken studies at the SRH-B. The healthcare professionals included any doctor, nurse, allied health professional, paramedic or healthcare administrator who had taught, mentored or supervised medical students, participated in educational activities held at the SRH-B or collaborated on research, educational or infrastructure project. Staff members were defined as individuals then working at the SRH-B or who had worked there, including those employed in casual, full-time or part-time roles. In cases where a participant was an SRH-B staff member and a healthcare professional in the region, the participant was categorised as a staff member. Sections 3.14 and 3.15 discuss the analysis of the qualitative and quantitative data, respectively.

3.14 Qualitative Data Analysis

Reflexive thematic analysis is a qualitative research methodology used to identify, analyse, and report patterns (themes) within data. The researcher actively interprets data, which aligns with the constructivist paradigm (Braun & Clarke, 2019). This approach is versatile and useful for examining the perspectives of research participants, highlighting both commonalities and producing significant insights (Braun & Clarke, 2006). The process for this study is as follows. The interview recordings were uploaded to the automated transcription software TRINT (<https://trint.com>). The transcripts were checked for accuracy, and each transcript was filed under a code number to ensure the anonymity of the participant and the confidentiality of their responses. The grouping of students, staff, healthcare professionals and community members was maintained for further analysis.

The qualitative data from the interviews and the descriptive responses from the questionnaire were imported into N-Vivo12 (www.qrsinternational.com). Using a reflexive thematic analysis approach acknowledges the subjectivity of the analysis process, with codes and themes generated by the researcher (Braun, V., & Clarke, V. 2006). Consequently, the study themes and codes are shaped by the researcher's values, skills and experiences. An inductive or iterative approach to code and theme development was undertaken. In the initial stage, I read the transcripts for familiarisation taking note and wrote notes about my initial interpretation of the data. Each transcript was read and re-read line by line for concepts, recurring phrases and themes. In N-Vivo12, relevant words, phrases, sentences or sections of transcripts were highlighted and coded. Repeated words, differences of opinions, concepts related to the literature and data that surprised me or were thought to be important were coded. Prolific coding ensured that all participants' views were acknowledged and included in the emerging codes. Memos written after each interview were reviewed and uploaded to NVivo12 for further interpretation.

The codes were combined and labelled, and the connections between them were described (Braun, 2013). After the initial codes were aggregated into theme nodes, a concept map with the final themes was further developed into mind maps of the data for further connections and emerging themes. Concept mapping of the themes supported a deeper analysis of the data. The researcher did revisit the coding framework to reflect on the emergent themes. A supervisor read a selection of the transcripts and reviewed my coding. This process was intended to ensure the trustworthiness of the code descriptions and interpretations. The themes were also presented to the supervisory team for review and discussion. Further discussion about how rigour was upheld in this study is given in Section 3.19.

3.15 Quantitative Data Analysis

This section discusses the quantitative data analysis process. It begins with an outline of the data analysis of the participants (students, student visitors, staff university and university and government expenditure). It then explains what a short-term economic impact study involves, the advantages and disadvantages of using a mathematical model and an overview of how an I–O table and multiplier are used to analyse expenditure data.

3.16 Data Analysis

The raw data from the 56 participants who completed the online questionnaire were de-identified and transcribed into Excel spreadsheets for analysis. The transcribed data were checked against the Qualtrics questionnaires for accuracy. Each stakeholder group was analysed separately. The data were summarised using simple descriptive statistics, using frequency measures, counts, percentages, means, medians and ranges for each question and stakeholder group. The following sections discuss the examination of stakeholder expenditure.

3.16.1 Student and Student Visitor Expenditure

To estimate per student weekly expenditure, weekly spending from the questionnaires (each of which represented a full academic year in East Gippsland) was averaged. Data from 2016 and 2017 was adjusted using the consumer price index (CPI) to give 2018 values. The result was average weekly spending for Monash University medical students in placements in East Gippsland. The average number of student weeks across three years was determined using the number of medical students placed in East Gippsland each year and the number of weeks for which each student was placed. The average number of student weeks in a year was determined by dividing the total number of placement weeks for all students by the number of years. The average weekly spending was then multiplied by the average number of student weeks to determine expenditure from all students in a year. The data were compared with the

singles household consumption data (ABS, 2017). The student data were thought to be underestimated and were subsequently adjusted to give a better representation of student expenditure in the region. NIEIR is known for its economic modelling of LGAs and draws on many data sources to obtain the best information on local economies (NIEIR, n.d.). The process used to obtain the direct expenditure estimate is given in more detail in Appendix H.

The expenditure data for students' visitors was estimated from the questionnaires, which provided information about the number of visits students received in a year, the activities undertaken by the visitors in the region and the visitors' expenditure. The average number of visitors per student and the average visitor length of stay were determined. The average number of visitor nights per student was calculated for 2016, 2017 and 2018. Estimates were made of spending associated with tourism activities in the region, including spending on food and beverages, entertainment and petrol. The visitor expenditure data were compared with data from the East Gippsland Regional Tourism satellite account (Australian Trade and Investment Commission, 2019). The visitor expenditure data obtained using the questionnaire were considered low and were adjusted to give a better representation of visitor expenditure. Appendix I outlines the process used to obtain the student visitor expenditure data.

3.16.2 Staff Expenditure

To quantify staff spending, the SRH-B 2018 financial records were used to identify the number of full-time, part-time and casual staff. Since data for 2016 and 2017 staff wages were unavailable, 2018 wage figures were used instead. The financial records provided totals for wages and casual hours in 2018. The staff questionnaire did not gather information about the daily consumption of goods and services. Instead, ABS 2018 household consumption estimates were used to obtain expenditure on goods and services. In the questionnaire, staff reported whether they had bought land or a house or rented a property because of their

association with the SRH-B, but the information was not used further. Appendix J outlines the process used to obtain staff expenditure data.

3.16.3 University and Government Expenditure

To quantify university expenditure, 2018 financial records for the SRH-B were used to identify spending in East Gippsland. Direct expenditure for one year included Federal and State government funding received in 2018 by the local hospital and healthcare services in East Gippsland because of the presence of the SRH-B and funding student placements. The cost of establishing the SRH-B in 2003 and building expansion in 2008 and 2012 were not included in the study. Appendix K outlines the process used to obtain SRH-B expenditure data.

3.16.4 Community Expenditure

The community members and healthcare professionals who completed the questionnaire were not asked about their expenditures. These participants were working in the community, and their expenditure was not related to their association with the SRH-B.

3.16.5 Short-Term Analysis

In the short-term analysis, direct expenditure from stakeholders is assigned to industry sectors using the Australian and New Zealand Standard Industrial Classification (ANZSIC) table (ABS, 2013). The ANZSIC table is used by government agencies, industries and researchers across Australia and New Zealand (ABS, 2013). This approach enables industry data comparisons between the two countries (Australia, New Zealand) and to the rest of the world. Appendix L lists the industry divisions.

This approach assigns a portion (a percentage) of direct expenditure by each stakeholder group to the 86 industries classified within the ANZSIC table. Subsequently, the input-output (I-O) table with Type 2 multipliers (used in this study) quantifies the economic effects of expenditure. This approach was used to estimate the initial expenditure from the

SRH-B and its stakeholders circulating in the region (direct spend), the sum spent in response by businesses and industries to provide further supplies (indirect spend) and when workers spend their wages from the direct and indirect spend in the region from (induced spend) contributing to induced effects of gross regional product, employment and industry sales estimates.

3.17 Economic Impact Analysis

A short-term economic impact study measures new economic activity generated by an industry or university and directly attributable to its presence (Elliott et al., 1988; Lemky et al., 2018). There are different methodologies that can be applied to assess economic impact. This study adopted a mathematical approach using an input-output (I–O) model with a table to analyse the direct, indirect and induced effects of stakeholders’ expenditure (Davies & Bennett, 2008). Table 3.8 provides a description of spending definitions used in the analysis. The expenditure analysed using the I–O table was from healthcare students and their visitors; university staff and the SRH-B, including government funding provided to the local hospital; and general practice clinics for student placements. Other researchers and universities have used similar mathematical approaches to measure the economic impact of university expenditure in the region where it is located (Zhang et al., 2017). An I–O model uses a table that represents the interdependencies of different industry sectors to estimate the positive or negative impact of direct, indirect and induced expenditure on the economy in the region under study (Thomassin, 2018). The model quantifies the economic interdependencies between the 86 industries capturing both the positive and at time negative impacts of spending on regional economic activity. By following spending through the economy, the model demonstrates how expenditure impacts on industry outputs, employment and regional economic growth.

Table 3.8*Economic Impact Analysis-Spending Definitions*

Types of Spending	Description
Direct spending	The initial dollar expenditure made by consumers, producers for from project. (Students, student visitors, staff, university)
Indirect spending	Spending that occurs when the initial expenditure is spent again by business to business.
Induced spending	When employees and workers whose wages were generated through direct and indirect spending, use their earnings for further consumption, thereby increasing economic activity across various industries
The induced effect of the three rounds of spending increases Industry Outputs, Gross Regional Product growth and Employment as wages circulate through the economy and stimulate demand for ore goods and services.	
Industry outputs	Industry output data that represents the gross revenue generated by businesses and organisations in each industry sector in a defined region, whereby gross revenue can be given as total sales or total income.
Gross regional product	The market value of all final goods and services produced during a given period.
Employment	Jobs created from spending in the region

Note. Data taken from “A review of methods to assess the economic impact of distributed education (DME) in Canada” by Lemky et al. (2018). (<https://doi.org/10.36834/cmej.43343>) (impact measurement)

“Economics” by McTaggart et al (2012)

(<https://books.google.com.au/books?id=bpuyMgEACAAJ>) (industry outputs, gross regional product, employment)

“Monash Rural Health Socio-Economic Analysis” by REMPLAN (2018b). (induced spending effects)

3.17.1 Input–Output Model

Originally developed in 1936 by Leontief, an I–O model can estimate the effect on a regional economy of an initial change in economic activity (Leontief, 1951; Johansen & Arano, 2016). The I–O table captures the economic effects of direct, indirect and induced expenditure by summarising and quantifying the linkages between different industries in the economy (Gretton, 2013). The linkages are used to estimate multiplier effects on employment, industry sales and GDP or GRP from expenditure in the region (Bleaney et al., 1992). As stakeholders spend more on goods and services in the region, this generated a

reaction from industries and services to supply more goods and services in response to the increased spending. The output of each industry sector (e.g. manufacturing, transport, retail trade or financial services) depends on inputs from other industry sectors. For example, production of 1.0 units of food may require 0.1 units of food products from the food industry, 0.8 units of labour and 0.1 units of steel. Each industry sector relies on other industries' inputs to produce its own outputs. The I–O table matrix equations capture the industry relationships in a dynamic economy. The I–O table for this study was used to report effects on industry outputs, employment and GRP in East Gippsland. Analyses of the SRH-B and stakeholder expenditure in East Gippsland study could be applied to all LGAs in Australia however, these analyses were not reported, as they were outside the case study boundary.

3.17.2 Advantages and Limitations of a Mathematical Approach

Economic impact studies rely on various assumptions, introducing uncertainties and potential contraindications. Practical applications require fundamental assumptions to reach meaningful conclusions (Sen, 2011). This study details these assumptions and mathematical workings (Appendix H, I, J, K) to ensure transparency and methodological rigor. An advantage of the use of I–O tables is that the transactions are transparent and replicable and that information from the table can be used by universities, industries and stakeholders for reporting, planning and seeking further funding. The I–O table and the expenditure information can be used for other university campuses or applied to later datasets for comparison. The results can be aggregated by industry sector to determine which industry sectors are influenced more by expenditure. The researcher can also adjust the I–O table to accommodate local expenditure, as was the case in this study. I–O tables are updated every two to five years with data providing industry effects from expenditure. I–O tables are available from government entities, such as the ABS. However, I–O models have weaknesses. I–O tables are static: the data in the table remain constant until the table information is

updated, even if industry input and output and supply and demand change. The following sections discuss how the I–O table and multipliers were used in this study.

To estimate the economic impacts at a local, regional and national level, this study used a customised I–O table developed by the National Institute of Economic and Industry Research (NIEIR, n.d.-a). A benefit of using this NIEIR economic model was that it is specific to the LGA of East Gippsland and that the I–O model had up-to-date LGA industry data. Appendix N shows an example of an I–O model table with multipliers. The participant quantitative data taken from the online questionnaire could be entered into the I–O model to obtain accurate results from SRH-B and stakeholder expenditure. The data provide time-relevant information about changes in industry outputs, GRP and employment within and outside the LGA. Although there was the potential to analyse the economic benefit to Victoria and Australia as a whole, the study only analysed the impact on the region of East Gippsland. A senior economist from NIEIR, Dr Peter Brain, provided guidance as needed for the economic analysis, although he was not part of the supervisory team.

3.17.3 Multiplier and Effect

A multiplier is used to determine the amount of economic growth from expenditure (Bess & Ambargis, 2011). A multiplier is a measure of how dollars injected into the community are re-spent, leading to additional economic activity. Created by Kahn and further developed by John Maynard Keynes in the 1930s, the multiplier concept estimates the total impact that can be expected as changes in economic activity from spending and investment minus savings (Wright, 1956). The underlying concept is that as new businesses and households buy and sell goods and services within a region, this results in new spending and the generation of additional goods and services (Clark, 2010). The I–O table is used to show the effects on industries and services from expenditure as changes in industry spending, jobs and GDP (Watson et al., 2007).

An I–O table can apply different multipliers depending on the information embedded in it (Zhang et al., 2017). The primary types of multipliers are Type 1 and Type 2. Less commonly used in Australia but more frequently applied in the USA is the Type 3 multiplier. Australian universities use Type 1 and Type 2 multipliers because they are straightforward to measure and convey, and they highlight the immediate and short-term economic impacts like direct spending and indirect effects on businesses.

Type 1 multipliers measure the direct and indirect effects from expenditure, that is how businesses buy goods and services from other businesses in response to the demand.

Type 2 multipliers measure the direct, indirect and induced effects from expenditure reflecting how income generated within the economy circulates through consumption and production cycles to amplify the overall economic activity (Zhang., et al 2017).

Type 3 multipliers measure direct, indirect, induced, and long-term changes to the region, also known as dynamic effects, of significant developments such as technological advancements and improved infrastructure.

This study analysed direct, indirect and induced expenditure using a Type 2 multiplier and to obtain the induced effects for industry sales, employment and gross regional product (GRP).

3.17.4 Application of a Model

Before undertaking the economic analysis, some considerations were important. First, did a student reside in East Gippsland before commencing their studies, or did they move from outside the LGA to study? Expenditure from students who resided in the region prior to commencing their studies could not be included in the analysis as new spending (Johansen & Arano, 2016). Another consideration was whether another university was present in the region. If so, students could have attended that university instead of SRH-B, which would mean less economic activity was generated by the SRH-B and its stakeholders.

Contextual factors in a geographical region can greatly influence the findings of a study of economic impact (Watson et al., 2007). The geographical region chosen for the study should be large enough to capture the interactions among local industries that support the university and its stakeholders but small enough that the results are economically significant (Johansen & Arano, 2016; Siegfried et al., 2007). A small university may generate a large change in economic activity in a small town or LGA but little change within a large state (Watson et al., 2007). Overstating the area in which the expenditure is recorded can lead to errors in estimating the university and stakeholder contributions. In this study, the LGA of East Gippsland was chosen for the study because it is where the SRH-B is situated and where all interactions with the SRH-B and its stakeholders occur. Further, the I–O table and multipliers available were specific to the East Gippsland LGA.

Upon reviewing the literature, it became clear that comparing the results of this study with another study employing a different methodology (one that does not use input-output tables with Type 2 multipliers relevant to their region) would be challenging. Each medical school or Rural Clinical School (RCS) site is unique to its region in terms of student numbers, staff, community engagement, healthcare services, and professionals, spending and engagement. To compare this study's results with those of another medical school or RCS site, the same methodology must be applied. Specifically, this involves using input-output tables relevant to the region under study, applying Type 2 multipliers, maintaining similar timelines (one year), identifying the population to be studied (students, staff, visitors, university), and allocating appropriate resources to conduct the study. Analyse the qualitative and quantitative data to understand the social and economic impacts of their region and make comparisons. An economic framework could be adopted to describe the region, local social and economic conditions of the region and study period.

3.18 Data Convergence

This study used the triangulation protocol (O’Cathain et al., 2010) to integrate the data and learn more from it. The qualitative and quantitative data were analysed separately and then brought together for comparison and cross-validation (Fetters et al., 2013). The quantitative findings from the economic analysis and the themes from the qualitative data analysis were brought together in a single report using a convergent joint display table to compare and relate them and generate an overall conclusion from both datasets (Creswell, 2014; O’Cathain et al., 2010).

The research questions were displayed on the horizontal axis at the top of the joint display table; below were three columns. The economic analysis results were displayed in Column 1, the themes from the qualitative data analysis in Column 2 and in Column 3 the capitals framework of social, human, economic and cultural capital. The joint display table supported the interrogation and further identification of linkages between the qualitative and quantitative data (Creswell & Plano Clark, 2018; Guetterman et al., 2015; O’Cathain et al., 2010) and allowed the researcher to further develop her insights to answer the research questions about the social and economic impact of a small rural school on its community. (Classen et al., 2007; Fetters et al., 2013; Guetterman et al., 2015; O’Cathain et al., 2010). Silence, as described by O’Cathain et al. (2010), is where a theme or findings arise from one dataset and not the other. This may be because different methods were used to explore the research questions. The findings were interpreted using a framework of social, cultural, economic, and human capital. The themes from the qualitative analysis and the quantitative results from the economic analysis are reported separately in Chapters 4 and 5. The results from the qualitative and quantitative results utilising the capital framework are discussed in Chapter 6.

3.19 Rigour and Trustworthiness

Methodological rigour refers to research quality: a property of being thorough and accurate with appropriate research methods used to address the question being studied (Saunders et al., 2015; E. Thomas & Magilvy, 2011). As described by Creswell and Plano Clark (2018), truthfulness is critical in both qualitative and quantitative research. Thomas and Magilvy (2011) argue that rigour in qualitative research cannot always stay within strict boundaries and control as with quantitative research. In qualitative research, each participant provides a perspective from their life experiences. Trust that the participants' perspectives are presented in the qualitative research findings is critical. Interview questions were sent to participants prior to the interview, allowing them time to reflect and prepare. All interviews were recorded, except for one case where the participant (a healthcare professional) preferred to provide written responses rather than attending a face-to-face interview.

In quantitative research, the instrument must accurately measure the outcome (Heale & Twycross, 2015). For this study, an I–O table and multipliers designed to measure the effects of direct, indirect and induced expenditure on the East Gippsland economy were used. Using a region-specific and widely accepted I–O model allows the results to be reproduced by other researchers. Credibility, transferability, dependability and confirmability are important elements to ensure that a research study is trustworthy (Cohen et al., 2011; E. Thomas & Magilvy, 2011). Table 3.9 outlines these elements and addresses how each criterion was met to ensure rigour and trustworthiness in this research study (Lincoln & Guba, 1985).

Table 3.9

Qualitative Rigour and Trustworthiness Model

Criterion

Credibility

The research findings are accurate and represent the interpretations of the participants.

Techniques

- The researcher reflected on her positionality and the influence she may have had on the participants and the data interpretation and analysis.
- The researcher asked a supervisor to conduct the interview with the students she taught to avoid a perceived power imbalance.
- Permission was asked from the participants to record their interviews.
- During the interview if the researcher did not understand the participants researcher checked the responses for meaning.
- All interviews were recorded and transcribed using TRINT software.
- Each interview transcript was downloaded, checked for accuracy and given a code.
- Participants received the interview questions in advance, giving them time to reflect and prepare.
- The participants were offered the opportunity to read their interview transcripts to ensure that the findings accurately reflect their experiences and perspectives, and that the data is credible.
- Written notes were taken after each interview that included the location, date and time, setting, participant role and gender.
- All participant responses were included, and care was taken to report any discordant findings.
- All data (questionnaires and interview transcripts) were filed on a password-protected computer.
- A supervisor checked the researcher's coding and transcripts.
- The interview transcripts were reviewed for similarities and themes.
- The researcher discussed her qualitative findings with her supervisors.
- The participants names were not shared and all data from interview and group interviews were deidentified. However, those that participated in a group interview were all aware of who else were in their group.

Transferability

The methods and findings can be replicated in another context.

Techniques

- There was a wide cross-section of participants with an association with the SRH-B.
 - The different participant groups had different inclusion criteria, but all groups had an association with the SRH-B. The recruitment inclusion and exclusion criteria for each participant group are outlined in Appendix D.
 - The researcher has provided a full description of the research design, context, findings and analysis (Chapters 3, 4 and 5). The detailed description of the case study including the case, and its boundaries and methodology can be utilised or compared by other medical schools in MM4-7 regions.
 - The researcher has provided details to the methodology and analysis so that other medical schools in MM4-7 regions can determine if the findings and methods can be transferred and applied to their context.
 - The Consolidated Criteria for Reporting Qualitative Studies checklist was used to ensure comprehensive reporting of the qualitative data.
-

Dependability

Another researcher can follow the decision trail used by the researcher.

Techniques

- There is an audit trail for the data analysis for each participant group. Another researcher should be able to achieve results to their context if the same methods are used.
 - The interview transcripts were checked, and the online data were downloaded and checked for accuracy.
 - A member of the supervisory team checked the transcripts and coding.
-

Confirmability

The researcher must be reflexive and have an awareness of the knowledge generated, their role in producing the knowledge and how they may inadvertently influence the results.

Techniques

- The researcher piloted the questionnaire and interview questions and adjusted them in response to feedback. This was conducted with the staff and students from another site who were in a similar context but lived in another LGA, therefore not included in this study. This process enabled refining of questionnaire and interview questions.
 - Records of de-identified raw data were retained as recordings and downloaded transcripts from TRINT and Qualtrics.
 - The themes emerging from the transcripts were retained in NVivo12. This process provided the researcher the opportunity to think more deeply about the meaning of the participant responses.
 - Reflexivity techniques were used; after each interview, the researcher wrote field notes about her position and new insights and carefully considered the sampling and data collection methods and analysis. This was a very useful tool as the situation at the SRH-B was at times negative due to the 2018 restructure to the program and the loss of staff.
 - The researcher followed the interview script and asked participants to clarify any responses that were unclear.
-

Criterion

Internal and External validity

The methods and findings can be replicated in another context

- By using an instrument of an input-output table, it measures the direct, indirect and induced spending in the economy. It accurately assesses the effect of spending in the region due to changes, specifically the effect of the SRH-B presence in East Gippsland. Therefore, choosing an input-output tables with industry data for the East Gippsland LGA measures what is intended to measure (the economic output due to presence of the SRH-B)
- The researcher has provided a full description of the research design, context, findings and analysis (Chapters 3, 4 and 5). The detailed description of the case study includes the case, and its boundaries and methodology can be utilised or compared by other medical schools in MM4-7 regions.
- Appendix H, I and J provide additional information to the decision trail to expenditure.

Reliability

- Another researcher using the same instrument with data from their specific region should have results specific to their context.
- Input-output tables are a reliable and valuable tool but the accuracy of the underlying data in the tables is important. This study used up to date input-output tables specific to the LGA of East Gippsland. It should be noted that there are various input-output tables available, using a universally accepted table is important. Further, the data inputted into the table needs to be as accurate as available.
- By using an input-output analysis, this study could measure the economy wide impact including the direct, indirect and induced spending and induced effects in the region. That is, it is one instrument that can be used to consistently measure an impact and re-evaluate overtime.
- The input-output table utilised was specific for the LGA of East Gippsland, therefore providing specific industry information from the region for this study. Another researcher could use the same input-output table to evaluate the impact of their medical school. The researcher would need to use accurate data specific to the LGA in which their medical school is situated. Using specific data from another area would provide the same information (direct spending amount, employment numbers, industry impact) but different results specific to their LGA.

Note. See Braun and Clarke (2013), Cohen et al. (2011), J. W. Creswell and Plano Clark (2018), Saunders et al. (2015) and E. Thomas and Magilvy (2011).

3.20 Strengths and Limitations

Several strengths and limitations need to be considered when reviewing the qualitative findings and quantitative economic analysis.

3.20.1 Strengths

This was the first in-depth study of the social and economic impacts of a small rural medical school on its community. This study was designed using a constructivism-interpretivist research paradigm (Cohen et al., 2018; Creswell, 2014; Goodrick, 2016). Combining these epistemologies with a pragmatic approach provided diverse insights from participants' experiences, addressing the study's aims (Patton, 2015). The adoption of a mixed methods approach enabled the researcher to interpret participants' experiences while also analysing the numerical data collected. This approach offered a more thorough and comprehensive response to the research question.

A further strength of this study was that the qualitative questions were piloted to improve their clarity, sequence and format. The interviews were recorded, and the transcripts were checked for accuracy before being coded and aggregated into theme nodes. A supervisor read a selection of transcripts and reviewed the researcher's coding.

The detailed expenditure data collected for students, staff, the SRH-B and the community, using the online quantitative questionnaire, was a strength of this study. They provided a basis to compare and analyse respondent data with other quantitative estimates, such as ABS household consumption data, the National Accounts and the Australian Trade and Investment Commission - Regional Tourism Satellite Account (ABS, 2017, 2021c; Australian Trade and Investment Commission, 2019). The raw data were used to estimate the average visitor days per student and distribute the sums spent by the medical students across 86 industries. Other studies in the literature have used 2016 Census data or university admissions data rather than data collected directly from respondents. All estimates were

compared with ABS statistics, allowing for data comparison and adjustment. The data were initially analysed and then referenced against nationally recognised figures, followed by discussion with an economist.

The advantage of utilising the input-output table approach is its attention to industry details. In this study the input-output tables were specific to the East Gippsland region. The advantages of this approach are that it is able to include more realistic assumptions about the industry impact on the region compared to input-output tables that may contain information about industries that do not exist in the region (Loveridge, 2010).

A description of the considerations, processes and calculations related to how the analysis was undertaken is given in Appendices H, I, J and K. The appendices outline all the steps taken in the data analysis to ensure that this study can be reproduced and support the study's rigour. Some data from the respondents were thought to represent low estimates when compared with the ABS household consumption and tourism data and were adjusted after comparison with relevant ABS data and consultation with a senior economist. Increases in the student and student visitor expenditure values in line with ABS tourism statistics and NIEIR household expenditure estimates are likely to have provided more accurate data for analysis. Swenson (2014) argues that when completing a short-term economic impact study, up-to-date economic modelling applicable to the region being evaluated must be used and explained and be transparent and defensible.

Four supervisors oversaw the study. Each with their experiences and perspectives to medical education and research. All supervisors have been actively involved with the Rural Clinical School program and medical education, including curriculum development, community engagement and development of Rural Clinical Schools in rural communities. One supervisor has a background in statistics and quantitative analyses. This oversight

facilitated a comprehensive exploration of the topic from various perspectives, leading to a deeper understanding of the phenomena being explored.

3.20.2 Limitations

Not all respondents completed the online questionnaire, meaning that more data were collected for social impact than economic impact. As with any study that relies on voluntary participation, it was difficult to measure the degree of non-response bias (Saunders et al., 2015). It could be concluded that the participants who responded were more motivated and interested community members of East Gippsland who were more comfortable with providing their opinions.

A lack of prior scholarly research on the economic impact of medical schools on communities made comparisons with this study difficult. Much scholarly research has been reported in the context of larger organisations or has not provided details of how the analysis was undertaken. Some studies used dated statistics, making it difficult to compare this study's finding with other studies. Different mathematical approaches are available for economic analyses; many require the purchase of software or outsourcing to professional economic consulting organisations. This study used data from the participants and a contemporary I–O table specific to East Gippsland. The process resulted in a model for how spending from students, student visitors and staff increased industry sales, employment and GRP in the region. The results were extrapolated to Victoria and all Australian LGAs, but this study reports only the economic impacts for the East Gippsland LGA.

A limitation of this study is the limited incorporation of South African literature. While it was not an intentional exclusion; it is acknowledged as an oversight in the research process. Further analysis of the South African articles may have enhanced the literature review.

A concern was that students were asked to recall their expenditure on placement over 12 months. Memory recall can be affected by time and may not provide an accurate account. To overcome this limitation, the students' responses were compared with ABS unemployed household consumption figures and a previous study of student expenditure conducted by Monash University. A spending diary or a digital application could help students track their expenses, but they might forget to keep it up to date. Students frequently encounter financial hardships due to the costs associated with tuition, living expenses, and educational materials. This financial strain can extend to affording basic necessities such as food. The study indicated that some students allocate funds for weekly groceries; however, this may not apply to students at other medical schools in the MM4-7 region, where they have had to forego part-time employment, thereby reducing their income.

A further limitation was that the study was open to all students who had an association with the SRH-B. This included nursing, paramedic and allied health students. Although flyers were publicly displayed and an advertisement was placed in the local paper, only medical students volunteered to participate.

The digital recording quality was poor in two cases because of the position of the recorders relative to the participants. In these cases, some words were incomprehensible, resulting in a failure of transcription. Some participants took urgent phone calls during the interviews that required deletion from the transcripts. One participant had to attend to an urgent business matter that interrupted the interview process.

In the questionnaire, staff were asked if they had bought land, built a home or renting a property because of their association with the SRH-B. Seven staff members responded that they had bought land; eight had built houses; four had rented property in the region; and one had bought a caravan park. It was beyond the scope of the study to assess the economic impact of these staff actions using the ABS household consumption data. An analysis using

different computational models would be required to understand the economic implications of purchases of property in the region.

The study was limited by the most recent National Accounts estimates of consumer expenditure. The study compared the respondents' expenditure data to the 2018 available data: the ABS and NIEIR household consumption tables. Although these databases provide the latest and most accurate statistics available, the values remain estimates only.

This research commenced before the restructuring of the SRH-B. Some participants spoke about their concerns and frustrations about how the restructuring affected them and how the restructuring could negatively affect the efforts to establish a long-term healthcare workforce in East Gippsland. These valuable reflections from the participants were noted and included in the analysis.

The study was a short-term impact study with data gathered between 2016 and 2018. Most short-term economic impact studies analyse data from a period of one to five years. Gaining an understanding of the long-term impact of a medical school's presence would require repeating the analysis for a later period, but this was outside the scope of this study.

3.21 Chapter Summary

This chapter outlines the researcher's positionality as an insider-outsider researcher and the motivation the study was undertaken. The chapter describes the research design including the methodology and method used. The research design and the process of data collection reflected the importance of capturing the stories of participants (students, staff, healthcare professionals, community and business owners) who shared their experiences with a medical school situated in a MM4-7 region in Australia.

This case study examines the social and economic impact of a medical school that provides approximately 450 students weeks per year situated in a rural area of Australia (MM4-7). The case is the SRH-B, with the boundary being the East Gippsland region, where

all the interactions (social and economic) between students, staff, healthcare professions and community occurred during the timeframe of 2026-2019. During this period, the SRH-B underwent a restructure resulting in the loss of staff and change to the academic programs. I was not aware that this restructure was to take place at the start of the research. Data was collected from participants (students, staff, healthcare professionals, community and business owners) through a questionnaire and interview.

The adoption of an epistemological lens and a constructivist perspective, the researcher aimed to understand the participants lived experiences particularly their insights from involvement with the SRH-B. Using pragmatism as an enquiry lens, enabled this study to utilise a mixed methods approach allowing the flexibility to combine qualitative and quantitative research methods to gain greater insight into unexplored facets of the phenomena. Fifty-six questionnaires were completed, and 63 participants in four participant groups agreed to be interviewed. The qualitative and quantitative datasets were brought together using a joint display table to generate an overall understanding of the data. An account was given of how rigour and trustworthiness were maintained in the study.

Chapter 4 presents the themes and subthemes from the analysis of the qualitative data collected from open-ended questions in the questionnaire and the participants' interviews.

Chapter 4: The Social Impacts of a Medical School on its Community

4.1 Introduction

Chapter 3 described the research design, the methodological approach, the development of the data collection tools and the data collection and analysis. Chapter 4 presents the qualitative findings from the interviews and free-text questions from the questionnaires to understand the perceptions of stakeholders about the social and economic benefits of a medical school (School of Rural Health in East Gippsland) in a community (East Gippsland LGA). The themes could be transferrable to another medical school with similar student weeks and demographics.

The online questionnaires were completed, and the interviews conducted in the study area of East Gippsland between November 2016 and May 2019. Section 4.2 presents the participants' characteristics (age, gender and rural origin). The three main qualitative themes are then discussed: a vision for the future, an evolving community and growing a rural workforce in sections 4.4, 4.5 and 4.6. The quotations from the open-ended online questions and interviews are de-identified to maintain the participants' anonymity. The de-identification code includes a reference to the stakeholder group of the participant (student, staff, healthcare professional or community member).

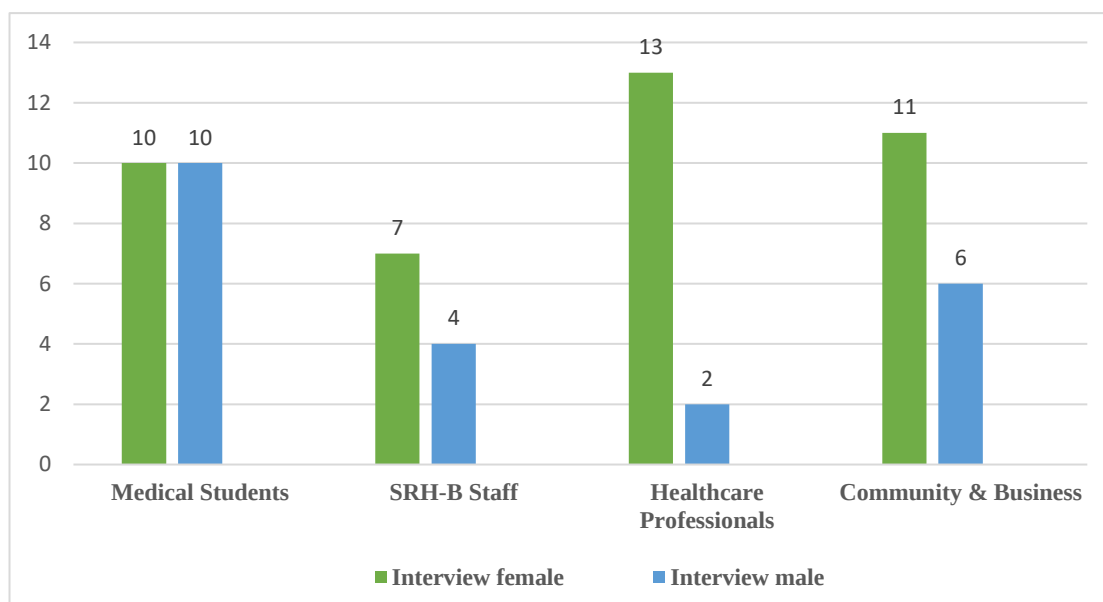
4.2 Participant Characteristics

This section provides a demographic overview of the participants by stakeholder group, gender, age and region of origin prior to residing in East Gippsland. Fifty-six participants completed the online questionnaire, and 63 participated in an interview. All participants who completed the questionnaire agreed to participate in a face-to-face interview. All participants were living in the East Gippsland region and were associated with the SRH-B

as stakeholders (students, staff, healthcare professionals or community members). Figure 4.1 shows the number of participants by stakeholder group.

Figure 4.1

Interview Participants



Students represent medical students who were enrolled at Monash University and undertook placement at the SRH-B and staff represent the employees of the SRH-B who are residing in the East Gippsland region. Healthcare professionals include doctors, nurses, allied health workers and paramedics living in East Gippsland, associated with the SRH-B and were clinical supervisors or utilised the SRH-B facilities. Community members and business owner/s were individuals who resided in East Gippsland and had an association with the SRH-B. Appendix D provides an inclusion-exclusion criteria for each group. The gender distribution of the questionnaire and interview groups was slightly different; the online questionnaire participants were 55% female and 45% males, and the interview participants were 65% female and 35% male.

Table 4.2 reports the age distribution of the participants who completed the online questionnaire. The participants were asked their age on the questionnaire but not in the

interview. All the students who completed the online questionnaire were under 25 years of age; all were fourth-year undergraduate medical students undertaking longitudinal placements in East Gippsland. No respondents were aged between 26 and 29 years; five were 30 to 39 years old. The remaining 32 respondents were evenly distributed across the older age groups.

Table 4.1

Questionnaire Participant Age and Rural Origin

Participants	Age (years)						Rural origin*
	≤25	26–29	30–39	40–49	50–59	≥60	
Students	19						12 (63%)
Healthcare professionals			2	4	3	1	8 (42%)
Staff			3	1	6	2	5 (42%)
Community and business				4	2	9	11 (73%)
Total	19		5	9	11	12	36

Note. The participants were asked if they were of rural origin (i.e. had lived in an ASG-RA2 to RA5 location for 10 years in total or 5 years consecutively). They were directed to www.doctorconnect.gov.au for the classification information.

Twelve of 19 students identified as being of rural origin; that is, they had lived in an ASGS-RA2 to RA4 regional area or an MM2 to MM6 regional area (see Department of Health and Aged Care, n.d.-c) before their placement in East Gippsland. Interestingly, no students were originally from the East Gippsland region or had resided there for any length of time prior to their clinical attachment. All the students resided in the townships of Bairnsdale, Orbost or Lakes Entrance during placement with the SRH-B. The respondents were asked to indicate whether they had a partner and, if so, whether that partner had relocated to East Gippsland with them. Two students indicated that they had partners who did not relocate to the East Gippsland region with them. When asked how long they had resided in the East Gippsland region during their placement, 16 students indicated a period of more than six months but less than a year, and three students indicated a period of one to two years. The

three students who had resided in East Gippsland for one to two years, had undertaken a longitudinal clinical attachment in their fourth year of study and a shorter rural program in their second year. Although participation was open to all health disciplines, all the students who completed the online questionnaire and interview were studying the Bachelor of Medicine, Bachelor of Surgery at Monash University. Five staff members identified as being of rural origin. The remaining seven staff members originated from a metropolitan region in Australia or emigrated to Australia.

4.3 Themes and Subthemes

The three main themes and associated subthemes from the analysis of the qualitative data (the open-ended questions from the online questionnaire and interviews) are given in Table 4.2.

Table 4.2

Main Themes and Subthemes

Theme	Subtheme
A vision for the future	Aspiration around education Community pride when students return to the region Identity, Value and Development opportunities
An evolving community	Community based learning Building a more culturally respectful and tolerant community Research engagement in the community
Growing a rural workforce	Growing a medical workforce Transforming medical education A multidisciplinary education precinct

4.4 A Vision for the Future

This theme reports how participants view the role of a medical school (SRH-B) in influencing both the personal aspiration of individuals and the collective vision of the community. The three subthemes within this theme involved aspirations around education,

community pride when students return to the region and identity, value and development opportunities.

4.4.1 Aspiration around Education

Many community participants, along with students, staff and healthcare professionals, felt that having a university presence supported aspirations for higher education for members of the East Gippsland community. The exposure of young people to the university's presence allowed them and the community to think about the career opportunities available and the attainable standards of education. In East Gippsland only 13.7% of the population has completed vocational training or a bachelor's degree, compared with the Victorian average of 29.3% (ABS, 2021a). A university's presence in rural communities can have a positive effect on the community's perception of education by promoting the view that education is important and accessible.

One participant noted that this *'creates a level of expectation that universities are part [of] normal education, and I think a presence is really important.'* (C1 Healthcare professional).

Some participants commented that the presence of the university changed their understanding of how a university can support a community and promoted the aspirations of local young people:

'I believe [SRH-B] has got a role in showing local young people that there are careers in health-related fields available to them here in East Gippsland and [that] may help with their aspiration. I think one of the real challenges is in East Gippsland is making sure that we overcome some of the barriers to people seeking higher education. And I think having a school of rural health, having a stronger university presence in our town will help.' (D1 Community).

Another staff member felt that SRH-B *'builds understanding in the health training sector of the role of a rural campus and the important opportunities it provides to young people who may be studying—so, increasing their understanding of education.'* (C2 Staff).

These responses indicate a medical school in a rural area encourages higher education and career aspirations, especially among young people and promotes a culture that values learning.

4.4.2 Community Pride when Students Return:

The healthcare professional and staff participants expressed a sense of pride and achievement about cases where a medical student returned to the region for a further placement or as a junior doctor. This sense of pride arises from witnessing the students' progress and success, knowing that their efforts in teaching, supervising, and supporting these students have contributed to their achievements. Some medical students who had previously undertaken longitudinal clinical placements, who had tutored younger people in the region and/or been active in the community (e.g. in clubs or events) during their placement were returning as interns or taking up locum positions for short- or long-term employment. Community members who had been part of these students' learning and community successes through the provision of education, supervised placements or community engagement activities expressed pride about being part of the students' achievements and their transition to working as local doctors. One staff member said, *'There's that little bit of pride like, "I saw you when you were a student", and now they are back and giving back to the community in a huge way.'* (A3 Staff).

Another stated, *'So many of the [medical] students that have been past students are now coming back to the area, and they came to teach the new students coming through and getting involved.'* (B8.2 Staff). These excerpts demonstrate the positive social and economic impact when medical students return to rural communities for placements or employment. It

benefits both the community and the students by fostering a sense of belonging, addressing workforce shortages, and highlighting the success of medical schools in rural areas. This emphasises the importance of supporting the continuation of community-based medical programs in rural communities MM4-7.

4.4.3 Identity, Value and Development Opportunities

Several participants noted that having a university provided the East Gippsland region with a sense of identity and value that did not exist prior to the establishment of the SRH-B. The recognition demonstrated government support for a region outside a metropolitan area, investment in a rural area, and exposure of the community to new opportunities. This provided a sense of progress and validation. One community member mentioned that Monash University's involvement in the local community signified that the community was valued:

'For me, as someone who lives in Bairnsdale ... it's really important having that university presence that speaks of moving forward. A university that sees value here, in a government that really is investing, and the money is coming here to train our future workforce and believing in young adults in our region and exposing people to it.' (A6 Community).

Some participants suggested that the continued existence of the SRH-B provided a sense that something good was happening to the rural region, leading to improved outcomes for the community and a sense of progress and optimism. One community participant noted:

'I reckon it's actually crucial for us as a region to feel that. ... Having a university here ... I think it gives that pride in, we're part of something and ... good things are happening here, and we're not forgotten.' (A6 Community).

Some participants felt that the community was maturing because of the university and its education programs. The university presence provided a sense of community pride and achievement and an appreciation of being part of something bigger. The participants also

acknowledged positive outcomes in terms of increases in local employment and spending, ability to undertake academic teaching roles and community members could engage with the SRH-B. One participant stated:

'From the perspective of the community, it brings academic facilities, staff, thinking, higher-level discussions within the community and between health professionals. The academic influence in the small rural communities is far-reaching, I think, and I think it gives small communities employment, and it gives small communities a sense of pride and a sense of achievement and a sense of contribution to the lives of the students, medical services and future clinicians. I just think it lifts the whole standards, the expectations of the community, opportunity that normally is not there.'
(A5 Staff).

What can be learnt from these exerts is a medical school's presence in a rural area has a positive impact on the community by fostering a sense of community identity and recognition, economic development through employment and spending, and education opportunities.

Overall, the community participants recognised the SRH-B as important for the region's identity. However, a few participants expressed alternate views that the university had an insufficient profile in the community. Monash University previously had a large presence in the Gippsland region through the Churchill campus (142 km from Bairnsdale), which offered a range of courses, including nursing and engineering. When the courses delivered at the Churchill campus were moved to metropolitan Melbourne in 2015, the only remaining faculty at the Churchill campus was the graduate medical program. In addition to the graduate medical program, was the Rural Clinical School with five RCS sites in Victoria, one being the SRH-B. Beyond Monash University's withdrawal of education services, some participants described their concerns about the low profile of the SRH-B. They felt that there was a lack of awareness and marketing of the SRH-B to the general public and a lack of

physical visibility that may make the SRH-B vulnerable to being unrepresented. Some participants suggested that a campaign should be undertaken to raise the profile of the SRH-B. Some community participants felt that those who did not have a direct association with the RCS had little awareness of the university's presence in the region. The common view of the participants was that the SRH-B was important to the region and that more needed to be done to acknowledge this:

'I think [SRH-B's] profile is fairly low. I'm not sure that most people appreciate that it is here and that it is a sophisticated set-up and is physically and—it's a sophisticated set-up educationally. I'm not sure the local community is generally very aware of it.' (D1 Community).

Another participant stated, *'I think [the university] is under-known and under-acknowledged, an unknown treasure because ... the work that goes on here is just so important. But people outside of health just don't understand.'* (E1 Community).

While certain community members remarked on the low visibility of the SRH-B, some staff members expressed that they were too busy completing their core activities and advertising the SRH-B was not a high priority.

'Not enough people know about [SRH-B] and its expertise, and its level of excellence is not well understood. It's not that unusual of regional organisations. They tend to hide their light under a bushel, and they just get on with doing their job.' (C2 Staff).

However, a few staff participants held an alternate view that the SRH-B needed to inform the community about university activities, even if it did not necessarily undertake an advertising campaign:

'I think there's a line that you have to draw, which is—yes, we need to keep people informed of what we're doing, yes, people need to be comfortable with us. It's about how

people work with the university. You don't have to put a poster in every single person's home saying, 'Pay attention.' (A5 Staff).

The analysis reveals a level of altruism from the community participants and their concerns about the recognition of the SRH-B. However, there was a misalignment of expectations between the community and staff participants about promoting the SRH-B's education and community activities to the region. This theme emphasises that without proper recognition, the SRH-B may become unappreciated and miss opportunities for local support and funding. Strategic actions are needed to raise its profile, engage the local community and improve the visibility and recognition to attract more support. The insights gained emphasise the significance of publicising SRH-B news and community engagement activities necessary for a medical school in rural areas in ensuring ongoing support.

The following section presents participants' perspectives on the restructuring of SRH-B. The reorganisation of the medical school occurred during the interview phase of this study. At the beginning of this research, I was not aware that a restructuring would take place.

The restructure of the SRH-B in 2018 resulted in a change in governance being administered from another medical school site (116kms away) and the loss of staff and considerable community engagement activities. Some participants expressed concerns about the importance of maintaining local relationships and the presence of the university. The participants felt that it was important that the governance of the SRH-B (site management, academic activities, community engagement and leadership) be led by local staff, not by a university staff situated outside the region. Additionally, some community participants felt that building capacity at the community level, in terms of staff, governance, community engagement, resources, and funds was essential for regional development.

Several staff, healthcare professionals and community participants expressed the belief that the staff are key to the success of a community-based medical program. They felt that

retaining staff who understand the importance of developing and fostering a relationship with local healthcare providers is essential for positive student placement and learning:

'The staff here do an incredible job at relationships with all the different health providers locally and maintaining them and the networks that you guys have with all the different places that—again, it's back to this relationship thing; I think you do that very well.' (A6 Community).

The insights gained emphasise that to ensure the success and sustainability of medical schools in rural areas, it is important to develop strategies to retain staff, enhance community engagement activities, and strengthen local governance between a medical school with the region's healthcare providers. Some participants were concerned about the effect of the restructure on relationships and specific needs of the local community. If the SRH-B were to be reduced, the valuable local context and connections could be lost, which is why it is imperative the medical school continues its involvement in the region as highlighted by one participant:

'I think it's vitally important for BRHS and health services and for the greater East Gippsland community that Monash continues to have a presence here that's governed and have local staff here who can continue with the relationships locally because that local context would be lost if that was ever to go. So, I think it's really important that that continues.' (B9.3 Community).

The following response highlights that adequate funding and local governance are key for success of medical schools situated in rural areas. Rural medical schools provide employment opportunities, the continuation of medical programs, and support local economic development. This response acknowledges the challenges faced and highlights the necessity of ongoing financial support.

'I think it's hard to do everything perfectly without enough manpower and I guess that comes back to the funding. I think it's disappointing when the funding keeps getting cut and then you lose staff and then have, you know other good things that have been there today day cannot continue.' (A2 Healthcare professional).

Medical schools such as SRH-B engage with the community and create opportunities that address issues like unemployment, early school leaving, and social disadvantage. This contributes to regional development and economic growth. As highlighted by one participant:

'I would encourage Monash to sustain the school here. I think with all that's going on [early school leavers, unemployment, level of socially disadvantaged people] I think that's just so short-sighted to think of not continuing here. I think it's just there's so much work going into this school. It is of such benefit. It is incredibly valuable. The setup is fantastic and there is nothing like it outside of Melbourne and we need to keep it.' (E1 Community).

These excerpts capture the participants' sense of loss and disappointment with the reduction in the SRH-B funding and staff and community activities. This apprehension was particularly pronounced among participants associated with the SRH-B during the re-structure, as governance transferred to Traralgon and some local staff became redundant. They demonstrate the desire of an RCS being governed and driven from within the local community, using community consultation to address rural workforce deficiencies. Increasing community consultation to address participants' concerns regarding the reductions in funding and staff would have acknowledged their sense of loss and disappointment. It would also have reinforced the importance of involving the local community in the decision-making. SRH-B staff should have had the opportunity to discuss their concerns with central faculty. However, the Head of the Rural School agreed with the restructure, and East Gippsland lacked a director at the time. Local staff raised concerns with the RCS and Head of School detailing the impact of losing local autonomy during interviews about the restructure. This study highlights the

valuable role of rural medical schools in supporting and retaining local staff and encouraging community engagement. These efforts are fundamental in preventing declines in teaching programs such as the longitudinal integrated clerkships, staff levels and community activities. Further, capacity building through staff development, community engagement, and resource allocation at the local level is essential to increase regional social and economic development.

4.4.4 Theme Summary

There are several key insights from the participants responses that emphasise the positive impact a medical school has on its region. They suggest young people in the region may pursue higher education leading to more career opportunities. An increase in the overall educational level would bring more social, economic and employment benefits leading to further community development to a region. Other learning points are that some students who have undertaken placements do return for further placements or as doctors that positively impacts on local workforce and fosters a sense of achievement among the staff, healthcare professionals and community. A notable finding is that a medical school needs to be visible in the community otherwise it can become underrepresented and may miss further grant and funding opportunities. Participants closely aligned with the SRH-B understood its mission and valued its presence and community activities. However, participants who were not so involved with the SRH-B wanted greater recognition, which may be achieved by implementing a more proactive community engagement strategy. Medical Schools need to address any misalignment between the community's expectations and their own through regular communication to align both the university's and the community's aspirations. Maintaining and building local relationships is important for the success of a medical school situated in a MM4-7 region.

In summary, the participants perceptions reveal the significant social and economic impact of having a medical school in a rural region. It fosters educational aspirations, a sense

of identity and value previously lacking, creates career opportunities, enhancing regional development, and promotes healthcare sustainability. Moreover, it cultivates a sense of optimism in the community.

4.5 An Evolving Community

This theme discusses how participants perceived the region as evolving into a more vibrant community, facilitated by expanded community engagement opportunities. These opportunities impacted on educational and cultural learning experiences, as well as research engagement. There were three subthemes: community-based learning, building a more culturally respectful and tolerant community and research engagement in the community.

4.5.1 Community Based Learning

The following excerpts illustrate how medical students in a MM4-7 region can contribute by engaging with the community, serving as role models, mentoring rural students, and fostering mutual learning experiences. Medical students undertaking a year-long placement in East Gippsland are encouraged by the SRH-B to immerse themselves in the community and join local clubs, such as choirs, church groups and sporting clubs. The medical students who did so were more visible in the community and interacted with members of the community groups. Some staff and healthcare professional participants noted that through interactions with the local community, some medical students became role models for young people in the region and at the university. One participant noted how the medical students positively influenced younger people's attitudes towards achieving their personal and academic goals:

'They're role models. I think [it] is a critical thing because they become involved in the community engagement. ... They're good role models; they're good ambassadors for the university. ... They go out and engage with the community, and they do things

and I think they inspire other young people the same age to go for their goals. ' (A3 Staff).

A student who was active in the community and was invited to be a guest speaker at a local club proudly reported, *'I did a presentation for Bairnsdale Rotary. ' (A1.4 Student).*

A few staff and most student participants conveyed how difficult it was for rural secondary students to understand the pathways to studying medicine. They took the initiative to nurture students through the application process. One student participant stated:

'I grew up rurally, and I found it really difficult to understand how to get into medicine. I was happy to provide a contact email and say, 'If anyone's interested in medicine and want[s] some advice on how to apply. ' (B7 Student).

Other medical students mentored or tutored local secondary students and found the experience rewarding:

'I've always loved teaching, and I think it's really good because it helps you consolidate your own knowledge because you've got to revisit what you know in order to teach it to someone. But also, it's kind of rewarding in that you get to see how far you've come as well. ' (B1 Student).

Some participants felt that there was a need for funding for programs to enable secondary students to engage with the medical students:

'It would be really, really good to be able to have a significant impact on secondary schools to get, you know, not just the Aboriginal kids but all kids in secondary schools to actually help them set their sights a bit higher about achieving Year 12 or doing well in Y12 and then go on to medical to tertiary education. ' (C2 Staff).

When discussing medical students as role models in the community, a staff member presented the idea that medical students engaging with the local Aboriginal community could 'demystify' doctors and overcome misconceptions held by Aboriginal children about the role

of doctors. The medical students were viewed as training doctors who could promote a sense of trust in contemporary medicine:

[Medical students] 'being in the region and meeting [Aboriginal] children realise that these are doctors in training, and they see them as role models and ... it demystifies doctors. ... It encourages [Aboriginal children] to actually talk to health professionals, and I think, indirectly, there's a whole range of ways in which they educate the community at all ages. ... Whether it's just demystifying health professionals to indirectly educating them about injuries or a sporting injury.' (C5 Staff).

In some circumstances, the teaching roles were reversed, and the medical students learned from Aboriginal community members. Involvement with the local Aboriginal community provided participants with a more in-depth connection to Aboriginal culture and traditions. One student stated, *'I think the exposure to the Indigenous community and understanding the connections with that ... was a really valuable experience. I don't think I would have gotten that anywhere else. ... I was grateful for that.'* (A6 Student).

A student participant described how, through participation in a camp for Aboriginal children who were interested in health science courses, they shared a deeper connection to the children when seeing them as patients:

'I went to Camp Marook; that was a really cool highlight. So, like giving time in [the] community. I even saw some of the students, kids that were there in the camp as patients back in the clinic. Yeah, that was really cool, and that was a highlight. I felt that I already had a connection with them, and I was able to ask them how school was going and how they liked the camp.' (A8 Student).

Most student and staff participants welcomed the opportunity to be involved with community activities including visiting local primary schools to teach lifestyle skills and

noted the reciprocal learning from engagement with the community. A staff member described how medical students learn to engage with primary school students: *'There's much more to being a doctor. ... And you know, going out to primary schools, they've got to communicate with kids, which you know isn't in the curriculum. You must know how to talk to a five-year-old.'* (A3 Staff).

The medical students expressed a range of opinions about learning in a small community. Some undertaking the year-long placement felt that it made learning more relevant and holistic and translated to better academic achievements:

'Being able to be completely immersed in the environment and having hands on, being in the community for the whole duration of the year, added to the experience of being at university compared to just being in the city, having university and then coming home.' (A8 Student).

Some students wanted to give back to the community after they graduated:

'I know not everyone is planning to be a GP, but we have the education to remember ... that the community is here and how highly we value it ...and personally ... want to help this area. That includes coming back to visit the clinic or whatever you're doing. I'd love to pay back in some sense.' (A1 Student).

A staff participant felt having different people in town challenged local thinking and ideas in the medical profession in the region:

'I think it's got to be a role bringing some people to our town who may have different ideas, may challenge the status quo. Some of the younger people coming here to study may shake things up a bit, amongst others in the medical profession, which I think ... wouldn't be a bad thing, but challenging people's perspectives on their community, their lifestyle.' (A5 Staff).

A healthcare professional described reciprocal learning by students and local clinicians:

'I think it's refreshing to have [medical students] here, and I think that as clinicians, we see things through their eyes: new ideas, new concepts. They're the next generation. I think that we've learned as much from them as they learn from us, and it's different; our learnings were certainly different to theirs.' (C3 Healthcare Professional).

This subtheme emphasises the dedication of students and staff to community support and education. What has been learnt is that medical students as role models impacts the community through engagement and inspiring others to pursue their professional goals. Student involvement in the community demystifies the medical profession for Aboriginal children and fosters a trust in healthcare. Participants (students, staff, community members) reported feeling accomplished, more connected to the community, and gaining new knowledge. It also highlights the significance of medical schools in rural areas and the value of community-based learning and reciprocal relationships. Furthermore, funds are needed to support programs for secondary students to engage with medical students, to sustain their interest in medical education, to address the health workforce deficit, and to contribute to regional economic growth and stability.

4.5.2 Building a More Culturally Respectful and Tolerant Community

Some participants felt the presence of the SRH-B helped to build a more respectful and tolerant community through the presence of students, friends or parents of different origins. These students brought diversity to the community by sharing their cultural customs and being involved in various community clubs and activities. Several participants felt that having insight into the diverse cultural beliefs and customs of students from different countries of origin provided new cultural learning and broke down barriers to racism.

A few participants felt that medical students from different ethnic groups broadened the patient and doctor experience. While most views were positive, there were some differing opinions regarding the presence of students from diverse backgrounds in the community. Several comments affirmed the benefits of having culturally diverse students. A staff member said:

'I just think that ... new medical students come from a different background ... and it breaks down some of those barriers. You know this is a doctor. It doesn't matter where the doctor comes from: this is the doctor.' (D8 Staff).

Students from diverse cultural backgrounds can influence perceptions of what a doctor should look like:

'Moreover, [students] contribute to the environment because often they're from a different cultural background. So, they help broaden the diversity around the patients' experiences of what different doctors are like. So, I think that the patients can learn from them.' (C8 Staff).

A community member commented that having students from diverse cultures enriched the student–patient consultation:

'One of the things that I really appreciate is that the students often come from all walks of life and different ethnic groups [that] do not necessarily live in East Gippsland. I really appreciate the diversity of the student cohort that I come across as a patient in the hospital. I just think really it goes both ways, the benefits of both ways.' (D6 Community).

A student noted a positive experience when talking to patients:

'I think that the medical students coming from Monash were quite culturally diverse. And I think when some locals meet us, it can be interesting to just chat to them as well and, yeah, for them to know a bit about where we come from.' (A4 Student).

Although most participants felt that students from diverse cultural backgrounds enriched their knowledge and interactions, a few community members were less tolerant of outsiders coming to a rural area and did not always embrace the experience. A participant described certain community members' negative views of students of diverse cultural origins and noted how uncomfortable it could be to work in the local healthcare environment:

'So, there may be a racist view of [students] ... that you know is a negative one. And you know that sort of stuff doesn't really happen in the city, more so in rural. So, it's a big challenge for the medical students.' (D8 Healthcare Professional).

Another healthcare professional described similar experiences: *'You know, there's a lot of people that work in the health service that are home grown and born and have worked here. It's very different when you're the migrant coming and providing a service. It's not easy actually.'* (C1 Healthcare professional).

Some students were reluctant to discuss prejudices in small rural communities. However, a student described their experience whilst on placement, *'I, like, encountered a few racism incidents, which was, like it wasn't like concerning or anything, but like, it wouldn't happen in the city; like, it might not happen as much or be like different.'* (B6 Student).

The insights gained highlight that students, as role models, enrich the patient-student-doctor experience and contribute to cultural learning within the community through the student/doctor-patient relationship. The presence of negative views and experiences related to prejudices highlight the need for medical schools and communities to address and mitigate biases in rural areas, thereby fostering a more inclusive environment where diverse experiences are valued. Additionally, integrating students whose family may not have originated from Australia into the healthcare community supports local employment and professional growth. Rural medical schools may require additional funding for diversity and inclusion programs to create a more supportive health workforce. While diversity can

positively enhance the community's cultural capital, more efforts are required to ensure all students experience cultural tolerance.

4.5.3 Research Engagement in the Community and Health Services

Several participants reflected on the benefits of undertaking collaborative research in the region. The university staff described the type of research they felt should be undertaken and noted that there were challenges to maintaining collaborative research activities. Some community, staff and healthcare professional participants expressed criticism, wanting the SRH-B research agenda to be more active and embedded within the community and address health issues and outcomes for those living in the East Gippsland region:

'While far more research has been completed since Monash was established here, there's a huge amount more that needs to be done, both with respect to the medical health services and access issues, as well as broader community health and welfare issues.' (A5 Staff).

A different staff member stated, *'What sort of clinical research we can do is to try and improve how we manage diabetes in the region or help manage other chronic illnesses, how we prevent acute coronary syndromes.'* (C2 Staff).

Some participants from the local health service and community expressed the desire for more collaborative research between local health services, the community and industries. A community participant described missed opportunities, including audits addressing East Gippsland health issues, research activities that would benefit the local Aboriginal community and other collaborative research activities:

'There's lots of research that goes on in the hospital, but Monash [University] don't seem to be involved in any of it. ... I think that's an area where Monash [University] can play a much bigger role in both clinical and non-clinical—you know, in terms of workforce than, you know, areas like that in rural hospitals.' (B9.1 Community).

Two staff indicated that a lack of central support for research collaborations and limited funding hindered them from undertaking local research because having only a few skilled researchers constrained how much research could be conducted. This situation also limited the potential for meeting stakeholder expectations:

‘With more staff and funding, you could do more community engagement and more support around research. We are very isolated here as researchers, whereas in metro[politan areas], you can collaborate a lot more easily, and it’s different there and here. The research here is very varied, and really, you don’t have expertise in all areas, whereas in metro[politan areas], people doing research, you have the expertise in a particular area, and you can’t do that here. It just doesn’t work.’ (C5 Staff).

Some community members wanted the university to be more active in publicising local research. A few suggested a more active research advisory group, demonstrating the community’s desire to be more actively engaged with research and education activities:

‘I think that’s good, and just to even publicise some of that research that’s happening, focused on the rural health stuff, any of that publicity is good for the community to see that we’re not forgotten and [that] there’s people on the ground in the area, based here, researching our needs.’ (A6 Community).

A staff participant argued:

‘I think more community input and a research advisory group will help with the research component, but I think more community input—even into education of what they see as important, even down to the student selection.’ (A3 Staff).

This subtheme reflects a misalignment of community and university perceptions and expectations about what research should be undertaken by whom. The reasons why the SRH-B did not fulfil community expectations for more local research included limited research staff on site, a lack of funding to support further activities and a central metropolitan faculty

directing the research activities to be undertaken. This situation did not align with community expectations that the university should be collaborative, address local translational issues and involve members of the community and health workforce. The themes identified here align with the OECD's (2022) description of the requirements for local research: time to engage in research, equal engagement from team members, leadership, incentives and funding. The learnings from this theme are that collaborative research fosters a sense of inclusion and may lead to better health outcomes for the community by addressing contemporary topics.

However, the loss of research opportunities has shown that community members feel less engaged with the SRH-B. This results in missed opportunities to gather data that could inform local health and community development, identify new economic development prospects, and foster community cohesion. Insights from this subtheme is that research can bring community members together, facilitating the sharing of knowledge and skills and empowering them. The missed opportunity at the SRH-B could be a learning point for other medical schools in MM4-7 regions as to the importance of establishing a research advisory group that involves local community members.

4.5.4 Theme Summary

The theme of an evolving community provides insights into the benefits and challenges of community engagement for a medical school (SRH-B) in East Gippsland, emphasising the importance to supporting and maintaining rural medical schools in MM4-7 regions in Australia. The engagement of medical students within the community was perceived as beneficial, promoting a sense of achievement, deeper connections, and the acquisition of new knowledge for both students and community members. Socially, this engagement fosters reciprocal learning through the exchange of knowledge, experiences, and cultures.

Medical students engaged with local Aboriginal camps to support young Aboriginal people to commence health careers, while the Aboriginal community taught students about its culture. Students also mentored and tutored local secondary students helping them achieve better academic results. Clinicians benefited from looking through the lens of a medical student enhancing their own learning. The insights emphasised the co-location of a university and hospital created a symbiotic relationship that supported education and the development of local health care.

Students of different origins contributed to a more culturally respectful and tolerant community challenging community thinking about race and ethnicity through the patient–student doctor consultation. These interactions enriched the experiences of both patients and students, fostering cultural learning. Despite this progress, more effort is needed to build respect for people of other origins and ensure a more inclusive community.

There is an expectation that SRH-B should undertake more collaborative research. However, a lack of support from Monash University at Clayton for rural research collaboration and the limited number of skilled researchers restricted the research activities that could be undertaken. To address this, increased support and funding for local research initiatives are necessary for medical school in rural regions. This section demonstrates the genuine desire of all stakeholders to share knowledge, skills and culture for the purposes of improving health and education outcomes in East Gippsland.

4.6 Growing a Rural Workforce

The theme of growing a rural workforce reflects participant perceptions about the educational role of the SRH-B. There were three subthemes: growing a medical workforce, a transformation of medical education and multidisciplinary education precinct.

4.6.1 Growing a Medical Workforce

Many participants understood that the presence of the SRH-B was a driver to support and sustain a future rural medical workforce in the region. The East Gippsland community needed a workforce that was fit for purpose to address the specific needs of the community and provide training pathways for students wanting to return after graduation. Some community and healthcare workers felt that the East Gippsland community needed to take responsibility for the workforce shortage and not leave the problem to the university to resolve:

'Schools like this, working in a rural environment, prepare people in a far better way than conventional education in a metro environment. ... I mean, I don't believe East Gippsland itself will have a truly independent way until it produces the professionals it needs to service its community.' (C1 Community).

Another participant felt that their association with the SRH-B was about building a community rather than just a workforce:

'It's having a greater and broader understanding that you don't necessarily get in the city because you just go and do [it], and then you go on placement, and you're done. Whereas this is building for a community rather than just a job.' (E4 Community)

This perspective highlights the participant's view that while the SRH-B provides medical education, its impact extends beyond education alone. It contributes to building relationships and contributing to the community as a whole rather than just completing a job. It emphasises the importance of being integrated into the community you are working in, which can result in a more fulfilling experience and help address the health needs of a community that faces challenges in retaining medical staff. Some participants viewed the presence of the SRH-B as a way for the community to build a workforce and sustain a small rural community

All participants felt that the key role of the SRH-B was to educate medical students to address the medical workforce shortage in rural areas such as East Gippsland. There was an acknowledgement from many participants of the importance of exposing students from outside East Gippsland to rural communities to address the local workforce shortage ready to meet the healthcare needs of the region. This exposure helps medical students understand the challenges and rewards of rural medical practice, providing a more considered interest in practicing in a rural area.

'The bigger picture with Monash Rural School is about succession planning: creating a sense of generating more rural and regional and remote medical workforce, generating an interest [from] people who may not originally be from those kinds of geographical location[s].' (C3.3 Healthcare Professional).

A healthcare professional said, *'I think it's good to have students coming out to the country because more and more students who ... [have] grown up in the city have very little knowledge of what country practice is about.'* (A2 Healthcare professional).

SRH-B staff felt that achieving a sustainable workforce required dedicated staff and stakeholders working together and sharing a common insight, vision and values:

[Staff] *'all share the same values about the need to engage with the community and ... understand the role that we have in the community as far as being accountable to bringing a workforce back to the community and trying to recruit as many kids as we can into medical training or other health tertiary health education. [SRH-B's] ... role is to encourage people to share those values and to ensure that people understand that and are working to be [at] the top of their job, ready to achieve those things.'* (C2 Staff).

Another staff participant highlighted how sharing values can facilitate the creation of common goals: *'I think there's a bit of an obligation to be part of the community and part of*

the school; you always feel an obligation to give to the community make sure things are seen through.’ (C5 Staff). A staff participant commented, *‘It’s nice being involved with staff who are passionate about it in the rural clinical school.’* (A2 Staff).

Not all students undertaking a placement in East Gippsland choose to take up a short (two-six weeks) or longitudinal placement. Some described their difficulties with being away from their family and friends because of the distance of the SRH-B from Melbourne. The SRH-B site is situated 281 km east of metropolitan Melbourne, nearly four hours away by public transport and over three hours by car. Students who had jobs or wanted to visit family and friends felt that the distance was a deterrent to choosing Bairnsdale as a placement site. A student noted, *‘I had to give up a job and an apartment. So, I won’t be able to get that apartment back.’* (B7.3 Student). Another student commented, *‘I went back to Melbourne once a fortnight, and so, yeah, it was a distance, and the commute to and from home was the biggest challenge.’* (A8 Student).

A staff member noted that some students undertaking placements in East Gippsland had ranked the region low on their placement preference but changed their attitudes to a rural placement after participating in the LIC program:

‘We see that with a lot of our students and even the ones that come kicking and screaming in fourth year: ‘I didn’t want to be here. It was my last choice, anywhere but Bairnsdale.’ And then ... at the end [of a year-long placement], they’re like, ‘I loved it. I’d do it all again.’ (A3 Staff).

Other students noted if they had not undertaken a rural attachment, they might not have considered further placement or employment in a rural area. Students emphasised that

they gained a much broader view of how healthcare is delivered in a rural area compared with a metropolitan hospital:

'It gave us a chance to see the health care from so many different perspectives, from the clinic in Nowa Nowa [remote health centre] to the hospital in Traralgon [large regional centre]. We got to see all of that variety, and it gave us a really good perspective.' (A8 Student).

The long-term clinical placement gave students a better understanding of rural practice and the scope of clinical activity that can be undertaken by a local GP. Long-term placements let students give more thought to undertaking further placements in rural communities. The students emphasised how much hands-on learning they could experience and described having a better insight into rural medicine:

'I was able to gain an understanding of what it's like to study and work medically in rural areas, and it meant that, for fifth year and internship and beyond, I'm actually really look[ing] forward to having rural placements now.' (A4 Student).

These comments suggest that some students would not choose a career in rural medicine without a rural placement. Undertaking such a placement can catalyse a student's interest in considering further rural placement or employment. The insights gained emphasise the importance for all medical students to have an opportunity to undertake a rural immersion placement. At Monash University, second-year medical students participate in a two-week placement in a rural area, which has previously influenced some medical student's perspective and motivated them to pursue additional rural placements.

Some participants criticised the fact that the SRH-B did not allow local community members to be involved in medical student selection for placements. The community and staff felt that they could usefully contribute to the selection of students who would address the workforce needs of the community. Students select to undertake a placement at the SRH-B.

There is no input from the community or from individual sites such as SRH-B as to choosing which students. Involving the community and local staff members in the selection of students would foster further collaboration between the community and medical school. This approach would enable the selection of students who align with the rural clinical school's mandate and are likely to integrate into the local community, demonstrating a commitment to rural health. A staff participant said:

'I think it'd be nice if the community had input into the kinds of students they'd like to see come out. I think that's important; I think it would be nice if the university listened a bit more to the community and to what, you know, they need to meet social mandate sort of responsibilities.' (A3 Staff).

Some healthcare professional participants had joint academic or affiliate appointments with the SRH-B and provided supervision and monitored student progress in community or acute-care settings in addition to being clinicians. They perceived that these roles helped them support communication between the SRH-B and the community and that adjunct or affiliated appointments promoted the core mission of the SRH-B to improve health outcomes for East Gippsland and strengthen students' rural engagement. Further, adjunct SRH-B appointments were a way to grow the academic culture and health workforce in East Gippsland:

'I would like to get to a point where we've got more joint appointments where we can attract clinicians who want to have an academic role so we were able to resource or support hospitals so as to attract senior staff who would have an academic role and then we become the local clinical leader on women's health or paediatrics or whatever so that we've got the opportunity for better workforce recruitment, plus it assures our academic activity as well.' (D2 Staff).

Some staff participants felt their affiliation with the SRH-B gave them professional development opportunities and made them feel valued as teachers: *'I enjoy teaching. That's*

the main thing. So, as long as I can teach willing students, that is all I need. It's what inspires me.' (D3 Staff).

A staff member felt that encouragement to enrol in academic courses would not have occurred if the RCS was not present:

'Professionally, I think it's given me a little bit more of a challenge, something else to do. That sort of stimulates me to other things, so I went off and did a Graduate Certificate in Health Education a couple of years ago, and I wouldn't have done that otherwise.' (B4 Staff).

A healthcare professional felt that the SRH-B fostered friendships and a sense of camaraderie and belonging to a team:

'I think you get a broader social contact. I've met some very nice people to work with who taught me more about the community and [have] been very supportive with the work at the university and at the clinic. It's a very nice, friendly environment.' (A7 Healthcare Professional).

These comments show that healthcare professionals gained professional satisfaction from their engagement with the SRH-B and, therefore, continued their engagement with the academic teaching and supervisory team. The insights obtained highlight how the SRH-B provided staff and associated faculty members with a sense of being a valued resource in the effort to develop and sustain a rural workforce. What this theme has shown is that a medical school in a rural area is seen as a driver in developing a future medical workforce that meets the needs of the community, and medical students are interested in returning to the region post-graduation, addressing the local workforce needs. Furthermore, the theme highlights a medical school's role in promoting community engagement and regional economic development is important. What can be learnt from these excerpts is that a medical school in a

rural area has an impact beyond education, contributing to both social and economic stability within their region.

4.6.2 Transforming Medical Education-The Impact of Longitudinal Integrated Clerkship Program

A staff member described the SRH-B as part *'of what's called a transformation in medical education across the world ... a different way of doing things.'* (C2 Staff). This comment referred to the Longitudinal Integrated Clerkship (LIC) program that commenced in 2004 for medical students in their fourth year, as described in Chapters 1 and 2. An LIC is a model of clinical education delivery that reflects the educational principles of continuity of care, relationships and education and aims to increase the number of students in rural areas such as East Gippsland to address workforce shortages (Hirsh et al., 2007).

Student, staff and healthcare professional participants expressed a range of opinions and experiences in relation to the LIC program. Some viewed the LIC program as supporting the healthcare workforce for the region; others felt that the LIC program provided reciprocal and more contemporary learnings. Staff reported a sense of achievement along with some concerns about managing patient loads and teaching students. Some students were concerned about a lack of training pathways in the region if they returned after graduation.

'I think the biggest thing is the fact that their sheer presence makes other clinicians behave differently, or it should. And I know if I couldn't answer a question from the student ... I'd like to think I would go off and find out. Therefore, you're actually keeping the current clinicians more contemporary at the time.' (A6 Healthcare Professional).

A staff participant felt that it was not only patient care that students were learning:

'I think there's a lot more hidden curriculum that the students gain from being part of the program ... from having that LIC model, there are hidden curriculums around

professional identity, clinical reasoning, even just maturity that they gain from a program like this. ' (A3 Staff).

A benefit noted by a participant was that the LIC program was supporting the local workforce and that there would be someone to look after them in years to come: *'With the hospital growing the way it is, too, and getting these keen young people on board, you need the young people to continue on.'* (D7 Healthcare Professional).

Not all supervisors found it easy to supervise students, given their busy workloads, tutorials and patient care in the hospital setting. One stated, *'It can be difficult combining my hospital duties with commitments to the clinical school. I think it's just a case of juggling, saying, "No, you cannot do everything; you just can't.'* (A2 Staff).

A variety of opinions were expressed by the students regarding the LIC program. The students felt that the program provided social interactions of friendships and integration into the community and that they developed insights into rural health and gained the desire to return to support the community.

Students normally elect to undertake a longitudinal program; most Monash University students choose rural clinical sites one to two hours' drive from their home or an urban centre. The SRH-B is a three-and-a-half-hour drive from Melbourne, and, for some students undertaking the longitudinal program in East Gippsland, the location was not their first choice. Although the university tries to send students to placements with their friends, a few students arrived not knowing their colleagues. This meant that they had to make new friends and participate in community activities (joining clubs, volunteering) that they might not normally choose or feel comfortable in. The comments provided here were from students who undertook a 36-week longitudinal placement at the SRH-B.

Student participants reported that in coming to a rural area for the entire academic year, they could build close relationships with other students and integrate into the

community. One stated, *'I built during that year some incredible friendships, and some of my strongest friendships that I've got are from that year in Bairnsdale because you were so close, and you were a group of 10 students.'* (A9 Student).

A student said that they became more confident and made friends with people they might not otherwise have become friends with:

'I think that being in a more isolated area, it did force me to become a lot more independent and make friends with people. ... And I think I've become a lot less like, shy and ... like, talking to people now. ... I think it really changed my perspective and my maturity.' (B6 Student).

A student commented:

'The reason I wanted to do rural in fourth year was because I was less interested in my specific exam mark than I was in learning how to practice medicine. And then that actually transferred into doing well in my exams anyway.' (B1 Student).

It is a common misconception among students that rural placements, especially longitudinal placements, are inferior to a large metropolitan hospital clinical attachment. In fact, students who undertake a rural placement have been shown to perform equally well as those who studied in a metropolitan region (Condon et al., 2017). Evidence from the literature indicate a possible explanation is from having a smaller cohort size from a single medical school availing to more hands-on clinical practice and improved access to patients (Birden & Wilson, 2012).

The learnings from a medical school (SRH-B) in a rural area indicate that the LIC program supports social and economic impacts on the East Gippsland region. There are contemporary learning experiences for the student and clinicians through their supervisory interactions. Beyond learning clinical skills, students develop a professional identity and maturity. By participating in community activities, they gain confidence and social

competencies, which enhances their ability to become empathetic healthcare providers. This involvement improves the quality of care they provide and builds stronger relationships between healthcare providers and community members. The LIC program in rural areas highlights the significance of rural medical education in strengthening local healthcare, providing clinical learning experiences, and promoting social integration into the community, ultimately enhancing overall well-being and sustainability.

4.6.3 A Multidisciplinary Education Precinct

Most healthcare professionals and staff and a few community participants reported that having a university co-located on the local hospital grounds helped to support other health education such as nursing and allied health. Monash University, SRH-B building is built on the Bairnsdale Hospital grounds and in a collaborative effort offers the hospital nursing and allied health educators to use two offices including training equipment and simulation teaching rooms. Prior to this arrangement, nursing and allied health educators shared offices in the Bairnsdale hospital and booked general meeting rooms in the hospital to deliver education. Part of the SRH-B vision when establishing the medical school was to allow other educators from outside Monash University that taught healthcare professionals in the region (nursing, paramedics, allied health professionals) to use the SRH-B facilities as a means of supporting other health disciplines' education and training. Whilst these entities provided their own education, there were times when different disciplines would invite others to undertake training together. This fostered a sense of resources sharing, collaboration and joint education events.

East Gippsland has a predominately elderly population and receives many visitors. Consequently, local health services need to attend to a range of presenting medical conditions. Sharing the SRH-B education facility with local hospital educators can help support the training of a workforce capable of treating patients whose health care needs are becoming

more complex. Additionally, allowing other health professionals to use the SRH-B facilities would benefit both organisations:

A healthcare professional noted: *'Our population growth and our client-consumer demographic in co-morbidity is becoming very complex, and health is also being pushed out of organisations into communities. ... So, without supporting organisations such as a university, then we're not going to be able to grow in capacity to manage what's happening.'* (C3 Healthcare Professional).

A similar view was expressed by a staff participant, noting the mutual dependency of the hospital and university in meeting education and healthcare needs: *'We are accountable to the communities that we're in. ... What we do is for the benefit of our community and our stakeholders, which we need to look after because ... although we're supporting them, they're also supporting us.'* (B18 Staff).

A participant noted that rural communities are small enough to allow the building of relationships between staff and students from the RCS and members of the local community through personal and professional contacts. Relationships with different stakeholders enable clinical placement and education activities to succeed.

As one participant stated, *'It takes those personal relationships to get things done sometimes, and that happens really well in the rural community.'* (D8 Staff). Another stated, *'So, I think it's the role of the clinical school, they've got a role in exposing these partnership services, the hospital and the clinics, to students who wouldn't have thought of doing rural practice.'* (A9 Healthcare Professional). It was felt that acknowledging community partnerships and incorporating stakeholder views when making SRH-B educational decisions led to improved outcomes for the SRH-B educational program. A participant said:

'So, those partnerships with the hospitals are really important, and the partnerships with the general practices in the town, which are community leadership organisations,

really. So, we engage with those in a partnership to place our students, but also, we get feedback and advice from them about the nature of the program and how a program should be run. ' (C2 Staff).

'The fact that we are not only providing medical education, but we're also providing nursing education, we're providing allied health education, [in East Gippsland] all disciplines from universities all over Australia. ... It's an important undergirding of the education culture here to have a university campus on site and have the university presence here.' (C6 Healthcare professional).

These responses reveal how important it is in a rural area that medical schools such as the SRH-B collaborate with other disciplines through resource sharing. This approach promotes professional development and meets the diverse health needs of the East Gippsland community. What has been learnt from this is community partnerships, stakeholder engagement and local governance contribute to an adaptive and effective learning environment that benefits all healthcare students in the region and local community.

As a student participant said:

'There is so many different groups of people going through the school because, like, you know, the doctors and nurses and hospital staff medical professionals, they did education there. ... I felt like you were part of a much larger group. ... You always felt connected to everyone else.' (B1 student).

Although many different health disciplines used the SRH-B facilities for health education, it was suggested that the SRH-B had the opportunity for more collaborative education through horizontal and vertical integration of education programs. Limited numbers of local clinicians were available to teach in the education programs. Whilst there is some interprofessional teaching being undertaken, having more clinicians from different disciplines

teach across different education programs represents an efficient use of resources and lends itself to interprofessional education at the undergraduate level. A participant commented:

'You're bringing nurses in to teach medical students and bringing doctors into teaching nursing programs ... so you can have registrars doing their GP training, working with medical students and even working with Year 12 students who are interested in applying for a medical training. ... [You can have] specialist registrars or specialist trainees teaching our students, or our registrars or the interns.' (C2 Staff).

Although the SRH-B could support other health professional students there is a recognised need for vocational training and pathways to support returning students as part of regional health workforce planning. Since the initiation of this research, the Rural Generalist program has been launched in Victoria, with one site located in Bairnsdale within the SRH-B facilities. This program has provided an opportunity for medical students wishing to return to the region to pursue general practice training. Additionally, there is a demand for education pathways in other health disciplines and for bridging courses to support and develop a local healthcare workforce. What has been learnt from these responses is education programs across different health disciplines promotes interdisciplinary learning and enhances the learning experience for all healthcare students and is an efficient use of resources. Co-locating medical students and education facilities with local hospitals in rural communities enhances healthcare education and resource sharing. This integration fosters community relationships and supports a workforce for the region's aging population. Overall, these learnings emphasise the importance of community partnerships, stakeholder engagement, and resource sharing in creating an educational environment that benefits all healthcare students and the health needs of the local community, whilst stimulating the local economy by attracting more students and employing educators.

4.6.4 Theme Summary

This theme reflects East Gippsland community perceptions of the SRH-B and the rural workforce. Many participants felt that the SRH-B had a larger role beyond supporting medical student placements. The community, staff, healthcare professional and student participants believed that the SRH-B was generating a rural workforce for the East Gippsland community but could not do this alone. The working relationships between the local healthcare services, clinicians and staff at the SRH-B were helping to generate a new workforce, build an academic culture and provide an opportunity for healthcare professionals to have academic or student supervisory roles. Clinicians with teaching responsibilities reported enjoying their engagement with the students and cherished the friendships and camaraderie that developed through their association with the SRH-B.

Another learning was the community acknowledged the need for a fit-for-purpose workforce that could address the healthcare needs of the community. Community members also acknowledged that they needed to take responsibility for the workforce shortage and not leave this solely to the SRH-B to resolve. Building a health workforce would require stakeholders to share values and have the common goal of attracting a health workforce.

The function of the SRH-B sharing its facility rather than a standalone medical school enabled other healthcare disciplines, such as nursing, allied health and paramedicine, to enhance their learning programs through the availability of teaching resources. This opportunity meant that healthcare workers who undertook training felt more connected to other health disciplines.

Clinical education delivery through the LIC program provided reciprocal learning opportunities for staff, students and the community. For students, the LIC program provided friendships, personal growth and new insights into rural health. There were some concerns about the distance of the SRH-B site from Melbourne, which was a deterrent for students

wanting to undertake rural placements who had jobs and families in Melbourne. However, the students felt that the hands-on clinical experience, clinical supervision and opportunity to experience rural health helped them improve their practice of medicine and supported good exam results. Community members expressed concern about a lack of training pathways for returning students or other students interested in a rural career.

These perceptions of key stakeholders emphasise the importance of the leadership provided by the SRH-B for addressing workforce shortages. Overall medical schools situated in MM4-7 regions can significantly contribute to the social and economic development of the region by fostering collaborative and integrated approach to healthcare education and workforce development.

Table 4.3 summarises the social impacts associated with the establishment and collaborations of a medical school within the community. The impacts are categorised into micro (individual), meso (community/institutional interactions), and macro (regional/societal) levels, highlighting key aspects that affect students, staff, healthcare professionals, and community members.

Table 4.3

Social Impact Conceptual Framework – Impacts of a medical school delivering 450 student weeks (SRH-B) has on a community (East Gippsland) suited in a MM (4-7) region (East Gippsland)

A Vision for the Future Captures the aspirations the way the medical school impacts individuals and the community's vision of themselves and their future.	An Evolving Community Highlights the different levels of impact and engagement within the community, from individual interactions to broader regional development.	Growing a Rural Workforce The way a medical school (SRH-B) including the community members impact on the rural workforce
Micro <i>Individual (Student or Staff or Healthcare Professional or Community member including Business owner/s)</i> Encourages higher education aspirations and career opportunities among young people. Promoting a culture that values learning for students. Staff and community members feel a sense of pride and achievement when students return for further placements or begin working as junior doctors. The SRH-B fosters a sense of identity, value, progress, validation and achievement among community members. Building relationships through personal and professional connections is regarded as fundamental for successful placements and educational activities in rural settings.	Micro <i>Individual (Student or Staff or Healthcare Professional or Community member including Business owner/s)</i> Medical students were role models for young people, inspiring them to pursue their personal and academic goals. Some medical students emphasised the importance of giving back to the community noting this supported their educational and personal development. Community members and students engage in reciprocal learning, gaining deeper connections to Aboriginal culture and traditions. Local secondary students, understand pathways to studying medicine through community engagement activities. The diverse cultural backgrounds of students enrich the community by broadening the patient-doctor experience.	Micro <i>Individual (Student or Staff or Healthcare Professional or Community member including Business owner/s)</i> Rural exposure increased students undertaking LIC and short-term medical placements to consider choosing a rural health career. Shared values and vision for engaging with the community and recruiting students into medical training. Passionate involvement in the rural clinical school. Professional development opportunities, friendships, and camaraderie. SRH-B enhances relationships between staff, students, community members through sharing facilities. Increased and enhanced professional education through sharing of resources.

	Local research activities offer potential opportunities for professional growth and development,	
Meso <i>Community (East Gippsland) and Institution Interactions (SRH-B) impacts.</i> The presence of SRH-B builds community pride and optimism among its community members. Participants feel part of something significant, leading to a sense of achievement and belonging. It strengthens awareness of the university's role in community development.	Meso <i>Community (East Gippsland) and Institution Interactions (SRH-B) impacts</i> Community engagement activities brought stronger cultural connections with the Aboriginal community. Continued initiatives to strengthening cultural competence and inclusivity within the community and healthcare system are essential. The community recognises that participating in collaborative research strengthens relationships between SRH-B, health services, and community members, while also providing opportunities for targeted research aimed at improving health outcomes.	Meso <i>Community (East Gippsland) and Institution (SRH-B) impacts</i> Exposing medical students from urban areas to rural practices broadens their understanding of rural medicine and to consider a career as a rural doctor. Integration of medical students into the community fosters stronger bonds. Reciprocal learnings occur between students undertaking LIC program and local healthcare workforce through community engagement.
Macro <i>Regional and societal impacts</i> Promoting regional development and higher standards of education while encouraging efforts to overcoming barriers to higher education and career aspirations. Increasing the overall educational level generates social, economic, and employment benefits, leading to further community development in the region.	Macro <i>Regional and societal impacts</i> The SRH-B students positively influence the regional attitudes towards diversity and promote inclusivity. Local research may contribute to better health outcomes in the region through securing increased funding and resources.	Macro <i>Regional and societal impacts</i> Exposing students from outside the region to rural communities for an extended period through the LIC program is essential to addressing local workforce shortages. The presence of the SRH-B supports the medical workforce in East Gippsland by providing education and leadership. Shared facilities and equipment with other healthcare professionals

SRH-B strengthens regional identity through its medical school presence. Continued marketing and community engagement activities are essential to ensuring that a medical school does not go under appreciated. Medical schools in rural regions can be vulnerable to restructures and funding withdrawals. Therefore, it's essential to establish sustainable local governance, and build strong relationships with healthcare services and the community to advocate for continued existence.		promotes development of a sustainable and skilled workforce for the region.
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4.7 Chapter Summary

The purpose of this component of the study was to explore stakeholder perceptions of the social impact a medical school has in a rural area MM4-7. This chapter has presented stakeholder perceptions on their relationships and interactions with the SRH-B and the community's expectations of the SRH-B. Three main themes that emerged from the data: (a) a vision for the future, (b) an evolving community and (c) growing a rural workforce. The insights gained emphasise the presence of the university increased the aspirations of younger people for further education, and there was a sense of pride and achievement and improvements for the community from the presence of the university. Economically, the university's presence has contributed to the development of a skilled workforce, enhancing the region's ability to meet its healthcare needs. Community members felt the region was evolving as more visiting students engaged in the community's clubs and students of different origins were contributing to a more culturally respectful community. The East Gippsland community felt that the SRH-B was helping to generate a fit-for-purpose workforce to support

the region's healthcare. Additionally, the SRH-B presence and activities fostered an interest in further education by other students, staff and healthcare professionals. These combined social and economic impacts underscore the importance of maintaining and supporting rural medical schools in MM4-7 regions across Australia.

Chapter 5 reports the participants' responses from the online questionnaire and the qualitative responses from the interview that address the aims of the economic study.

Chapter 5: The Economic Impacts of a Medical School on its Community

5.1 Introduction

This chapter presents the findings about the economic impact of SRH-B activities identified from the online questionnaire, the interviews and third-party data. This addresses the research aim of exploring the economic impact of the SRH-B on the East Gippsland community. Section 5.2 provides an overview of the participants who completed the questionnaire and interview. Section 5.3 describes the direct spending by stakeholders and discusses the industry divisions most affected. Section 5.4 reports on the indirect and induced expenditure and how the induced effects of this expenditure stimulate industry outputs for goods and services, further employment and added to the GRP of East Gippsland.

5.2 Participant Characteristics

Fifty-six participants completed the online questionnaire, and 63 participants took part in an interview. All 56 participants who completed the online questionnaire participated in an interview. As reported in Chapter 4, all participants were living in the East Gippsland region and were associated with the SRH-B as stakeholders, either as students, staff members, healthcare professionals or community members. Table 4.1 in Chapter 4 shows the participant characteristics.

5.3 Direct Spending by Stakeholders in East Gippsland

Data were collected from 2016 to 2018. The participants were asked to estimate their spending for the year they completed the questionnaire. Students were asked to estimate their spending for the year they completed their placement in East Gippsland. Direct spending by stakeholders is the expenditure by students, students' visitors, staff and the university in East Gippsland. Direct expenditure is a payment with cash or credit to purchase goods and services

at a single point in time, sometimes referred to as a ‘first-round spend’ (Lemky et al., 2018 p.88).

The 2018 permanent and casual university staff wages were used to estimate staff direct spending for one year. The SRH-B’s financial records provided an estimate of university spending for 2018. Students’ weekly spending in 2016 and 2017 was adjusted to 2018 values using the CPI and averaged for one year. The 2018 ABS tourism statistics for East Gippsland and the information from the questionnaire were used to calculate the goods and services purchased by visitors and the total visitor expenditure for 2018 (ABS, 2018). Community members and healthcare professionals were not asked about their expenditure because these participants were already working in the community and their spending was not related to their association with the SRH-B. Table 5.1 provides the estimated direct spending in 2018 by all stakeholder groups (students, student visitors, staff and the SRH-B) in East Gippsland.

Table 5.1

Direct Spending by the School of Rural Health—Bairnsdale and Stakeholders - 2018

Source of expenditure	Total in Australian dollars	Percentage
Students	\$116,000	8.2
Visitors	\$85,000	6.0
Staff	\$398,000	28.1
SRH-B	\$817,000	57.7
Total	\$1,416,000	100

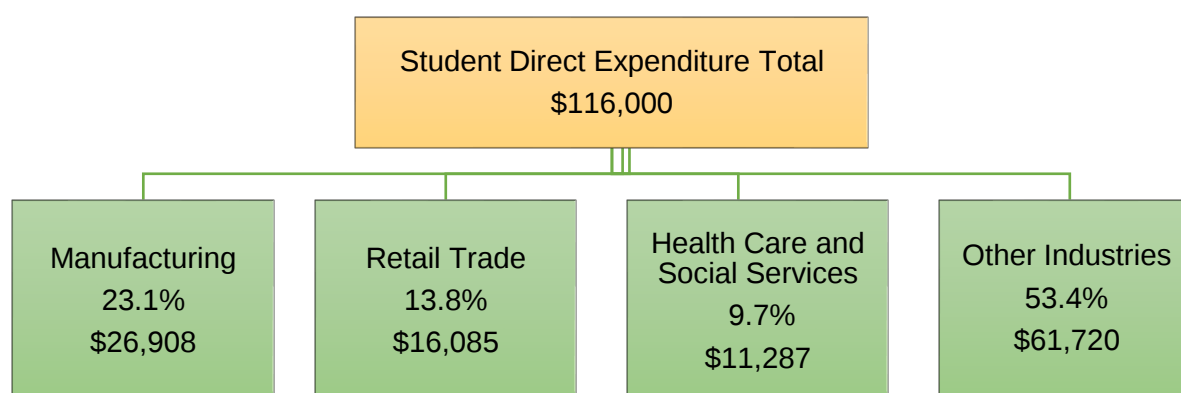
The total expenditure in East Gippsland from these stakeholder groups in 2018 was \$1,416,000. SRH-B expenditure comprised more than half of the direct spending. This sum included Federal and state government funding and grants to local healthcare providers to support training for medical students undertaking placement. The next section discusses in more detail the direct spending by students, students’ visitors, staff and the SRH-B and its effect on local industry sales.

5.3.1 Students

Students were classified as persons enrolled full-time at Monash University and undertaking a placement in the East Gippsland region under the auspices of the SRH-B. Clinical placements for a student can be short-term (two or six weeks) or comprise the entire academic year of 36 weeks (longitudinal placement). Students' expenditure was determined using the student online questionnaire administered between 2016 and 2018. The figures included expenditure on goods and services in the region but did not include accommodation costs because these payments were returned to the central campus in Melbourne. Student spending was calculated for a seven-day week because most students spent most weekends in the region: 12 of the 19 students (63.2%) stayed either every weekend or only left the region for one weekend each month. The five most common reasons given for staying in the region on weekends were study commitments ($n = 15$), travel fatigue ($n = 14$), socialising ($n = 11$), recreational activities ($n = 9$) and sporting commitments ($n = 7$). All students were enrolled full-time, and all moved to the region for their clinical placement. Their relocation is significant because it means that all student direct spending was new spending in the region.

Figure 5.1

Student Direct Spending in 2018



Weekly spending was estimated for all students who completed the questionnaire between 2016 and 2018. Student weekly spending in 2018 was \$256 per week, estimated as follows:

1. The reported 2016 and 2017 weekly spending was adjusted to 2018 values using the CPI.
2. The reported weekly spending was averaged for 2016, 2017 and 2018.
3. The spending was compared with the ABS household consumption estimates and was concluded to be too low, possibly because of recall bias. To adjust for this, a further 10% was added to each year's total.
4. The adjusted annual sums were averaged to obtain the average weekly spending for 2018.

The total student spending for 2018 was \$116,000 (see Figure 5.1). This estimate was obtained from the student weekly spending for 2016 to 2018. The average weekly spending was multiplied by 452, the total number of student weeks for 2018. The total student spending for 2018 ($452 \times \$256 = \$115,712$) was rounded to \$116,000, which amounted to 8.2% of the direct spending from the SRH-B and other stakeholders for 2018. See Appendix H for a more detailed analysis.

The student direct expenditure was distributed across the 86 ANZSIC industry sectors (ABS, 2006) such that each industry in East Gippsland was assigned a percentage using the household type of one adult with no household member employed, (Appendix M). Before being applied to the input-output table each student total direct spend is allocated a percentage across each industry called “a model shock”. That is, each industry is allocated a percentage of stakeholder total direct spend. Prior to the allocation, data from the questionnaire was considered, and industries of hairdressing, travel, fuel, car maintenance were allocated a greater percentage of the student's total spend. Table 5.2 outlines the percentage of students'

expenditure and the value in Australian dollars allocated across 86 industry sectors for one year. Manufacturing was assigned \$26,908 of student spending, followed by retail trade at \$16,085 and healthcare and social services at \$11,287.

The total direct spending by medical students in 2018 was AU\$116,000. This equated to spending of \$256 per student per week during their placement. This result is consistent with a previous assessment by Monash University of all School of Rural Health sites (REMPLAN, 2018b), which found that students spent \$274 each week. Australian universities and the Australian Trade and Investment Commission provide much less precise estimates for grocery spending of \$80 to \$280 per week (Australian Trade and Investment Commission, 2023; University of Melbourne, n.d.; University of Sydney, n.d.). These estimates do not include accommodation or expenses for public transport, maintaining a car or entertainment, and no information is available for how these estimates were obtained.

The REMPLAN 2018 analysis by Monash University indicated that the largest amount of weekly expenditure went to retail trade, with decreasing sums for accommodation, food services and the manufacturing industry. The finding of this thesis is that manufacturing, retail trade and healthcare and social services are three industries with the largest share of student expenditure. The average expenditure on manufactured products in all Australian households from the most recent ABS I–O tables is between 17% and 18% of total income. Lower household expenditure per member correlates with higher spending on manufactured and retail products. That is, individuals with lower income spend a higher proportion of their income on manufactured products from retail stores (such as supermarkets, clothing stores, fuel suppliers, liquor stores and bookstores) to cover their basic needs (ABS, 2017).

A difference in weekly spending between the two studies may arise in part from the methodology used to analyse student expenditure. The Monash University study (REMPLAN, 2018b) invited participation by all students undertaking a rural placement; however, the

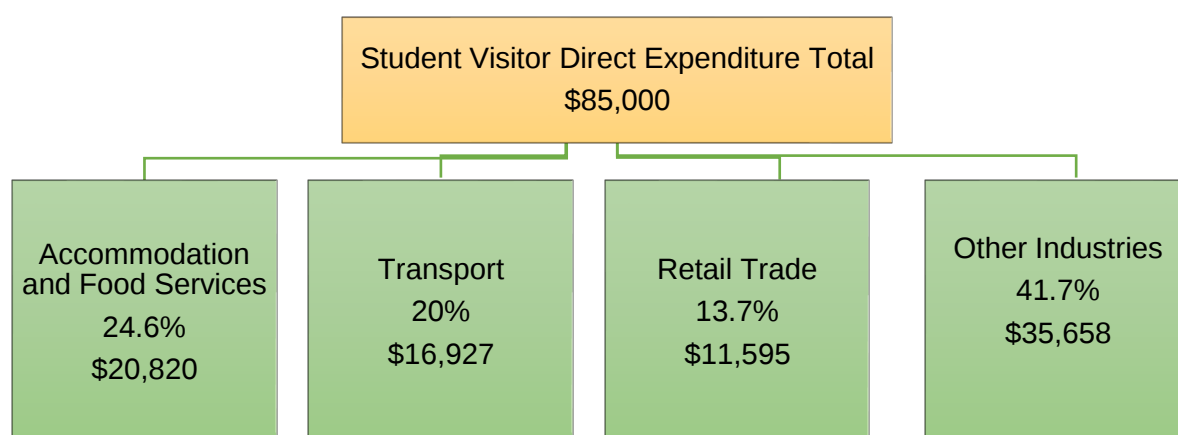
student expenditure was based on a five-day week because the students undertaking the survey reported that they returned to their usual residence on weekends. This thesis used expenditure over a seven-day week because most students remained in the region on most weekends. It can be assumed that the differences in weekly spending and expenditure allocations across different industry sectors were due to the different economic models and analyses used.

5.3.2 Student Visitors

The expenditure from the students' visitors was calculated using questionnaire data providing the students' responses about their visitors' spending. Visitors were classified as people visiting medical students undertaking short- or long-term placements at SRH-B. Information about how many visitors students had, how the visitors travelled to the region, their length of stay, the activities undertaken and their estimated spending of visitors was obtained. The Monash University accommodation policy required students to live in shared housing; no visitors were not permitted to stay in university accommodation. As a result, most visitors opted for local therefore most visitors stayed in local commercial accommodation. The questionnaire did not ask whether the visitors were from outside Victoria or Australia. However, because the students were from outside East Gippsland, the assumption was made that their visitors were also from outside East Gippsland.

Figure 5.2

Student Visitor Direct Spending in 2018



The average number of visitor days for all students was calculated for each year (143.5 visitor days in 2016, 123.1 in 2017 and 133.4 in 2018). This gave an average of 134.8 visitor nights per year. The 2018 ABS tourism statistics for East Gippsland were used to calculate the goods and services purchased by visitors and the total visitor expenditure for 2018 (ABS, 2018; Australian Trade and Investment Commission, 2019). Tourism spending by visitors to the students in East Gippsland was estimated at \$84,638 for 2018 and rounded to \$85,000.

The direct expenditure by the students' visitors was distributed across the 86 ANZSIC industry sectors. Figure 5.2 shows that most of the visitors' direct expenditure was for accommodation and food services at \$20,820, followed by transport at \$16,927 and retail trade at \$11,595. Table 5.2 outlines the percentage of student visitor direct expenditure and the value in Australian dollars allocated across the ANZSIC industry sectors using the singles was selected as the most appropriate for student expenditure. These results reflect the responses in the student questionnaire that the visitors visited tourism attractions, ate at restaurants/cafes and stayed in local accommodation. See Appendix I for more detail on student-visitor spend analysis.

There was an estimated 134.8 visitor nights per year for all students, and the visitors' direct expenditure was \$84,628 in 2018. In 2018, East Gippsland attracted 1.2 million visitors with an estimated spending of \$340 million (REMPPLAN, 2018a). Although this study's numbers are very modest, they provide information on visitor impacts that may be relevant for other RCS sites. Few studies have recorded student visitor impacts. Chakraborty and Edmiston (2007) used student and admissions information from a university department's visitor bureau to estimate visitor numbers from within the state and outside it and found that the number of visitors from outside the state was 30,743, with 88,137 visitors from within the state in a one-year period. Expenditure for the two groups of visitors was 11 million USD (14.3 million AUD) in 2004. There was no analysis of which industries benefited from this expenditure.

This study used ABS tourism statistics for East Gippsland and the responses to the study questionnaire to calculate the value of goods and services that the visitors purchased. The local industries that benefited most from the visitor spending were retail trade, transport, accommodation and food services. The findings were that the visitors spent on goods and services at local tourist attractions, ate at local restaurants and cafes and stayed in local accommodation. The amount of visitor spending was moderate, but it can nevertheless boost tourism employment, create opportunities for development in the region and increase the level of social and human capital.

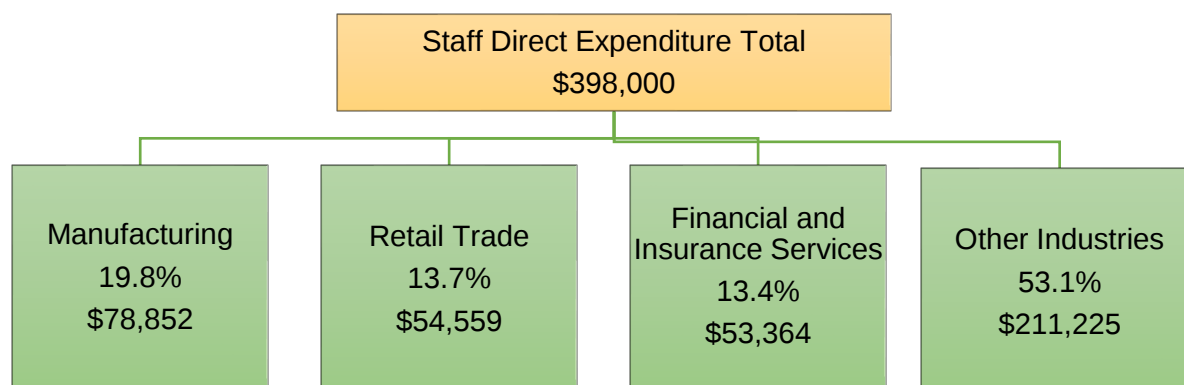
5.3.3 Staff

Staff members were classified as persons with a permanent, fixed-term or casual contact with the SRH-B. Simple calculations were used to determine the staff direct expenditure. Twelve out of the 18 SRH-B staff members completed the online questionnaire. Eleven staff had partners living with them in the region, and 10 staff had a total of 13 dependents living with them. At the time of data collection, the dependents' ages ranged from

five months to 35 years. The 18 staff included two full-time tenured staff members and five part-time staff, and their total collective full-time equivalency added up to 3.4 full-time positions.

Figure 5.3

Staff Direct Spending in 2018



The total wages from the tenured and fixed-term staff members were \$360,705 before tax for 2018. The input-output table was specific to the East Gippsland LGA therefore it used, for example, the average tax rate for East Gippsland, hence adjusting for the net tax-saving ratio. Eleven casual tutors worked 145.5 hours in 2018. From the casual tutor hourly rates, a total casual salary cost of \$37,539 was calculated. Total staff wages were chosen as the best measure of direct staff expenditure in East Gippsland. This sum was distributed across the 86 ANZSIC industry sectors using the couple employed expenditure structure. The calculation was done for 2018 because access to the SRH-B financial data was granted only for 2018. Table 5.2 outlines the percentage of staff direct expenditure and the value in Australian dollars allocated across the ANZSIC industries. Figure 5.3 shows the three industries with the highest assigned proportion and the corresponding Australian dollar values. See Appendix J for detail of staff spend analysis.

5.3.4 University

The university spending was classified as the flow of funds into the East Gippsland region directly attributable to SRH-B activities. This included local spending by the SRH-B, Federal and state funding and grants to the region to support medical student placements. Examples include Australian Government Practice Incentive Program payments to general practices for supervising students and Training and Development grants from the Federal and state governments to local hospitals for training medical students (see Services Australia, n.d.).

Monash University paid each general practice clinic \$6,250 per term for each student from their federal funding to support student placements. A sum of \$722,506 was calculated as the total university, Federal and state funds going to general practices and a hospital in the region in 2018. The 2018 financial records were used to assess SRH-B expenditure, from which a further \$94,150 of expenditure in the region was identified for the maintenance of educational facilities. Total university spending of \$816,656 (rounded to \$817,000) was made in East Gippsland in 2018.

The direct SRH-B expenditure was assigned to only one ANZSIC industry, Education and Training because it comprised Federal and state funds supporting the SRH-B education program and generating expenditure through the SRH-B. See Appendix K for more detail on university spend analysis. The flow-on effect from the direct spending is analysed in terms of the indirect and induced spending, as described in more detail below.

5.3.4.1 Staff and University

The staff and university expenditure were determined for 2018. The staff expenditure was \$398,244, and the SRH-B expenditure for 2018, taken from the university's financial records, was \$816,656. The industry sectors that benefited most from this expenditure were manufacturing, education and training and retail trade.

Kleynhans and Dyason (2017) analysed the effects of direct spending on different industries using expenditures from university financial records. The Monash University, School of Rural Health completed a similar analysis and examined how its expenditure affected other industries (REMPLAN, 2018b). There are limitations of this approach that human capital; social capital, including regional leadership; and capital investment is not assessed (Drucker & Goldstein, 2007). However, translating higher education, better health, strong social networks, and community engagement into measurable financial outcomes can help understand the economic impact of human and social capital on a region.

5.3.5 Industry Expenditures: Methodology

To evaluate the impact of expenditure on the economy using I–O modelling, it is necessary to first allocate direct expenditure to industries. For this study, the ABS two-digit ANZSIC industry division representing 86 industry sectors was the preferred categorisation (see Appendix L). To assign expenditure in a group, such as student expenditure, to a given industry, this study used NIEIR household expenditure estimates for different types of households by LGAs (NIEIR, n.d.). For 86 industry sectors in each LGA, NIEIR has developed household expenditure estimates for eight different types of households (see Appendix M). The expenditure series for each household type is developed from the unit record data from the Household Expenditure Survey undertaken by the ABS (ABS., 2017). From the eight household types, the most appropriate expenditure categories for this study had to be selected, that is for the expenditure categories of students and staff. The households with one adult with no household member employed household type was selected as the most appropriate for student's expenditure, while couple households with at least one household member employed was selected as the most appropriate household type for staff expenditure.

Table 5.2*Direct Spending by Industry Division*

Industry	Students		Students' visitors		Staff		School	
	%	\$	%	\$	%	\$	%	\$
A. Agriculture, Forestry and Fishing	5	5,769	5	4,131	1	3,982	0	0
B. Mining	1.2	1,394	.3	253	.9	3,584	0	0
C. Manufacturing	23.1	26,908	10.8	9,140	19.8	78,852	0	0
D. Electricity, Gas, Water and Waste Services	1.67	1,320	0.9	761	2.5	9,956	0	0
E. Construction	0.10	117	0.1	84	.4	1,593	0	0
F. Wholesale Trade	6.63	7,709	1.6	1,354	5.1	20,310	0	0
G. Retail Trade	13.8	16,085	13.7	11,595	13.7	54,559	0	0
H. Accommodation and Food Services	6.14	7,136	24.6	20,820	3.4	13,540	0	0
I. Transport, Postal and Warehousing	2.20	2,581	20	16,927	2.9	11,549	0	0
J. Information Media and Telecommunications	1.91	2,239	0.4	338	4.4	17,523	0	0
K. Financial and Insurance Services	6.36	7,400	3.3	2,793	13.4	53,365	0	0
L. Rental, Hiring and Real Estate Services	4.17	4,760	3.4	2,877	9	35,842	0	0
M. Professional, Scientific and Technical Services	1.74	2025	0.4	338	0.1	0	0	0
N. Administrative and Support Services	0.95	1,117	0.1	84	0.8	3,186	0	0
O. Public Administration and Safety	1.25	357	0.1	84	0.3	1,195	0	0
P. Education and Training	4.76	5,546	2.1	1,777	5.7	22,700	100	817,000
Q. Health Care and Social Assistance	9.72	11,287	2.2	1,862	10.4	41,417	0	0
R. Arts and Recreation Services	2.76	3,210	6	5,078	1	3,982	0	0
S. Other Services	7.83	9,100	5	4,231	5.3	21,107	0	0
Total	100	116,000	100	85,000	100	398,000	100	817,000

5.3.6 Direct Spending Summary

The direct expenditure from students, students' visitors, staff and the SRH-B was \$1,416,000, as shown in Table 5.1. Student and staff direct spending estimates from the questionnaire were considered low when compared with the ABS household consumption estimates, possibly because of recall bias. Following consultation with a Senior Economist, student spending was raised by 10% to align with ABS single unemployed spending estimates. The 2018 ABS tourism statistics for East Gippsland and the information from the online questionnaire were used to calculate the goods and services the students' visitors purchased and the total visitor expenditure for 2018. The SRH-B's financial records provided data for direct spending by the university. The household consumption estimates for students and staff expenditure were assigned to the ANZSIC industry table as a percentage, and the percentage share was converted to Australian dollars. The spending by the students' visitors and the university was assigned similarly across the ANZSIC industry table. Retail trade, manufacturing of goods and services, accommodation and food services, healthcare services, education and training, and financial and insurance services were the main industries that benefited from direct spending across different groups. Section 5.4 reports the indirect and induced effects of direct spending by students, students' visitors, staff and the SRH-B. It describes how the indirect and induced effects increase industry sales, employment and GRP.

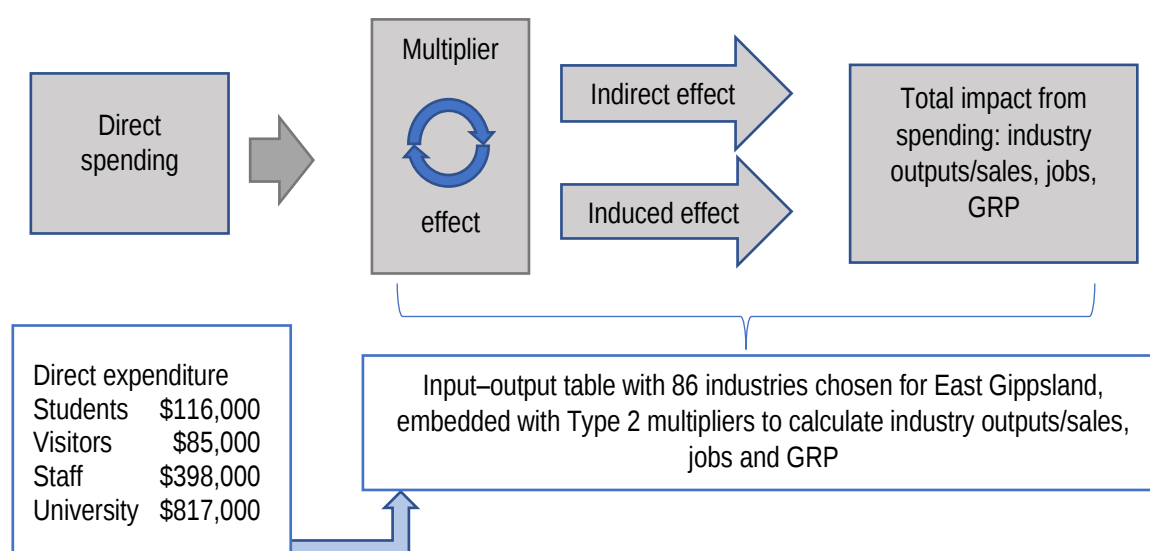
5.4 Indirect and Induced Spending

As described in Chapters 2 and 3, indirect spending occurs when initial direct spending is spent again by businesses to business transactions, whereas induced spending occurs when those employees of businesses make further purchases and businesses employ more workers who, in turn, spend their wages in the local economy (Lemky et al., 2018). Analysis of the economic effects of direct, indirect and induced spending on the LGA of East Gippsland can be achieved using an I–O table (Davies & Bennett, 2008; Thomassin, 2018).

Figure 5.4 gives an overview of how an I–O model can be used to analyse indirect and induced spending based on direct spending. Direct spending includes direct purchases of goods and services by students, students’ visitors, staff and the SRH-B in East Gippsland. This spending circulates further in the economy, generating indirect spending through business-to-business transactions and induced spending as employees and businesses re-spend their wages, collectively stimulating industry outputs, sales, jobs and GRP. Stimulating the economy referred to as the induced effect of the three rounds of spending.

Figure 5.4

Input–Output Model Used to Determine the Economic Impact of the School of Rural Health—Bairnsdale on the East Gippsland Community



Note. Adapted from “Economic Contributions of a College of Pharmacy to the Surrounding Communities and State” by Chisholm-Burns et al., (2020), *Journal of Pharmaceutical Education* 2020., 84 (2) p. 252 (<http://doi10.5688/ajpe7529>)

The I–O table can quantify the flow-on effects (induced effects) on industry outputs and sales, employment and GRP in East Gippsland (Bleaney et al., 1992). These elements determine the region’s economic growth and the positive or negative effects of the initial

direct expenditure. The I–O table used in this study was specifically designed for the East Gippsland LGA.

5.4.1 Industry Outputs and Sales

Changes in industry outputs⁶ represent the increased industry activity resulting from direct, indirect and induced expenditure effects by students, students’ visitors, staff and the SRH-B. Industry outputs is measured as the total gross revenue of an organisation in a defined period. As a trivial example, if a business produces ten cupcakes and sells them for \$2 each, the gross revenue generated is \$20.

Table 5.3 presents the industry outputs resulting from students, students’ visitors, staff and the SRH-B expenditures. The results were obtained from the direct spending (see Table 5.2) distributed across ANZSIC industry sectors, with each industry assigned a percentage of spending. These percentages were applied to the I–O table for East Gippsland, using specific multipliers to analyse changes in industry outputs because of the initial spending circulating in the community. The results indicate an increase in industry output of \$2,101,449 in East Gippsland.

Table 5.3

Additional Industry Outputs for East Gippsland

Category	Industry outputs (\$)
Students	406,219
Student visitors	215,045
Staff	679,795
School	800,609
Total	2,101,668

Note. Values are in Australian dollars.

⁶ The industry output data represent the gross revenue generated by businesses and organisations in each industry sector in a defined region (see REMPLAN, 2018b).

Table 5.4 provides the results by stakeholder category for each main industry division. Appendix L provides a list of the industries in the 19 industry divisions.

Table 5.4

Additional Industry Outputs by Industry Division

Industry	Students	Visitors	Staff	School
Agriculture, Forestry, Fishing	21,242	9,679	25,189	15,199
Mining	5,719	2,848	8,045	6,030
Manufacturing	61,738	22,552	91,088	43,914
Electricity, Gas, Water & Waste	13,727	6,304	27,156	22,149
Construction	12,750	7,037	22,556	22,453
Wholesale Trade	24,265	8,064	34,432	29,425
Retail Trade	36,186	18,758	59,244	33,581
Accommodation & Food Services	15,346	23,626	17,773	13,423
Transport, Postal & Warehousing	17,166	25,576	30,104	29,949
Information Media & Telecommunications	16,025	6,927	34,831	31,315
Financial & Insurance Services	40,770	18,663	92,616	69,474
Rental, Hiring and Real Estate Services	31,462	16,777	65,421	59,334
Professional, Scientific & Technical Services	28,749	13,194	44,435	54,594
Administration & Support Services	14,057	8,065	23,600	30,160
Public Administration Safety	2,406	1,035	3,868	6,051
Education & Training	12,290	3,989	22,542	283,184
Healthcare & Social Assistance	24,584	6,419	43,212	23,072
Arts & Recreation Services	7,322	6,818	6,779	8,618
Other Services	20,415	8,714	26,904	18,685
	406,219	215,045	679,795	800,610

Note. Values are in dollars. For each column, values in bold show the three industry sectors with the highest outputs from the associated indirect spending.

These data show the additional expenditures created in the East Gippsland economy because of the additional spending. The main industry divisions affected by expenditure were manufacturing; retail trade; education and training; accommodation and food services; financial and insurance services; and rental, hiring and real estate services.

5.4.2 Value Added at Market Prices: Gross Regional Product

The value added at market prices is the additional economic value generated by a business or sector to the economy, above its original value. This term can apply to goods and

services and represents the enhancement of a service or product prior to its sale. The term ‘at market prices’ means that indirect taxes are added and subsidies excluded in calculating the value added. The value added consists of wages, salaries and gross profits all that contribute to business sustainability and economic growth.

To take a simple example, a florist may buy flowers, wrapping paper and ribbons for \$10, then arrange and sell the bouquet for \$20. The value added is \$10 (sale price of \$20 minus \$10 cost of materials), representing the additional worth created through the florist’s work. Table 5.5 gives a summary of the value added at market prices per stakeholder group, and Table 5.6 gives the value added at market prices for each industry division and stakeholder group. When aggregated across all industries, the total added determines the Gross Regional Product (GRP), a key measure of economic performance in a region. Spending in the region influence value added through its impact on production and demand.

Table 5.5

Value Added at Market Prices for the School of Rural Health—Bairnsdale and Stakeholders

Category	Value added at market prices
Students	186,722
Student visitors	94,816
Staff	313,287
School	413,387
Total	1,008,212

Note. Values are in Australian dollars.

Table 5.6*Value Added at Market Prices by Industry Division*

Industry	Students	Visitors	Staff	SRH-B
Agriculture, Forestry, Fishing	9,312	4,237	11,042	6,755
Mining	4,280	2,153	5,932	4,321
Manufacturing	20,963	6,937	29,443	13,404
Electricity, Gas, Water & Waste	5,407	2,480	10,751	8,860
Construction	4,107	2,272	7,289	7,229
Wholesale Trade	11,787	3,919	16,814	14,311
Retail Trade	21,846	11,205	35,663	20,125
Accommodation & Food Services	6,184	9,530	7,194	5,437
Transport, Postal & Warehousing	7,417	10,579	12,844	12,999
Information	6,951	2,997	14,841	13,870
Media & Telecommunicati ons				
Financial & Insurance	24,263	10,457	52,899	40,142
Services				
Rental, Hiring and Real Estate	4,989	2,587	10,429	9,446
Services				
Professional, Scientific & Technical	14,392	6,618	13,427	27,990
Services				
Administration & Support Services	7,978	4,601	13,427	17,122
Public	1,543	664	2,474	3,871
Administration				
Safety				
Education & Training	7,866	2,572	14,876	179,810
Healthcare & Social Assistance	16,451	4,230	28,887	15,461
Arts & Recreation	2,487	2,679	2,343	3,125
Services				
Other Services	8,499	4,032	13,594	9,191
	186,722	94,816	313,287	413,387

Note. Figures in bold show the three industry divisions with the most value added from student, student visitor, staff and SRH-B indirect spending.

Table 5.6 demonstrates that retail trade; manufacturing; finance and insurance services; transport, postal and warehousing; and education and training were the industry divisions with the greatest value added to their goods and services from student, student visitor, staff and SRH-B expenditure. Finance and insurance cover the usage of automatic teller machines and Electronic Funds Transfer at Point of Sale (EFTPOS). Students would have used local banks teller machines to withdraw cash and pay for purchases at local stores using cash or a bank card.

5.4.3 Employment

Employment impact estimates the increase in the number of jobs in the East Gippsland region. From the direct and indirect and induced spending of participants and businesses the induced effect indicates more employment. Employment is important for economic growth. When workers receive wages they in turn, buy goods and services. The higher the rate of employment, the more goods and services can be produced and consumed. Further, when community members are employed and have high levels of job satisfaction, this can lead to higher levels of motivation and increased productivity, resulting in growth for the employer and region (Antoncic & Antoncic, 2011). Employment estimates are calculated from the Input-Output coefficient table, which provides an estimate of jobs creation resulting from regional spending. These coefficient tables are set up specific to East Gippsland offering an estimate of jobs created for residents as well as individuals travelling into the region for work.

Table 5.7

Employment Created in East Gippsland

Category	Journey-to-work employment	Usual resident employment
Students	2.3	2.3
Student visitors	1.3	1.2
Staff	3.7	3.6
School	4.7	4.5

Note. Journey-to-work employment is that offered by industry or government in East Gippsland but filled by persons from outside East Gippsland. Usual resident employment is that gained by residents of East Gippsland.

Journey-to-work (JTW) employment is employment offered in East Gippsland but filled by people from outside the LGA. A percentage of employees commute from outside the East Gippsland region to their employment within East Gippsland. For example, Bairnsdale Hospital in East Gippsland may offer employment for a nurse, and this position may be taken up by a nurse residing outside the LGA.

Usual-resident (UR) employment is employment for residents of East Gippsland who live and who work in the region (.id consulting, n.d.). Table 5.7 gives estimated JTW and UR employment arising from student, student visitor, staff and SRH-B direct expenditure in the region. JTW and UR employment cannot be summed up for total employment because the figures represent inherent differences in their definitions. However, knowledge of where residents work supports planning for transport infrastructure and an understanding of economic and employment drivers in the LGA.

5.4.3.1 Journey-to-Work Employment

Table 5.7 shows that student, student visitor, staff and SRH-B expenditure created jobs in East Gippsland that could be taken up by residents from outside the LGA. The main industries that appeared to create jobs included manufacturing, accommodation, retail trade and education and training. The industries benefiting from an increase in JTW employment are listed in Table 5.8 by stakeholder group.

Table 5.8*Major Industry Divisions Benefiting from Journey-to-Work Employment in East Gippsland*

Group	Industry division		
Students	Manufacturing	Rental and hiring	Information media and telecommunications
Student visitors	Accommodation	Retail trade	Arts and recreation
Staff	Retail trade	Manufacturing	Health care
School	Education and training	Professional services	Retail trade

From Table 5.7, it can be concluded that the induced effect of spending by individuals and businesses generates more jobs. However, different expenditure categories influence different industries. Each industry has a different employment-to-output ratio. Employment outcomes can only be identical for two categories if they have the same effects on each industry.

It is important to note that when jobs are filled by persons from outside the region, this can add to direct spending in the region through retail trade, such as the purchase of petrol, food and services, to increase industry outputs and further employment.

5.4.3.2 Employment Within East Gippsland: Usual-Resident Employment.

There were estimated increases in UR employment in East Gippsland from student, student visitor, staff and SRH-B expenditure. This is a significant outcome for an LGA with a population of 48,816 on 30 June 2018. Table 5.9 presents the industry divisions with the greatest increase in UR employment from student, student visitor and staff induced effect of spending.

Table 5.9*Major Industry Divisions Benefiting from Usual-Resident Employment in East Gippsland*

Group	Industry division		
Students	Retail trade	Manufacturing	Rental and hiring
Student visitors	Retail trade	Accommodation	Arts and recreation
Staff	Retail trade	Manufacturing	Health care
School	Education and training	Professional services	Retail trade

5.4.4 Regional Growth

The results provide important insights into how student, student visitor, staff and SRH-B expenditure affect industry outputs to add value and create further employment in East Gippsland. The increases in industry outputs were equivalent to \$2,101,449 of gross revenue in 2018. Manufacturing, retail trade, education and training, accommodation and food services, financial and insurance services and rental, hiring and real estate services were the industry divisions with the largest increases in outputs. Another important finding was the value added to goods and services was \$1,008,212. Retail trade, manufacturing, finance and insurance services, transport, and education and training were the industry divisions with the largest increases in the value added to goods and services as student, student visitors and staff and SRH-B induced expenditure.

This economic modelling suggests that the economic impact includes likely job creation. Retail trade, education and training, and manufacturing were the industry divisions that created the most jobs in response to the increase in spending.

The results show that the expenditure effect in East Gippsland has led to higher industry outputs, value added to goods and services, and increased employment. This cycle of expenditure and production indicates an effect of the SRH-B on regional economic growth.

Table 5.10 shows estimated financial contributions and economic impacts from students, visitors, staff, and the university site. These calculations are correct as of 2018. For future analysis, the same methodology could be used and estimates compared.

Table 5.10

The spending per unit calculation results as of 2018

	Estimated Direct Investment from SRH-B (from Table 5.1)	Calculated Indirect Costs (from Table 5.4)	Calculated Induced Costs (from Table 5.4)	Estimated Economic Impact 2018	Individual Unit	Economic Impact per Unit
Students	\$116,000	\$405,998	\$186,722	\$708,702	Student Week (452)	\$1,568 per Student Week
Student Visitors	\$85,000	\$215,046	\$94,816	\$394,862	Student Weeks (452)	\$873.59 per Student Week
Staff FTE	\$398,000	\$679,794	\$313,287	\$1,391,081	Staff FTE 3.4	\$409,142 per FTE
SRH-B	\$817,000	\$800,609	\$413,387	\$2,030,996	Program Investment	\$248,592 per \$100k spent

Consistent with studies by Kleynhans and Dyason (2017), Hogenbirk et al. (2015), Hogenbirk et al. (2021) and Rossi and Goglio (2018), this research found that a medical school and its stakeholders make a positive economic contribution to a region and that economic growth is supported by expenditure by students, students' visitors, staff and the school. The results support the argument of Pink-Harper (2015) that for small rural areas that are in decline, establishing a university site makes the region more attractive for the relocation of people and businesses. Knowing the short-term economic impacts of university spending is important when applying for further funding, justifying a budget or attracting new investment (see Association of Public and Land Grant Universities, 2014; Gerritsen, 2016). The empirical findings of this study provide an understanding of how the SRH-B supports regional development in the East Gippsland region.

This case study provides valuable insights into the impact of SRH-B on the East Gippsland region by identifying the direct, indirect and induced effects of spending. Ultimately, it highlights the economic impact that a medical school can have on rural communities. The findings from this case study can be compared to the spending at other RCS sites, and the methodology used could serve as a model for replicating an economic impact analysis at other locations. Considerations to transferring this study's methodology and results to other sites include:

1. Consideration needs to be given to the area where all the monetary transactions are undertaken, specifically the local area context under study. It is important to determine whether all transactions are being undertaken and studied across the entire region or only part of the region within the LGA. For example, all transactions from students, student visitors, staff and the SRH-B took place in the LGA of East Gippsland. This included all areas within the LGA not just Bairnsdale township. Identifying this consideration is important; otherwise, the analysis may represent activity in areas within the LGA where there is no activity.

2. Each RCS site is unique and has different policies, numbers of participants, spending patterns, local industries in their specific LGA. It is important to understand the spending from students and their visitors, staff and university. Using the questionnaire was important as it provided specific information about student and student visitor activities within the context of East Gippsland. This questionnaire or a similar/customised one could be used by other sites. Having a clearer picture of student spending and student visitor activities provided important information resulting in a more accurate analysis of spending. The ability to rebalance direct spending to relevant industries before applying the percentages to the input-output table, I could more accurately allocate student spending to specific industries. This data came from the questionnaire.

3. Different LGAs have varying composition of industries, labour markets and consumers. Using a coefficient table with multiplier relevant to the LGA under study provides a more accurate analysis. This study used the East Gippsland LGA model. Other studies could use models designed for their specific region as available.

5.5 Chapter Summary

An aim of this study was to explore the economic impact of the SRH-B and its stakeholders on the East Gippsland LGA. This chapter has examined the economic effects of stakeholder spending. The use of expenditure data from students, students' visitors, staff and the SRH-B with the ANZSIC industry table provided valuable information about the expenditure effect in the LGA.

Several results stand out. Student, student visitor, staff and SRH-B direct spending in East Gippsland amounted to \$1.4 million in 2018, a significant contribution to the region. The induced effect of spending increased industry outputs by \$2 million in 2018 and generated jobs in East Gippsland for persons living outside and residents of the region. GRP increased by a further \$1 million. This new spending brings benefits to the East Gippsland region by stimulating economic growth, increasing business activity, creating jobs, and contributing to the local GRP. This suggests that the establishment of a medical school site such as the SRH-B in a MM4-7 region (East Gippsland) can lead to regional economic benefits, thereby supporting regional growth.

Chapter 6 presents a review of the study's aims and a brief review of the key findings from the study. The chapter synthesises the qualitative and quantitative data and interprets the findings using the capitals theoretical framework.

Chapter 6: Discussion

6.1 Introduction

This chapter synthesises the findings presented in Chapters 4 and 5 to gain a more comprehensive understanding of the social and economic impacts of the School of Rural Health-Bairnsdale on East Gippsland. Section 6.2 outlines the study's aims, while Sections 6.3 to 6.4 review the research question, methods, and key findings. Section 6.5 discusses the application of the findings to the capitals framework, and Sections 6.6 to 6.9 integrate qualitative and quantitative data within the capital framework. The Chapter concludes with a summary in Section 6.10.

6.2 Review of the Research Questions and Aims

The aim of this study was to explore the social and economic impact of the SRH-B on its stakeholders. Table 6.1 gives the research question and the three specific aims, two of which have subsidiary aims.

Table 6.1

Research Question and Aims

What are the social and economic impacts of an RCS on a small community?
<i>Aim 1: To explore the social impact of a rural medical school (SRH-B) on stakeholders and the community (East Gippsland)</i>
a. To explore stakeholder and community relationships and interactions with the SRH-B and their underpinnings
b. To explore stakeholder and community perceptions and expectations of the role of the SRH-B in relation to education activities, community engagement, the health workforce, access to health care and research
<i>Aim 2: To explore the economic impact of the SRH-B on stakeholders and the community</i>
a. To identify the economic effect on the community attributable to the presence of the SRH-B
b. To explore economic development opportunities for the SRH-B in East Gippsland
<i>Aim 3: To explore what the results mean for strategic directions, opportunities and sustainability for SRH-B and the East Gippsland community</i>

6.3 Methodology

This study employed a constructivist-interpretivist paradigm with a pragmatic approach to gather diverse insights from participants' experiences. Using a convergent mixed methods case study design, it combined qualitative and quantitative data from interviews and questionnaires to examine the social and economic impact of the SRH-B in East Gippsland and its stakeholder interactions.

6.4 Data Triangulation and Convergence of Main Findings

Chapters 4 and 5 provided the qualitative themes and subthemes used to summarise the data from the online questionnaire and respondent interviews and quantitative evidence for economic benefits. Table 6.2 provides a summary of the themes and subthemes from the qualitative and quantitative analysis.

Table 6.2

Themes and Subthemes from the Qualitative and Quantitative Analyses

Theme	Subtheme
A vision for the future	Aspirations around education Community pride when students return to the region Identity, Value and Development opportunities
An evolving community	Community based learning Building a more culturally respectful and tolerant community Research engagement in the community
Growing your own rural workforce	Growing a medical workforce Transformation of medical education A multidisciplinary education precinct
Regional growth	Direct, indirect and induced effect of expenditure Industry sales Employment and Gross Regional Product

Considerable theoretical literature (Hogenbirk et al., 2021; Kleynhans & Dyason, 2017; Putnam, 2004) has addressed how a university can play a role in economic and social development. However, there is a gap in the literature in terms of how a medical school may have an economic and social impact on the community situated in a MM4-7 location. This

study has demonstrated that a medical school (SRH-B) performs many different roles. From the perspectives of stakeholders (students, staff, healthcare professionals and the community), the presence of the SRH-B provided social benefits and supported economic growth for the region. The following sections discuss how these findings are related to the aims and sub-aims using a Capitals Frameworks.

6.5 Capitals Framework

The interpretation of the study's findings uses two different Capitals Frameworks of Flora (2004) and Farmer, Prior, et al. (2012), as an explanatory framework. In this study, the Capitals Framework was applied to align with the findings, rather than adjusting the findings to fit a specific Capitals Framework. These theoretical frameworks are contextually appropriate for this study and can provide a suitable structure and explanation of the results (Flora et al., 2015). The Capitals Framework can also be used to provide recommendations to inform future SRH-B development. For this study, the capitals theoretical framework was adapted to the context of the SRH-B and its stakeholders (students, staff, healthcare professionals and the community, including business owners) in East Gippsland to interpret the social and economic impacts of the SRH-B and discuss strategic directions and sustainability. Farmer, Prior, et al. (2012) Capitals Framework outlines three forms of capital (social, economic and human). According to Farmer, et al., 2012 other forms of capital, such as symbolic and cultural capital, have been proposed, these can be encompassed within human and social capital. Flora (2004) acknowledges that cultural and economic capital alongside of social and human capital serve as inputs that interact to create other resources.

The results from this study support the argument that cultural capital is an important and distinct form of capital. This form of capital should be recognised as separate from human capital and acknowledged as a component to extend and enhance the theoretical framework used in this discussion. The customs, beliefs, language and social history integrated within a

community can help to build community connections and support development (Emery & Flora, 2006). Cultural capital will be used as one of four lenses for discussing the study's findings. Flora et al. (2015) note that forms of capital can be tangible, like infrastructure, or intangible, such as pride and beliefs, and that they can grow or diminish. The Capitals Framework helps government fundholders understand a program's impact on rural communities. This study applies an integrated framework by Flora (2004) and Farmer et al. (2012), which include cultural capital. The framework provides structure for discussing the study findings. Table 6.3 explains each form of Capital in the Framework.

Table 6.3

Capitals Theoretical Framework

Capitals	Description
Human capital	This form of capital includes the skills and knowledge of people (embodied in individuals) to build the community through leadership, innovation, creativity and educational accomplishments through their formal and civic roles in the community. Abel and Deitz (2012), Cocklin and Alston (2003), Emery and Flora (2006), Farmer, Prior et al. (2012).
Cultural capital	This form of capital reflects the way in which people influence the community through customs, beliefs, fears, symbols, language and stories passed on through families and networks. It can also be a tangible asset that holds cultural value. Emery and Flora (2006), Flora et al. (2015). Throsby (1999)
Economic capital	This form of capital includes employment, wages, income and wealth available, property built, infrastructure and loans available to investment in community development. Cocklin and Alston (2003), Emery and Flora (2006), Farmer, Prior et al. (2012).
Social capital	This form of capital reflects the connections and relationships between community members and organisations and includes the collective value arising from these connections, generated through trust, reciprocity and sharing of information with social networks, with responsibilities for sustainability. Bourdieu (1986), Cocklin and Alston (2003), Emery and Flora (2006), Farmer, Prior et al. (2012), Putnam (2004).

The following sections synthesise the results and discuss how they relate to the capitals framework. Many of the themes from the empirical data interconnect with multiple theoretical capital categories (human, cultural, economic and social). Each of the four themes outlined in Table 6.2 is discussed and related to the Capitals Framework outlined in Table 6.3.

6.6 Human Capital

Human capital refers to the collective skills, knowledge, and abilities possessed by individuals that enable them to contribute effectively to the economy and society (Abel and Deitz. 2012; Cocklin and Alston. 2003; Emery and Flora. 2006; Farmer, Prior et al. 2012). For a medical school situated in an MM4-7 region, developing human capital is important as these rural medical schools aim to teach medical students who may one day return as skilled health workforce. The RHMT program seeks to recruit and retain healthcare professionals in rural and remote Australia to improve community health and wellbeing (Department of Health and Aged Care. 2024-e). This initiative aims to enhance the delivery of health services by offering rural training experiences for students across all health disciplines utilising the expertise of dedicated clinical staff.

6.6.1 Healthcare workforce

The presence of the SRH-B enhances human capital by providing medical education to students, which improves their skills and knowledge and spoke of wanting to return or give back to the community once they have graduated. Opening the training facilities to other groups of healthcare students (nurses, allied health, paramedicine) studying and on placement in the region enhances the skills of other health disciplines, increasing the capacity of the health workforce in East Gippsland. Additionally, local health services and GP clinics benefit from having trained health professionals in the region, contributing to improved health outcomes for the East Gippsland community. The SRH-B role in supporting medical and

other health discipline education underscores the importance of supporting community development

Some participants viewed the SRH-B as an education centre that supported students of all disciplines, where they could come together for multidisciplinary rather than solely medical training. Before SRH-B was established, there were no facilities for medical education, multidisciplinary learning, or community activities. Some healthcare and community respondents felt that there should be more horizontal and vertical integration of programs for different healthcare learners. Interprofessional education, through collaborative learning environment brought together different healthcare professionals to enhance their educational experience

The findings support an initiative to build a multidisciplinary precinct in East Gippsland where various health disciplines (nursing, medicine, allied health and paramedicine) from different universities and other HEIs can share educational resources, build bridging programs for local students and grow a fit-for-purpose health workforce. The results of this study are consistent with the findings of Seri and Compagnucci (2024), which showed that peripheral campuses located in regional areas increase access to education for local students. The capitals framework accounts for the community's desire to have the SRH-B engage in educational and community activities to further enhance human and social capital.

After this study began, a rural generalist program for medical graduates was initiated in East Gippsland to train medical practitioners with the skills to care for rural communities (Department of Health and Aged Care, 2023d). Recently, the Australian Government released a framework for nurses who want to work in rural Australia. The framework outlines the scope of practice and curriculum for employers and educators to support nurses to work in rural and remote areas of Australia (Office of the National Rural Health Commissioner,

2023). Training pathways for graduate doctors and nurses are essential in a region like East Gippsland with a healthcare workforce shortage. The rural generalist program for medical graduates in Bairnsdale was initiated in East Gippsland. Now in its second year (commenced 2023), and it is not yet possible to analyse its impact. A national study by Seal et al. (2022) showed that the recruitment of rural students, longitudinal placements and regional training hub programs such as the rural generalist program influence the decisions of graduates to practise in rural Australia. Danish et al. (2019) described a significant return on social and human investment for the community when health services and a university site collaborate to support the local medical workforce, facilitate community partnerships, share infrastructure and acquire training and technological equipment. University sites are not alike; policymakers, fundholders and universities should consider the characteristics of each municipality and implement strategies that will improve the workforce. Collaboration between governments, the community and training organisations is important for building a community's health workforce.

6.6.2 Local Governance

An important finding is that governance and leadership need to be visible and remain in Bairnsdale. Prior to the restructuring of the SRH-B in 2018, governance was local, with a director and school manager. This governance structure enabled relationships and collaborations to develop with the local healthcare services and community, which is important for the establishment of student placements and the development of community engagement activities. Even so, the community wanted more knowledge and involvement in the SRH-B's general activities, including education and research programs. Reflecting on the roles and positions within the SRH-B prior to the restructure in 2018 it appears that the SRH-B may have been better placed to influence policy decisions at the Monash University if the executive leadership and director, clinical educators, coordinators were able to leverage their

influence more effectively and advocate the SRH-B importance and impact for its preservation. Including external partners such as health care organisations, local government associated with the SRH-B, community members, past and current students, funding bodies could have highlighted the need for continued investment and a strong case for to avoid restructure. By implementing these strategies, the SRH-B may have been able to strengthen its governance and leadership presence in East Gippsland, building a case for continued investment and support to continue longitudinal placements, community engagement activities, benefitting students, community and the SRH-B. The results from this study may assist other medical schools, individuals, communities, governments and private sector organisations, to understand and better anticipate possible social and economic benefits for the local community and region and develop projects or change policies.

6.6.2 Regional engagement

The study highlights the importance of increasing the visibility and engagement of the SRH-B to enhance human and social capital in East Gippsland. Addressing concerns about limited awareness can strengthen SRH-B's role as a contributor to the community's growth. Whilst the SRH-B did have a quarterly newsletter that was disseminated to local health services, local government and other Monash University rural clinical school sites, it did not reach to the general community. Future, strategies could include committing to a higher profile in the community through regular local newspaper highlighting the SRH-B's activities and achievements, engaging with local radio station to discuss the SRH-B activities and maintaining a more prominent and accessible webpage. Additionally, organise regular open day events and participating in local field days to provide health checks can enhance community engagement. While the university does have a website, the information is general with limited updates on local activities. Some of these initiatives were implemented, but the restructure led to a loss of local information, staff available to organise and attend community

events. It is evident from this study that the local community of East Gippsland expressed a desire for more information on SRH-B activities, indicating an interest in connectedness and building relationships.

Participants were sourced from the East Gippsland region for this study. They were recruited via public advertisements and local newspaper notices to ensure a diverse and representative sample related to the SRH-B. An inclusive and exclusive sampling framework was employed (see Appendix D), incorporating a diverse group of local stakeholders such as healthcare students, staff, educators, clinical supervisors, clinicians, and community members including local government including local regional development personnel all of whom had an association with SRH-B in the East Gippsland region and could provide various perspectives. All of whom had their own expertise and knowledge to contribute to the study. This research aimed to understand the social and economic impacts, requiring participants from the region (East Gippsland) where the activity took place. Other studies can use a similar framework of local stakeholders for purposive sampling. The sampling framework included a diverse and representative group of local stakeholders to gather information on the social and economic impact of a medical school in a MM4-7 region. This methodology can be used in similar studies to enhance understanding of human capital in rural settings.

6.6.3 Research Activity

Successful research projects can lead to improved health outcomes and contribute to the economic development of the region. Additionally, attracting research funding can create job opportunities and stimulate the local economic economy. Furthermore, can provide valuable data and insights to influence health policies and decision making. Staff roles and expertise at the SRH-B have been pivotal in the institution's success. The staff's skills and knowledge have contributed to the SRH-B's academic, community and research initiatives. However, the findings indicate that the participants wanted SRH-B staff to be more active in

undertaking research involving the local hospital and community to address the local region's health inequities and environmental issues.

Factors hindering collaborative research included the limited human and economic capital available. SRH-B staff felt constrained and marginalised because of the limited funds received from central faculty and their limited research expertise. There was a misalignment between the respondents' expectations and the ability of the SRH-B academic staff to undertake local research. Social capital has shifted community expectations towards desiring more local research. Although there were enough staff at the SRH-B, their time was largely occupied by research activities directed by the central research faculty in Clayton, Melbourne. This created a gap in research-capable human capital available to conduct evidence-based research specifically addressing local rural health issues. This issue requires improvement and practical solutions to building research capability in rural medical programs. The lack of collaborative research could be addressed by the establishment of research partnerships with healthcare providers, local government, local businesses and the SRH-B to share resources build research skills apply for research funding and share expertise. By establishing research partnerships and working together can create a research environment to address the health needs and health services of rural communities. Further, the research undertaken, their findings, and collaborations can be communicated to the local community, healthcare providers and policy makers. Joint applications for joint research funding and collaborative efforts with SRH-B support to build research expertise among local healthcare professionals. The development of research capabilities in all RCSs' is important for addressing local health issues.

In summary, establishing a medical school in a MM4-7 region enhances human capital by developing skilled health practitioners through exposing students to a career in rural health, increases opportunities for professional growth and development, medical students

inspire young community members to achieve their career goals, boosting economic growth with an educated workforce, and strengthening social and cultural development.

6.7 Cultural Capital

The RHMT program and rural medical schools such as the SRH-B are instrumental in promoting community engagement and supporting Aboriginal medical students in an effort to increase and sustain a rural healthcare workforce (Department of Health and Aged Care, 2024-e). By framing the cultural capital discussion around these parameters, highlights the key elements that may be transferable to another rural clinical school in a small rural region. These include the community engagement initiatives of Camp Marook which emphasise the unique needs of local primary and secondary Aboriginal students living in rural areas, as well as student's safety within cultural diversity and inclusivity in the community. Moreover, how a medical school and the healthcare providers in a MM4-7 region can influence the organisation culture

6.7.1 Customs, Symbols, Language

Cultural capital can be a tangible and intangible asset that holds cultural value (Throsby, 1999). This encompasses the customs, symbols, skills, knowledge, and language acquired through the educational and social experiences of students and other healthcare professionals. Additionally, it includes physical assets such as buildings and structures like the local hospital and the medical school, which hold value to the community. Longitudinal placements in rural communities offer medical students hands-on clinical experience, broaden their understanding of rural healthcare delivery, and promote shared learning and professional development. These opportunities help students better understand their future professional roles and the various perspectives of the rural healthcare settings. The SRH-B community places a strong emphasis on the importance of tertiary education and continuous professional development among its staff, healthcare professionals, and students. Objectified cultural

capital are objects such as stethoscopes, notebooks and pens signify the student's role and commitment to patient care (Bourdieu, 1989, and Bourdieu, 1986). Professional collaborations among medical students, other multidisciplinary students, supervisors, and educators facilitate the exchange of knowledge, clinical skills, and networking. These interactions can benefit healthcare students, staff, medical schools, and other educational institutions within the community. The presence of medical and other healthcare students during placements can encourage younger community members to consider a career in healthcare. What this study has shown is that cultural capital includes both tangible and intangible assets, enriches the educational and professional growth of healthcare workers including students and staff through practical experiences, ongoing education and collaborative knowledge exchange within the local community. Further, through the students community engagement broadens other community members to consider a healthcare career.

6.7.2 Cultural Connections

The culture of the East Gippsland community influenced this study, along with the RHMT program's emphasis on incorporating Aboriginal and Torres Strait Islander issues into the curriculum. (Department of Health and Aged Care, 2024e). The interactions between the medical students, and the Aboriginal community, helped promote cultural exchange and inclusivity. Medical students learn about local cultural traditions and taught first-aid skills to Aboriginal students interested in health sciences. The camps (Camp Marook) facilitated reciprocal learning and included contributions from both local Aboriginal people and non-Aboriginal community members. Encouraging medical students to be involved in the camps also allows consideration for future career opportunities in Aboriginal and Torres Strait Islander communities. These findings support the study by Benson et al. (2015) highlighting how short stays in remote Aboriginal communities impart medical students with cultural and health knowledge that cannot be acquired in a classroom setting and encourages all Australian

medical school to consider facilitating similar placements. The study emphasised having the personal contact and connection with the Aboriginal community members, students learnt about how to approach and communicate in a culturally sensitive manner.

Community engagement initiatives such as Camp Marook that support reciprocal learning about local customs, beliefs, traditions and language can be implemented in other rural areas. This study demonstrated how medical students undertaking tertiary education in a rural area and becoming health professionals can collectively influence the learning environment within the community. These components of cultural capital can impact student and patient experiences, further promoting community engagement through interactions with community members, the shared belief in the importance of health education, and encouraging community support for educational initiatives and a culture of lifelong learning.

6.7.2 Diversity and Inclusivity

The results indicate that participants felt that the community was developing as more people, including students, their visitors and staff, visited or relocated to the region, bringing with them skills, knowledge and diverse cultures from which the community could learn. It was felt that as students with diverse origins became embedded in the community's clubs and other organisations, they helped lead to a more culturally vibrant environment. The results revealed that 63.2% of students stayed in the region on most weekends and participated in community activities, such as playing sports; undertaking recreational activities, including tourism; and socialising. Many of the students' visitors stayed in local accommodation, used local transport, purchased goods and services locally and visited tourist attractions. The visitors also interacted with the local community, making the region more vibrant and multicultural.

East Gippsland has a predominantly (89.4%) Anglo-Celtic population; Aboriginal and Torres Strait Islander peoples make up 3.5% of the population (.id consulting, 2024). Non-

Indigenous people in the region are predominantly from English, Australian, Scottish and Irish backgrounds (.id consulting, 2024). Forrest and Dunn (2013) argue that people who have not had direct contact with members of other ethnic groups may not understand their culture and beliefs. High levels of cultural capital can enrich the learning experience when people socialise and engage with others from diverse backgrounds. Enrichment of cultural capital involves bringing new learnings, fosters a more inclusive, supportive East Gippsland community, which broaden peoples' outlook and help retain a diverse workforce (Marcelin et al., 2019).

The findings have important implications for the development of a more enriching experience and learning for community members. Flora et al. (2015) contend that developing connections with individuals from diverse cultures holds significant value. Such interactions with different culture, customs, beliefs and celebrations can contribute to a more dynamic and inclusive community. Additionally, fostering cross-cultural relationships may lead to increased support networks and potentially increase the local workforce, especially when accommodating visitors. Furthermore, these interactions can positively impact regional spending due to the influx of visitors. Community participants felt the region was developing as students of different origins became embedded in the community's clubs, thereby contributing to the community's social fabric and helping to build a more culturally respectful community. The respondents indicated that the presence of the students and their visitors expanded their own and the community's knowledge of other cultures and helped to foster more inclusivity and social cohesion.

A study by Marwah (2021) reinforced the importance of institutions creating an organisational culture that can mitigate unconscious bias and establishing diversity training in the curriculum to empower healthcare students and provide them with the skills to respond if they are discriminated against by other health workers or patients. The SRH-B prioritises

student support, community engagement, multicultural inclusivity, and the embracement of diversity. The SRH-B and its stakeholders help other community members learn through the students' customs, beliefs, language and personal stories. All these elements of cultural capital together improve the learning experience and create a more inclusive, supportive and engaged community.

Although the findings offer an encouraging view of the benefits that the cultural diversity of students and visitors can bring to a community, they also indicate a need for more support for students from culturally diverse backgrounds who undertake placements in rural and remote areas. A policy implication from this finding is that addressing the racism encountered by a few students during rural placements is essential for their wellbeing and the quality of patient care. The issue exposes existing biases and underscores the need for enhanced training and policy reforms in medical schools and health services to create a more inclusive environment. Although the RHMT program aims to ensure high-quality rural training and student safety, local sites and health services must do more to protect students and staff from racial prejudices (Department of Health and Aged Care, 2024e).

6.8 Economic Capital

An aim of the study was to explore the economic impact a medical school situated in a MM4-7 region (SRH-B), and its stakeholders had on the region (East Gippsland LGA), and explore the economic development opportunities for the SRH-B in the rural community.

6.8.1 Return on Investment

As described in Chapter 2, an increase in spending in a region (economic activity) increases the production of goods and services (economic growth) and can be measured as GRP or GDP. The additional spending results in more industry outputs or sales, increased employment and changes in GRP (economic impact) that lead to regional development, and the effects may extend to surrounding LGAs (Beck et al., 1995; Stevenson, 2010; Watson et

al., 2007). The direct spending of \$1.4 million from students, student visitors, staff, and SRH-B represent a considerable injection of economic capital for the East Gippsland region. The increased sales outputs in manufacturing, retail trade, education, and training sectors indicate economic growth and development. Up until the university restructure in 2018 the SRH-B contributed a considerable injection of economic capital for the East Gippsland region. The increased spending led to economic growth measured as GRP and stimulates industry outputs, sales and employment. The spending by students, visitors, staff and the SRH-B benefits various industries such as retail trade, accommodation, food services manufacturing, education and training. These increased industry sales and outputs, contribute to the East Gippsland region economic development. The economic impact of the SRH-B spending can influence policy decisions and attract further investments and support for educational and healthcare initiatives in the region.

The increase in industry output was \$2,180,311 from student, student visitor, staff and SRH-B spending in East Gippsland from data processing through an I–O table with multipliers. As industries expand, the outcome can positively affect East Gippsland through increased employment opportunities, access to goods and services and retention of the population.

Student, student visitor, staff and SRH-B spending contributed to greater employment in East Gippsland. Although the employment estimates are modest and the study cannot specify the type of employment generated (other than to which industry), it can be concluded that the additional spending provides jobs for skilled or unskilled persons wanting to relocate to East Gippsland or young people returning to the region after completing their education. Increased employment opportunities produce an increase in human and economic capital through the skills brought to the region, and this can stimulate local purchases, leading to

even more revenue and employment and further regional development (Rossi & Goglio, 2018).

A key measure of a region's economic growth is the GRP (Reserve Bank of Australia, 2023). There was a contribution to GRP of \$1 million in 2018 from the presence of the SRH-B. Retail trade, manufacturing and education and training contributed the largest shares of the increase in GRP for East Gippsland. Understanding the areas of growth is valuable for local government, private industry and the community, which can make use of this information about increases in employment and industry growth potential. The \$1 million increase in GRP from the SRH-B and its stakeholders is small in comparison to the overall East Gippsland economic output of \$4.89 billion in 2018 (REMPLAN, 2018a). However, other studies Lemky et al., 2018; Rossi & Goglio, 2018; Schubert & Kroll, 2016; Valero & Van Reenen, 2019 confirm that an increase in expenditure due to a university's presence is positively associated with economic growth and higher GRP or GDP and long-term increases in employment. A study by Valero and Van Reenen (2019) of universities in 1500 regions across 78 countries found that universities positively affect the growth of a region. Valero et al. (2019) argue that regional growth, including an increase in GDP per capita, arises not only through direct spending but also through increases in human capital and skilled workers, innovation and collaboration with local industries. Moreover, the cost-benefit analysis indicates that the economic advantages of expanding universities are likely to outweigh the associated costs. Rossi and Goglio (2018) showed that small university sites contribute to local development through direct spending and an increase in local business productivity from a growth in human capital as more staff are employed at universities and students return to take up careers. Further, Rossi and Goglio (2018) emphasise the importance of providing education opportunities for mature aged students. They note that these students often work for a living and are not financially supported by their parents, making small university sites

crucial for their attendance in higher education. These studies used different methodologies and are difficult to compare. Whilst these studies were conducted in larger regional areas than those with medical schools in MM4-7 regions, suggest that universities contribute to economic growth and enhance human capital and innovation. The results show how small medical school sites such as the SRH-B are facilitators of economic, social, human, and cultural capital growth through attracting new people to the region, creating employment and collaborating with community groups to make a rural area a more desirable place to visit and live.

The findings of the study led to some practical implications, highlighting the need to use one consistent methodology to estimate the economic impact of a rural clinical school. As discussed in Chapter Two there are many different methodologies to estimate the economic impact of a medical school on its region and it is important that all considerations, calculations, adjustments are transparent. This study used a questionnaire to estimate students spending and compared the spending estimates from the questionnaire to the Australian Bureau of Statistics on household estimates to garner a realistic weekly spend for students. Spending from staff and visitor was garnered through the Australia Bureau of Statistic data. This was important to provide an accurate estimate of household spending and that could be reproducible. The methodology from this study could be used to reproduce and compare results to other studies undertaken. The study utilised an input-output table specific to the East Gippsland LGA. By doing so allowed a more accurate estimate of industry outputs, employment estimates and GRP. It would be important that other medical schools wanting to undertake a similar analysis to use data relevant to the LGA in which their medical school is situated. Using data specific to their region would provide a more accurate analysis. There was the option in this study to report on the effect of spending to all LGA's in Australia however the research question was to understand the economic impact of a medical school in

East Gippsland LGA. Whilst this study did garner information as to the impact of the direct spend to all LGA's in Australia, it has utilised the East Gippsland LGA data specifically. This study has demonstrated how establishing a medical school in an MM4-7 region can impact the economic growth and prosperity of a community.

6.8.2 Social Gains

There is a global trend to broaden considerations of economic growth beyond the production of goods and services to how people's lives improve (Dalziel et al., 2018). The renowned economist and philosopher, Amartya Sen, emphasises that economic growth in a region goes beyond the measure of GDP or GRP (Sen, 2011). Economic growth is about expanding people's ability to choose and purchase goods and services and expand their knowledge and skills. Such expansion leads to greater opportunities to live a valued life, often referred to as human development (Alkire, 2009). This study revealed low expenditure compared with other local industries; however, local spending has enabled some community members to purchase more goods and services and supported modest employment growth and industry sales. The expenditures by staff and the university enhance social, human and economic development in the East Gippsland region.

These results support findings from other studies that link increased spending to improvements in a region's social determinants of health. The World Health Organization (n.d.) states that a person's income, education, employment, housing, environment and childhood development influence their health outcomes. In East Gippsland, employment rates, income, education and literacy, food security and access to affordable housing are lower than the Victorian average (Gippsland Public Health Network, 2023). The rates of chronic disease, drug abuse, alcohol consumption and smoking are significantly higher in the region (.id consulting, n.d.), and this can lead to worse health outcomes. Addressing the social determinants of health requires a broad range of actions. Hogenbirk et al. (2021) and

Andermann (2016) argue that there are wider impacts from university spending in a region that can address the social determinants of health. More employment, education availability and healthcare coordination can improve health outcomes. From the capital's framework, it can be argued that the establishment of the SRH-B and regional spending can enhance the community's social, human and economic capital through the development of relationships, community engagement, education and training, spending and tourism.

As described by Compagnucci and Spigarelli (2020), globally, governments require universities to advance the betterment of society and to be transparent about their social and economic impact on the communities they are located in, given financial constraints. The study results are important for justifying the existence of small medical schools in regions such as East Gippsland with a socio-economic index that places them as disadvantaged (.id informed decisions, n.d.). The study provides evidence to support greater government assistance to local communities for regional development through continued and increased funding for the RCS program. As emphasised by the OECD (2007), it is not the responsibility of universities to create employment. Equally, although higher education is not a responsibility of local government, it is important to analyse the impacts of a university presence so communities can address regional deficits, build on their strengths and develop new opportunities. Regions such as East Gippsland need to become and continue to be desirable places to live; therefore, local government should invest in supporting university sites. Universities located in non-metropolitan regions have a positive impact on these areas through the purchase of goods and services; they also contribute innovations from research and collaboration with industries (Carrascal Incera et al., 2022; Eversole, 2022).

6.9 Social Capital

Putnam, (2004) describes social capital as the networks of relationships amongst individuals and the norms of reciprocity, that is social capital encompasses the networks of relationships that allow individuals to collaborate and support each other effectively. These networks foster cooperation resulting in enhanced wellbeing, increase civic engagement, and greater economic and social resilience for individuals and communities. They also help people to achieve goals such as opportunities for education, work and participant in community activities (Putnam., 2004). Social capital is alleged to have beneficial effects on both individuals (promoting better health, social interaction) and communities (through economic development, sharing of capital equipment)

6.9.1 Community Recognition of the SRH-B

The results indicate that the participants were proud to have a university present in their region and felt that the SRH-B fostered social networks, co-operation among the community, students and university staff. A part of this perception was that the community felt valued from outside the region because the Australian Government and a university had invested in the community and new money was coming into the region signalling validation and support. Although the community understood that the university's mission was to grow the health workforce, its perception was one of progress in economic development, social mobility and role modelling in a region that does not normally experience much growth. This study builds upon the research by Cooper et al. (2021), demonstrating that a medical school can significantly enhance the social fabric and reputation of the surrounding community.

Bairnsdale is situated 270 km east of Melbourne or more than three hours away by car. Approximately 87% of the region is Crown land, with the remaining 13% under private ownership (Agriculture Victoria, 2023). The region has an area of 20,940 km², but much of the land is mountainous. Rural roads and bridges are maintained from a limited tax base. The

region attracts little government spending because it is a safe Liberal–National Party seat (Australian Broadcasting Corporation, 2008; Parliament of Australia, n.d.). Approximately 3.1% of the East Gippsland population is over 85 years of age; this compares with the Victorian average of 2.2% and the Australian average of 2.1% (ABS, 2021a). The region requires more local health care so that older people can maintain good health and contribute to the community socially, culturally and economically. Limited funds are available for the local government to invest in infrastructure, industry or community projects (East Gippsland Shire Council, n.d.).

The presence of the university has been interpreted as a positive social and economic investment in a region that previously had limited financial or political support for development. A study by Reimers (2023) on how to develop a regional community after the withdrawal of a major industry emphasised the importance of attracting new industries and universities that can promote economic growth. Universities can provide academic and other skilled staff and research capabilities to support the development of industry areas such as manufacturing and increase employment (Blackwell et al., 2002).

6.9.2 Community Engagement

When the SRH-B was established in 2003, its mission was ‘to provide quality health education, research and innovation through community engagement and participation’ (Monash Rural Health, 2003). This statement highlights the aim of the SRH-B to be a catalyst to support medical and other health discipline education and research in the community. Many participants perceived the SRH-B as more than a community-based medical program; it was seen as a place where students from various disciplines could train together or alongside each other with positivity and engagement.

Although the participants felt that the East Gippsland region was evolving, some indicated that increasing the number of healthcare workers should not solely be the

responsibility of the SRH-B. A few community respondents felt that it was also the East Gippsland community's responsibility to address workforce shortages. This finding suggests that the community has a sense of social obligation, connection and willingness to engage with the SRH-B, local government and other training organisations to address its workforce needs. It also shows that the community understands the importance and need of having a health workforce to support the community's ongoing healthcare needs.

Students and visitor's participating in community activities help build social networks, relationships, contributing to a more engaged East Gippsland community. Supportive relationships between supervisors, medical students, patients enhance learning experiences and strengthen the doctor-student relationship. Staff from SRH-B, as active community members, also assist with acquiring grants and funds for local community organisations, further strengthening social capital.

However, a sense of community ownership needs to be nurtured through increased awareness and inclusion into the SRH-B activities otherwise this can hinder the development of social networks and connections between the university site and the community. Building and increasing community engagement through regular promotions and community events can help foster a sense of community, reciprocity, and collective responsibility between a medical school and the community.

6.9.3 Reciprocal Learning and Relationships

Universities can serve as a central point for local and regional education, fostering the creation of partnerships among community members, businesses, and other stakeholders within the region (Rinaldi et al., 2018). This study's findings included the observation that medical students, through SRH-B community engagement activities, introduced local secondary students to opportunities for university education. These included health careers as rural and remote paramedics, nursing and visiting medical specialists and GPs. These findings

complement the study by Martin et al. (2018), which revealed that secondary school students generally lacked awareness of a medical career, with many believing that the primary role of doctors is to address mental health conditions. This study underscores the importance of medical students' engagement in rural communities and their community-oriented activities in encouraging consideration of a career in medicine. This increased their aspirations about the standard of education that can be achieved in a rural area, thereby increasing the human capital of the region.

The medical students expressed higher levels of satisfaction and learning when they engaged with the local community, particularly at school camps and in local clubs. Some medical students felt it important to be involved in community engagement activities as a way of returning benefits to the community in response to the learning opportunities and support they received from their clinical supervisors and the community throughout their placement.

These efforts are valuable because as outline in Chapter One many students in the region do not complete secondary school education (ABS, 2021a). The participants felt that social interactions with the medical students helped primary and secondary students to increase their aspirations and consider applying for a university course, including careers in healthcare, as part of a natural progression of their education. It is likely that the levels of social and human capital were increased through the medical students' interactions with these local school students.

Members of the community benefited from reciprocal learning and community engagement. Members of the local Aboriginal community taught medical students about their culture and traditions, and medical and other healthcare students taught first-aid skills to the Aboriginal students interested in health science courses. The medical students challenged their supervisors to update their knowledge as the supervisors taught them, and members of the community learned about diverse cultural beliefs and customs. Walters, Stagg et al. (2011)

further found that students in an LIC program provided their preceptors with professional enrichment and enhanced the doctor–student relationship. A review by O’Doherty et al. (2022) found that supportive relationships between supervisors, medical schools, students and patients contribute to effective learning experiences for students. Staff from the SRH-B are also active community members and, through their social networks in the community’s clubs and community organisations, shared their knowledge and assisted with the acquisition of new grants and funds for these clubs and organisations. Putnam (2000) describes social capital as the collective value arising from connections among individuals in social networks and the norms of reciprocity and trustworthiness that arise from these social relations. The SRH-B case study demonstrated that connectedness SRH-B nurtured in the East Gippsland community and with its stakeholders through relationship-building and community engagement activities increased the level of social capital. Social capital provides an account of why stakeholders felt that the community was evolving through shared learning, community identity and pride. The findings from this study suggest that partnerships and networks formed through the establishment and implementation of the SRH-B

6.10 Chapter Summary

The purpose of this study was to explore the social and economic impact on a rural region (East Gippsland LGA) of the local university site (SRH-B) and its stakeholders. The presence of the SRH-B in East Gippsland and its effects on social, human and cultural and economic capital had far-reaching effects. By using the capital framework provides a clear picture capturing the multifaceted contributions medical schools like the SRH-B have on the region in which they reside.

This chapter has presented the results from the qualitative and quantitative data analysis, using Flora (2004) and Farmer, Prior, et al.’s (2012) capitals framework to interpret the social and economic impacts, strategic directions and sustainability of the SRH-B in the

East Gippsland community. Stakeholders believe a medical school can significantly enhance rural community growth, and prosperity.

As relationships developed between the SRH-B and its stakeholders, so did social connectedness, economic benefits, cultural learnings and human resources. The presence of the SRH-B enhances human capital through its medical education program and sharing its facilities with other health disciplines for education and skills training. Many medical students expressed that they would like to return and give back to the community. Cultural capital was enriched by engaging with diverse cultures, beliefs, and celebrations creating a more dynamic and inclusive community. The establishment of the SRH-B and its stakeholders supported economic growth in the community of East Gippsland through their spending, which resulted in increased industry outputs and an increase in GRP and employment for residents of East Gippsland and others who lived outside the region. Economic growth enables a higher standard of living, greater health literacy and higher levels of motivation and can add value to the population's lifestyle.

The findings of this study show how a medical school (SRH-B) situated in a MM4-7 region (East Gippsland) and its stakeholders (students, staff, healthcare professionals, community and business owners) can influence social, economic, human and cultural development in a community such as East Gippsland. The study emphasises the need for ongoing funding to sustain the social, economic, human, and cultural contributions of a medical school site. The discussion illustrates how various forms of capital (human, cultural, economic and social) interact and support each other in enhancing the community's health and well-being. The SRH-B and other small medical school sites are well-placed to collaborate with the local community and local government to support future regional development. The contributions made by a medical school such as the SRH-B is significant.

Chapter 7 provides policy, research and education recommendation based on the research results and recommendations for rural clinical schools and governments. It concludes with the overall findings of this research study.

Chapter 7: Recommendations and Conclusion

This chapter presents recommendations drawn from the study in relation to research, policy and practice for universities, health services and all levels of government. This study explored the social and economic impacts of a small medical school, the SRH-B, on its community in East Gippsland. A key finding was that the SRH-B supported social and economic growth in East Gippsland. This finding is important because it demonstrates that regions such as East Gippsland benefit from the activities of a small medical school. The findings suggest several key areas for research, priorities for education programs and actionable policy recommendations.

There are six recommendations, some with subsidiary recommendations. The recommendations have been written based on Bourdieu's capitals theory, incorporating social, economic, human, and cultural impacts (Bourdieu, 1986). Bourdieu's framework uses the concepts of field (the social space of the medical school and community), capital (economic, cultural, and social resources and power), and habitus (people's habits and experiences influenced by the medical school) to offer a new way of studying organisations (Emirbayer & Johnson, 2008). By combining these concepts, a better understanding is gained of how organisations are influenced by their surroundings and how they, in turn, affect the community's economic, social, and cultural capital as perceived by the community. This chapter also provides the concluding statement for the study.

7.1 Recommendation 1. Universities and all levels of government should consider the potential negative impacts of the restructuring of an RCS

This study was undertaken during the restructuring of the School of Rural Health—Gippsland including the East Gippsland site (SRH-B). The outcome of the restructuring was the termination of the longitudinal academic program, with a loss of staff and engagement

with the community, including through local schools and clubs. Five subsidiary recommendations are provided related to the restructuring.

Recommendation 1.1.

Extend this study to examine the social and economic impacts on the community of the loss of the longitudinal program and the restructuring of the SRH-B.

Universities and all levels of government should understand the impact of restructuring on the educational curriculum and its associated programs. Further research could provide insight into the broader implications of restructuring on social inclusion and community engagement, which are important for maintaining local community relationships and networks. This research could also reveal the effect of rationalisation on a university's reputation in the community, future projects and workforce growth in health and other industries. A study of this kind should help stakeholders make informed decisions to support community wellbeing and sustainable development. Further, the study should be repeated two to four years after any restructure to assess the repercussions on regional development and the effects on local employment and business.

Recommendation 1.2

This study is unique in that it focused on social and economic impacts on a rural community. It is important for governments at all levels and HEIs to understand the impact that withdrawal of funding and restructuring have on the local community, including impacts on the health workforce, expenditure in the region, education, community engagement activities, student placements and its reputation in the community.

A policy recommendation is that when considering restructuring, governments and universities should be transparent and engage in genuine consultation with stakeholders and the community to understand potential impacts before making decisions. Genuine engagement

with the community and stakeholders could avoid negative effects on relationships and future collaborations.

Recommendation 1.3

To mitigate the impact of any university service withdrawal, governments and universities should support rural and remote education through further funding to promote access to education for all rural Australians.

A policy recommendation is that governments and universities avail funding for students affected by the closure of HEIs or those who are unable to pursue training near their homes due to these closures.

Recommendation 1.4

During times of economic and or demographic downturns, small university sites can be challenged to survive. The restructuring of the SRH-B has shown how easily a small RCS can be restructured and lose local governance.

A policy recommendation from this study is that small RCS sites should, as part of their strategic plan, develop a model for sustainability.

Recommendation 1.5

To be sustainable, small RCS sites need to seek funding from other sources and build strong partnerships within and outside the region. Small sites need to initiate frequent meetings with politicians at all levels and healthcare leaders to brief them on their educational programs and outcomes and any challenges as they arise. Local politicians can advocate for the SRH-B to obtain more funding that can benefit the SRH-B and the East Gippsland community.

A policy recommendation is that the small rural clinical school sites such as the SRH-B should have regular meetings with local politicians to keep them informed about its education programs and outcomes and any challenges.

7.2 Recommendation 2. A standardised research methodology should be developed for impact studies

The research methodology of this study, used to analyse the impact of a rural school on a local community, has been fully described. Local economies are dynamic and evolve in response to environmental and human factors, including industry restructuring, political changes, climate change and other events (e.g. the COVID-19 pandemic). It is, therefore, important that all university sites maintain operational, student and faculty data that can allow the assessment of impacts to respond to them. There is a lack of standardised methodologies to assess and compare recorded data and interpret the impact of a university site on the community in which it is located. While economic impact studies can be compared across different medical schools and RCS sites, it is important to recognise that each community has unique industries and outputs. Therefore, an economic impact study must be transparent and present its calculations and use region-specific economic data.

Recommendation 2.1

Most large university campuses undertake economic impact studies using different data and methods and often with different economic consultants.

A research recommendation from this study is that an agreed framework should be used to undertake impact studies to ensure consistency in the evaluation and comparison of results.

A principal policy recommendation is that the Australian Government, as part of the RHMT program, should fund the development of a standardised methodology for all RCS sites (large or small) to demonstrate their impact on their communities. One standardised model would provide researchers/analysts with a consistent framework for analysis. Standardised models promote collaboration between universities, governments, and communities. They support the importance of the community involvement and provide accurate economic impact information for future funding decisions.

Recommendation 2.2.

Small university sites should maintain adequate data to support the completion of impact studies every five years. Compliance with this recommendation would allow the demonstration of trends that can assist decision-making. Repetition of an economic analysis using a standard approach can provide a clearer picture of the impacts a small or large medical school site has on the local region. The results could enhance the sustainability of small medical school sites to support regional development and workforce growth in rural and regional Australia.

The policy recommendation here is that all RCS sites should maintain up-to-date records of spending and student, staff and community activities. Maintaining data helps track educational and workforce trends, community engagement, and the impact on regional development.

Recommendation 2.3.

The methodology used in this study could help other tertiary health disciplines (nursing, allied health and dentistry) to understand how their sites affect their communities positively or negatively and how expenditure is distributed in their community.

The methods of this study should be used to support similar social and economic impact studies at other RCS sites to support advocacy for continued government funding and program expansion. Including nursing, allied health, and dentistry in impact studies demonstrates how these fields improve skills and knowledge, fostering collaboration and relationships across healthcare sectors. This supports continued funding, program development, and resource allocation for education, promoting sustainable and growth.

7.3 Recommendation 3. Universities and Rural Clinical Schools initiate cultural diversity training for students

Cultural diversity enriches the community in many ways. Diverse cultures bring different skills, knowledge, customs and views, help build equity and diversity and promote economic growth. An inclusive community welcoming students into the community encourages social inclusion and community engagement. Medical schools such as the SRH-B can increase cultural awareness and competency through engagement with Indigenous groups and support for students from diverse backgrounds. The promotion and encouragement of cultural diversity improves communities and supports a health workforce for the future.

This study has demonstrated the need for research into how racism towards rural students, influences their ability to practice and provide health care to patients. A review of racism directed towards students would create a clearer picture of the education required. An enquiry would contribute evidence that could inform universities and healthcare providers about strategies for discussing racism in the workplace and help to develop institutional policy and educational programs to support diversity and inclusion.

Recommendation 3.1

An education recommendation from this study is that all medical school sites and RCSs initiate (if not already initiated) cultural diversity training to all students and new employees.

This could involve developing new resources or use existing resources and policies to support students to respond effectively to racism and enhance social inclusion. A diverse and inclusive community may encourage more students and healthcare professionals to move to the region.

In response to the results of this study, the SRH-B and the Monash University – School of Rural Health - Head of School commenced discussions and initiated strategies to

ensure that international students undertaking placement in rural areas have information about support groups, health professionals in the community with similar origins and interests, shopping and places of worship. The SRH-B contributes to regional development through cultural diversity and the promotion of social and cultural inclusion in the university and the East Gippsland community. A policy recommendation for the local community and university site is to encourage a collaborative approach to ensure there are formal programs to support students who have not participated in rural placements.

7.4 Recommendation 4. University health education sites should include other healthcare programs and become general academic centres

The synergies between different healthcare sectors relevant to students undertaking education that support the provision of facilities for other health discipline courses to be delivered locally. There is a need for a single clinical school or academic site where all healthcare students can learn together to foster research opportunities. Having a diversity of education programs at one site increases the local workforce, mitigates financial risk and can generate economic development through local spending. If a single health program loses funding, the school or site can absorb the impact. An expansion of healthcare education programs can also result in more educational opportunities that integrate multiple professions. Further, a single academic site can foster collaborations between the different disciplines to network and support each other, whilst building a sustainable health workforce.

Recommendation 4.1

The structure of the SRH-B does not allow for direct entry into medical school in the Gippsland region for local secondary students. Local students must enrol in a Doctor of Medicine or Bachelor of Medical Science in Melbourne or gain one of six available places to

study the Bachelor of Medical Science at the Federation University campus (two hours' drive from East Gippsland). To better support students who aspire to study medicine,

A policy recommendation is that the Universities and RCSs should implement a different entry pathway and education structure. Expanding these pathways could further support more young people in the region to undertake healthcare careers.

Recommendation 4.2

The continuing shortage of healthcare workers requires education and training models that can attract and retain a strong health workforce.

A policy recommendation for the Federal government and universities is to expand the University Departments of Rural Health program to small rural sites.

The Australian Government should evaluate a model in which multiple university programs share a single education centre that offers multidisciplinary education, including in nursing and allied health. An expansion of educational opportunities can grow the healthcare workforce, enhance the quality of employment and extend opportunities across local health industries, thereby contributing to social, economic and human capital in the region.

Recommendation 4.3

Improving access to health education programs for rural students is often challenging. It is crucial to transition from awareness to a structured policy that addresses these barriers. Funding through governments and universities be available to deliver foundation programs for local students interested in health sciences.

As a key policy priority that all university rural sites initiate preparatory programs to support school students interested in a rural healthcare career as a priority education program.

7.5 Recommendation 5. Including community perspectives in University and Rural Clinical School decision making

Recommendation 5.1

The study results show that the East Gippsland local community wanted more engagement with the SRH-B and knowledge about its activities. The SRH-B did engage with some local primary and secondary schools and clubs. However, these community engagement activities were often not publicised outside the university or the schools. Further, limited staff and funding were available to provide the engagement activities and marketing expected by the community.

A recommendation is that each Rural Clinical School embark on a comprehensive community engagement program with support from a funded coordinator. The coordinator can identify the expectations of the community and organise engagement activities to meet the local community's expectations. The coordinator can understand adapt and implement strategies that support the community's needs.

Recommendation 5.2

Sustaining and enhancing community engagement activities requires funding and human resources.

A principal policy recommendation is that the Australian Government should increase RHMT program funding to cover the employment of a coordinator to build and sustain activities between RCS sites and the local community.

This position should be funded as part of each five-year funding cycle.

Recommendation 5.3

Communities like East Gippsland need to ensure their regions are desirable places to live. Making a region more desirable to live in will increase investment, population growth

and social mobility. The expansion and marketing of a university site and its programs could attract more students and healthcare workers to the region.

A policy recommendation is that all medical schools and RCSs initiate a comprehensive marketing program as part of its community engagement. Further engagement with local government, industry and health services could secure funding by demonstrating the impact of a local medical school on the workforce. This approach would increase their visibility and build stronger links to the community. A stronger working relationship with local government and key agencies (e.g. Centrelink) would increase awareness of programs.

7.6 Recommendation 6. Universities and Health Services support and build local research capacity and collaboration

The development of local research capacity is important for all medical schools. Regional universities receive only 7% of the competitive research funding, while metropolitan universities receive 93% and the Group of Eight universities receive 69% of this funding. (Australian Government, 2024). The study recommended becoming a more research-active university in the region by creating policies and investments to boost local research capacity. Local research should also address regional needs and involve the community. The SRH-B's small team of researchers were often required to undertake research directed by the central faculty in Clayton, leaving little time to undertake community-based research. This study showed that the local community want to be involved in research and that research activities need to be appropriate for the region. Local research promotes knowledge exchange, skill development, and networking. It benefits communities, healthcare providers, and students by addressing region-specific research projects.

Recommendation 6.1.

The central university facilities should allocate a percentage of research funding and support to regional and rural sites. The allocation should include funding to support research internships for local healthcare professionals and trainees.

This funding would enable small medical schools in MM4-7 regions to undertake local research with the community that could further develop the region and foster collaboration between the local industry, education sector, health sector and the community. Part of the funding should be allocated to studies that support better health and workforce outcomes in the region.

Recommendation 6.2

This study has provided information about local industries that increased their outputs and employment opportunities that were created because of university and stakeholder expenditure. If universities are to contribute to economic development in their region, they must do more than provide educational services. Universities should support local industry development to generate employment opportunities for their graduates. Further, universities should provide funding or other incentives for university–industry programs in rural regions. *A principal policy recommendation is that medical schools in MM 4-7 should develop a research strategy that includes building a research hub in collaboration with the local community and healthcare providers.*

This initiative could ensure that any research is relevant to the region and has outcomes that can inform local change.

"The "Recommendation by Category" section was formatted with assistance from Microsoft Copilot. Copilot's role was limited to formatting, and no content development occurred (OpenAI., 2024).

7.7 Recommendations by Category

7.7.1 Policy Recommendations

Recommendation	Description
1.1	Extend the study to examine the social and economic impact on the loss of the longitudinal program and the restructuring of a RCS.
1.2	Recognise the unique focus of the study on social and economic impact in rural communities.
1.3	Avail funding for rural students impacted from the withdrawal of education facilities.
1.4	Develop sustainability models for small rural clinical schools.
1.5	Smaller rural clinical schools collaborate with local politicians.
2.1	The Australian Government as part of the Rural Health Multidisciplinary Training ((RHMT) program fund the development of a standardised methodology for all RCS sites.
2.2	All rural clinical schools maintain up-to-date records of spending and community activities.
3.1	Implement and continue cultural diversity training programs at universities.
4.2	Expand the UDRH program in all smaller Schools of Rural Health.
4.4	Partnership and resources sharing encourage higher education institutions and governments to collaborate, share resources, and form partnerships for healthcare training activities.
5.2	Federal government to fund a community engagement coordinator through the RHMT program.
5.3	Initiate comprehensive marketing programs at all rural clinical schools as part of its community engagement efforts.

7.7.2 Research Recommendations

Recommendation	Description
1.1	Conduct a study examining the effects of restructuring of RCSs on the community's social inclusion and regional development in East Gippsland.
1.2	Explore the impact of rationalisation on University's or RCS reputation, planned projects and workforce growth. Conduct periodic studies to assess the implications and gain insights.
2.1	Regularly conduct impact studies using a mutually agreed framework to ensure consistency and facilitate comparison.
6.1	All central university and RCS faculties should allocate a percentage of research funding to support smaller rural sites . These funds can be used to facilitate research internships for local healthcare professional and trainees.
6.2	All RCSs should develop a comprehensive research strategy. This strategy should involve building a research hub in collaboration with the local community and healthcare providers. The hub can serve as a focal point for research activities, data collection, and community engagement.

7.7.3 Education Recommendations

Recommendation	Description
1.1	Conduct an analysis to understand how curriculum and program restructuring affects education.
1.2	Foster an awareness amongst educational institutions about the impact of program withdrawal and restructuring.
3.1	Universities continue to allocate funds to initiate cultural diversity training .
4.3	University rural sites initiate preparatory programs specifically designed to support students in rural healthcare careers.

7.8 Recommendations by Stakeholder

7.8.1 Rural Clinical Schools

Recommendation	Description
1.1	Conduct a comprehensive assessment of the social and economic impact from program loss and restructuring.
1.2	Recognise the unique focus of the study on rural community impact.
1.3	Acknowledge the impact on students who are affected by the closures of HEIs and provide funding to support alternative education options away from their homes.
1.4	All small rural clinical schools should develop a model for sustainability . These models should help to ensure long-term viability.
1.5	Regularly engage in discussions with local politicians about education outcomes and challenge. Advocate for rural healthcare and educational needs and seek their support in policy decisions.
2.2	Ensure that all rural clinical school maintain up-to-date records of spending and community activities. Accurate data is essential for informed decision making.
2.3	Develop one method (as per this study) to effectively demonstrate social and economic contributions of rural clinical schools including other health disciplines.
4.2	Expand the University Department of Rural Health (UDRH) program in small RCS sites. This expansion will allow more students to study or undertake placements in rural healthcare settings.
5.1	All RCS to initiate a comprehensive community engagement program . A dedicated coordinator, funded by the Australian government, can facilitate community involvement and collaboration.
5.3	Initiate comprehensive market program at all rural clinical school sites. These programs can enhance community engagement, promote awareness, and foster collaboration.
6.1	Monash University should allocate a percentage of research funding to support smaller rural sites to establish research internships for local health care professionals and trainees.
6.2	RCSs should develop a research strategy that includes building a research hub . Collaboration with local community and healthcare providers ensures relevant and impactful research.

7.8.2 Governments

Recommendation	Description
1.1	Understand the effects of withdrawal and restructuring on social inclusion and regional development. Consider factors such as community cohesion, access to services, and economic opportunities
1.2	Raise awareness amongst stakeholders about the impact of program withdrawal and restructuring. Effective communication may mitigate challenges.
1.3	Allocate funding specifically to support rural students affected by the closure of education facilities. Ensure they have access to alternative educational opportunities.
2.1	As part of the Rural Health Multidisciplinary Training program, establish a standardised impact methodology for all rural clinical school sites. This methodology would demonstrate their impact on the community.
4.3	Federal and State governments finance preparatory programs within rural clinical schools. These programs should target local secondary students' interest in pursuing healthcare careers. Foster their interest and provide guidance.
5.1	The Australian government to increase the RHMT program. Specifically, allocate additional resources to cover the employment of community engagement coordinators , their role is crucial in facilitating community engagement.

7.9 Conclusion

This study aimed to answer the research question “What are the social and economic impacts that a small medical school has on its community?” This study used a critical case study design with the SRH-B in East Gippsland as an example that facilitates understanding of a phenomenon within the context it occurs. The RCS program commenced in 2000, and the SRH-B was established in 2003. Since its inception, the SRH-B has engaged with the community and fulfilled the RCS charter. However, in 2019, restructuring dismantled the local leadership and governance and instituted changes in the educational programs and community engagement activities. Until this time, the SRH-B had been a catalyst for growth and development, providing benefits that signalled progress to the community.

This study has demonstrated that the SRH-B embodies a vision for the future and that the community is proud of the university’s presence. The community is evolving as students, staff and visitors bring new skills, knowledge and diverse cultures to the region and become part of the community through local clubs. These interactions have positively influenced local young people’s attitudes to achieving their own life goals. The SRH-B is viewed as more than a medical school; it is viewed by the community as a multidisciplinary learning centre that actively addresses rural health workforce needs. The creation of working relationships between the local healthcare services and clinicians and SRH-B staff and the faculty has helped to grow the workforce, build a culture of academia and provide academic and supervisory roles for healthcare professionals. Clinicians with teaching responsibilities have found fulfilment in their interactions with students and value the friendships that have developed through their association with the SRH-B.

This study found that in 2018, East Gippsland benefited from \$1.4 million in direct spending by students, students’ visitors, staff and the SRH-B. The induced effect of the spending increased industry outputs by \$2 million and contributed \$1 million to GRP in 2018.

Additionally, jobs for people living in the East Gippsland region were generated by government or industry through the initial direct spending.

Although previous studies have explored the economic or social impact of an RCS, this study is the first to explore both the social and economic impacts a medical school site has on its community situated in a local government area such as East Gippsland. The findings add new insights into the social, economic, cultural and human impacts that a small medical school site has on the community it is located from the perspective of its community and stakeholders. The findings complement and extend those of earlier studies exploring the impact of RCS sites, students and supervisors. This study presents social and economic impact evaluation model which can be replicated in other small rural sites across Australia to understand the regional impact of the rural clinical school program in Australia. Medical schools, such as the SRH-B, are key contributors to improving social mobility and regional development and addressing rural health workforce needs. Further, these institutions provide confidence and optimism for the future of rural and remote regions of Australia.

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Appendix A: Search Terms and Results

Ovid MEDLINE, Scopus, and Google Scholar were searched using the following keywords.

Search Results from Ovid MEDLINE

(“Rural Clinical School” or “school of rural health” or “Medical school” or “Community Based Medical Education” or “Regional medical program”).mp. [mp=title, book title, abstract, original title, name of substance word, subject heading word, floating subheading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms, population supplementary concept word, anatomy supplementary concept word]

("medical" and "students" and "experiences" and "longitudinal" and "clerkship" and "mentor" and "general practitioner" and "experiences" AND "rural").mp. [mp=title, book title, abstract, original title, name of substance word, subject heading word, floating subheading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms, population supplementary concept word, anatomy supplementary concept word]

(“Social Impact” or “Social capital” or “Social development” or “Social impact theory or “economic contribution” OR “economic impact” OR “economics” OR “health economics” AND “medicine” OR “education” OR “underserved areas”).mp. [mp=title, book title, abstract, original title, name of substance word, subject heading word, floating subheading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms, population supplementary concept word, anatomy supplementary concept word]

(“contribut*” or “outcome” or “connect” or “benefit” or “relation” or “support” or “reciprocal”).mp. [mp=title, book title, abstract, original title, name of substance word, subject heading word, floating subheading word, keyword heading word, organism

supplementary concept word, protocol supplementary concept word, rare disease

supplementary concept word, unique identifier, synonyms, population supplementary concept word, anatomy supplementary concept word]

1 and 2 and 3 and 4

("social capital" and "bonding capital" and "bridging capital" and "community").mp.

[mp=title, book title, abstract, original title, name of substance word, subject heading word, floating subheading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms, population supplementary concept word, anatomy supplementary concept word]

1 and 4

Table A1

Final Search Terms Social Impact- Ovid MEDLINE

Search	Search terms	Results
1	Rural Medical School “Rural Clinical School” or “school of rural health” or “Medical school” or “Community Based Medical Education” or “Regional medical program”	2246
2	Longitudinal Integrated Clerkships “medical” and “students” and “experiences” and “longitudinal” and “clerkship” or “community based medical education” and “mentor” and “general practitioner” and “experiences” and “rural”	2172
3	Social Impact “Social Impact” or “Social development” or “Social impact theory”	691
4	Contribution “contribute*” or “outcome” or “connect” or “benefit” or “relation” or “support” or “reciprocal”	810
5	Social Capital "social capital" and "bonding capital" and "bridging capital" and "community"	940
5	1 and 2 and 3 and 4 1 and 5	603 12

Table A2*Final Search Terms Economic Impact-Ovid MEDLINE*

Search	Search Terms	Results
1	Rural Medical School “Rural Clinical School” or “school of rural health” or “Medical school” or “Community Based Medical Education” or “Regional medical program”	2249
2	Longitudinal Integrated Clerkships “medical” and “students” and “experiences” and “longitudinal” and “clerkship” or “community based medical education” and “mentor” and “general practitioner” and “experiences” and “rural”	2182
3	Economic Impact “economic contribution” OR “economic impact” OR “economics” OR “health economics” AND “medicine” OR “education” OR “underserved areas”	1289
4	Contribution “contribute*” or “outcome” or “connect” or “benefit” or “relation” or “support” or “reciprocal”	810
5	1 and 2 and 3 and 4	257

Search Results from Scopus

(“Rural Clinical School” or “school of rural health” or “Medical school” or “Community Based Medical Education” or “Regional medical program”).mp. [mp=title, book title, abstract, original title, name of substance word, subject heading word, floating subheading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms, population supplementary concept word, anatomy supplementary concept word]

(“medical” and “students” and “experiences” and "longitudinal" and “integrated” and "clerkship" and "mentor" and "general practitioner" and "experiences" AND "rural").mp. [mp=title, book title, abstract, original title, name of substance word, subject heading word, floating subheading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms, population supplementary concept word, anatomy supplementary concept word]

(“Social Impact” or “Social development” or “Social impact theory or “economic contribution” OR “economic impact” OR “economics” OR “health economics” AND “medicine” OR “education” OR “underserved areas”).mp. [mp=title, book title, abstract, original title, name of substance word, subject heading word, floating subheading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms, population supplementary concept word, anatomy supplementary concept word]

(“social capital” and “bonding capital” and “bridging capital” and “community”).mp. [mp=title, book title, abstract, original title, name of substance word, subject heading word, floating subheading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms, population supplementary concept word, anatomy supplementary concept word]

Table A3

Final Search Terms Social Impact-Scopus

Search	Search Terms	Results
1	Rural Medical School rural AND clinical AND school OR school AND of AND rural AND health OR community AND based AND medical AND education OR regional AND medical AND program	252
2	Longitudinal Integrated Clerkships longitudinal AND integrated AND clerkships OR community AND based AND medical AND education	169
3	Social Impact social AND impact AND community AND based AND medical AND medical AND education AND rural	120
4	Social Capital "social capital" AND "bonding capital" AND "bridging capital" AND "community"	30
5	1 and 2 and 3 1 and 4	0 14

Table A4*Final Search Terms Economic Impact-Scopus*

Search	Search Terms	Results
1	Rural Medical School rural AND clinical AND school OR school AND of AND rural AND health OR community AND based AND medical AND education OR regional AND medical AND program	252
2	Longitudinal Integrated Clerkships longitudinal AND integrated AND clerkships OR community AND based AND medical AND education	169
3	Economic Impact “economic contribution” OR “economic impact” OR “economics” OR “health economics” AND “medicine” OR “education” OR “underserved areas”	13
4	1 and 2 and 3	1

Table A5*Final Search Terms-Google Scholar*

Search	Search Terms	Results
1	community based medical education OR rural clinical school	30,800
2	community based medical education OR rural clinical school AND social impact AND economic impact	17,800
3	community based medical education OR rural clinical school AND social capital	18,100
4	social capital and bonding capital and bridging capital and community	19,700
5	longitudinal Integrated Clerkships medical education AND social impact AND economic impact	9,930
6	community based medical education AND longitudinal Integrated Clerkships medical education AND social impact AND economic impact	8,400
7	community based medical education AND longitudinal integrated clerkships medical education AND social impact AND economic impact AND social capital	1,750

Appendix B: Historical Overview of the Rural Clinical School Program

In 1998, Dr Michael Woolridge, Minister of Health and Aged Care from 1996 to 2001, received evidence about the importance of rural practice and training and the influence these have on graduates' choices to undertake practice in a rural area (Clough, R. 2012. pp 35-39). Much evidence related to medical workforce outcomes. The Liberal–National Coalition government was interested in improving the workforce in rural and remote areas of Australia. Dr Jack Best, a policy advisor to Dr Woolridge, assessed practice in rural health services and the need for universities to be more involved with rural communities. He provided recommendations that provided the basis for the University Departments of Rural Health (UDRH) and Rural Clinical School (RCS) programs (Best, 2000). In 2000, the Federal Budget announced \$120 million for Australian medical schools to develop a network of 10 RCS sites to address medical workforce recruitment and retention (Brooks et al., 2001; Department of Health and Aged Care, 2023)

In 2000, the Department of Health and Aged Care initiated the RCS program to build and support a rural health workforce to address medical workforce shortages (Department of Health and Aged Care, 2023). The RCS program enabled medical students to undertake extended periods of clinical training in rural and regional areas of Australia. It was anticipated that some students would return after their degree to take up rural practice. One-quarter of students funded by the Australian Government must undertake at least a year of clinical training in a rural or regional community and participate in a variety of rural clinical experiences. Across Australia, RCS sites have established a range of immersion placements, including year-long placements referred to as longitudinal integrated clerkships, along with shorter block rotations. RCS programs aim to recruit and support local health clinicians to teach and supervise medical students, expand the range of

health services available, and increase rural student recruitment and community engagement (Department of Health and Aged Care, 2023; Greenhill et al., 2015). In November 2022, 19 university medical schools were receiving RCS funding (Department of Health and Aged Care, 2023).

The Monash University Centre for Rural Health (CRH) was established in 1992, prior to the Australian Government's announcements of funding for rural and remote workforce programs. The CRH was the first Australian multidisciplinary rural health unit and the forerunner of the Monash University School of Rural Health (2006, 2012). Dr Roger Strasser was the first Professor of Rural Health and the founding director of the CRH (Monash University School of Rural Health, 2012). Initially funded through Monash University and Latrobe Regional Hospital, the CRH provided the model for the later development of the UDRH program. At the time, the CRH was the only rural academic unit providing students, healthcare practitioners, health services, government and local communities with insight into rural health issues in Australia (Humphreys et al., 2000; Monash University Centre for Rural Health, 1997). Prior to the establishment of the CRH, Monash University medical students only undertook short-term clinical placements for three to four weeks in surgery and general practice in the Gippsland region during their final year (Monash University School of Rural Health, 2012).

A 1997 self-assessment of the CRH's educational initiatives (Monash University Centre for Rural Health, 1997) recognised its academic activities and leadership in rural education, research and training. Its educational initiatives included increased medical placements through general practice mentorship schemes, the provision of elective medical student placements, rural undergraduate placements, teacher training, postgraduate training for general practice and specialists, the establishment of rural student clubs, collaboration in multidisciplinary research projects and the development of close links with professional

organisations and health services in Victoria. Many of the health programs and services initiated by the CRH have continued in the UDRH and RCS programs. In 2001, the CRH became the Monash University Department of Rural and Indigenous Health, one of three Monash University School of Rural Health academic units located in Gippsland, Bendigo, and Mildura.

Appendix C: Ethics Approval

This administrative form
has been removed

Appendix D: Purposive Sampling Inclusion and Exclusion

Criteria for Each Participant Group

Table D1

Participants inclusion and exclusion criteria

Participants	Inclusion criteria	Exclusion criteria
Students	Students who have been involved with SRH-B programs (medical nursing, allied health and paramedicine students) Students who have used SRH-B facilities (undergraduate and graduate students from other education providers)	Students not involved with SRH-B programs or who have not utilised SRH-B facilities
Monash University staff	Monash University academic and professional staff based at SRH-B who have assisted in the delivery of SRH-B programs (e.g. medical practitioners, nurses, allied health and administration) Monash University academic and professional staff based at SRH-B who have utilised facilities (e.g. medical practitioners, nurses, allied health and administration)	Monash staff who are not based at SRH-B
Healthcare professionals	Healthcare professionals, groups and professionals who have assisted in and supported the delivery of SRH-B programs including direct supervision, and teaching (e.g. medical practitioners, nurses, allied health paramedics, bush nurses in the hospital, community health and general practice clinics) Healthcare providers, groups and professionals who have utilised SRH-B facilities (e.g. hospitals, ambulance service and subsidiary hospital support groups). These healthcare providers do not have to have an appointment with SRH-B but employed with either a General Practice, Community Health Centre or Hospital where students are undertaking placement	Healthcare providers, groups and professionals that have not assisted in the delivery of SRH-B programs. Healthcare providers, groups and professionals that have not utilised SRH-B facilities

Participants	Inclusion criteria	Exclusion criteria
Community and business partners	Community individuals and business organisations that have assisted in and supported the delivery of SRH-B programs (e.g. farmers, primary and secondary schools, veterinarians, general practice patients exposed to SRH-B students, politicians and public servants)	Community individuals and business organisations that have not supported the delivery of the SRH-B programs (e.g. farmers, primary and secondary schools, veterinarians, general practice patients exposed to SRH-B students, politicians and public servants)

Appendix E: Advertisement to Participate in Research

HEALTHCARE STUDENT

SEEKING PARTICIPANTS FOR A RESEARCH PROJECT

Attention: past and present healthcare students

Have you ever been a student (medical, nursing, allied health, paramedic, personal assistant) from any university undertaking studies at the Monash University School of Rural Health site in Bairnsdale?

Research is now being undertaken on a project titled:

‘Monash University School of Rural Health impact on the East Gippsland community’

The purpose of this study is to examine the social and economic impact the Monash University School of Rural Health—Bairnsdale site has on the East Gippsland community.

Ms Marnie Connolly would like to invite you to share your knowledge concerning your experiences and perceptions of the Monash University School of Rural Health in the East Gippsland region.

If you would like to participate in a questionnaire and interview or for more information about this project, please contact:

Chief Investigator: Ms Marnie Connolly

Ph: 51503615

Email: marnie.connolly@monash.edu

Thank you for your consideration.

Appendix F: Participant Online Questionnaire Design

Table F1

Design for Each of the Four Participant Groups and the Key Areas Explored by the Questions

Question	Key areas explored	Participant group			
		Student	Staff member	Healthcare professional	Community incl. business
What gender do you identify as?	3, 4	✓	✓	✓	✓
Which age category do you belong to?	3, 4	✓	✓	✓	✓
Are you a rural origin student (lived in a rural RA2 – RA5 location for 10 years total or 5 years consecutively)?	2, 3, 4	✓			
Are you an East Gippsland origin student?	2, 3, 4	✓			
Do or did you reside in the East Gippsland region (local shire/council area) during your placement/studies/employment/as sociation with SRH-B?	2, 3, 4	✓	✓	✓	
Have you always resided in the East Gippsland region	2, 3, 4	✓	✓	✓	✓
Please estimate how many years you have resided in the East Gippsland region (local shire/council area).	3, 4, 5	✓	✓	✓	✓
If you have not always lived in the East Gippsland region, where did you live just prior to locating to East Gippsland?					
How long have you been/were employed/associated at SRH-B? Are you still employed/associated at SRH-B?	2, 3, 4, 5		✓	✓	✓
What is your profession or association with SRH-B?	1, 2, 3, 4, 5		✓	✓	✓
What is/was your role at SRH-B? Fractional appointment? Sole employer?	3, 4, 5		✓		
Can you rate the importance and benefit you receive from being	4, 5			✓	

Question	Key areas explored	Participant group			
		Student	Staff member	Healthcare professional	Community incl. business
	1. Leadership and advocacy 2. Community engagement 3. Workforce 4. Economic impact 5. Strategic direction				
associated with SRH-B?					
To determine the economic impact, please categorise your business turnover. Estimate your business turnover arising from your association with SRH-B?	4, 5				✓
What is your business/industry?	4, 5				✓
Has your association with SRH-B given your business further opportunities – please select the opportunities and rate their significance.	4, 5				✓
Did your employment influence you to stay in the region?	3, 4, 5		✓		
Has your association with SRH-B given you opportunity to apply for grants, research opportunities, networking? Please rate the importance of these.	1, 3, 4, 5			✓	
Where did you live during your placement/studies/employment?	4, 5	✓	✓		
Are you still living in the region?	3, 4, 5		✓		
Are you single, or do you have a partner?	3, 4	✓	✓		
During your association with the Monash University site in Bairnsdale, where was your partner?	3, 4	✓	✓		
Do or did you and/or your partner have dependents living with you whilst you are or were living in East Gippsland? How many dependents were living with you? Dependent ages?	2, 3, 4	✓	✓		
If you had/have not undertaken placement/studies/employment at the Monash University site in Bairnsdale, what would have been your likely alternative place of study/residence/activity/employment?	3, 5	✓	✓		
Whilst employed at SRH-B, did you buy land, house, renovate, rent, other?	1, 4		✓		

Question	Key areas explored	Participant group			
		Student	Staff member	Healthcare professional	Community incl. business
What course are/were you enrolled in during your time at the Monash University site in Bairnsdale? What tertiary institution were you enrolled in? What year?	2, 5	✓			
If enrolled in Monash University medicine, please identify what year/s you undertook your clinical placement/studies at the Monash University site in Bairnsdale. You can select more than one option.	3, 5	✓			
When undertaking clinical placement/s, in East Gippsland, on average, how often did you stay on weekends?	2, 4	✓			
How often would you go outside the region?	2, 3, 4		✓		
Why did you stay on the weekends and please give examples for each? You can select more than one option.	2, 4	✓			
Whilst on placement, on average, how much do/did you budget to spend on consumables/rent/entertainment/recreation each week?	4	✓			
Whilst on placement, on average, how much do/did you spend on consumables/rent/entertainment/recreation each week? Estimate other expenses?	2, 4	✓			
Whilst on placement, were you involved in activities within the community? (e.g. clubs, gym, sport, church groups, mentoring)	2	✓			
Whilst on placement in East Gippsland did your family/friends visit you from outside the region? Estimate visitor days?	4	✓			
Where did your visitors stay? Ages? How did they travel to East Gippsland?	4	✓			
Can you list the activities your visitors undertook/got involved with whilst visiting you in the East Gippsland region? Estimate	2, 4	✓			

Question	Key areas explored	Participant group			
		Student	Staff member	Healthcare professional	Community incl. business
retail spending by visitors, eating out. Estimate of other expenditure.	1. Leadership and advocacy 2. Community engagement 3. Workforce 4. Economic impact 5. Strategic direction				
Have you visited the region since finishing employment? How often? Why?	2, 4		✓		
What do you believe should be the future directions of Monash University, School of Rural Health—Bairnsdale site?	3, 5	✓	✓	✓	✓
What do you think are the effects on the people of the East Gippsland region that occur because of activities or programs run by Monash University, School of Rural Health—Bairnsdale? Please comment.	1, 2, 3, 4	✓	✓	✓	✓
What is your name? Optional		✓	✓	✓	✓

Appendix G: Interview Design

Table G1

Design for Each of the Four Participant Groups and the Key Areas Explored by the Questions

Question	Key areas explored 1. Leadership and advocacy 2. Community engagement 3. Workforce 4. Economic impact 5. Strategic direction	Participant group			
		Student	Staff member	Healthcare professional	Community and business
1. Can you tell me about how and why you came to study at the SRH-B?	1, 3, 4, 5	✓	✓	✓	✓
2. What is your understanding about the role of the Rural Clinical School and its activities regarding: • education • community engagement • workforce • research • health services and health care in the East Gippsland Community?	1, 2, 3, 4, 5	✓	✓	✓	✓
3. What does it mean to you to have a University in the East Gippsland region?	1, 2, 3, 4, 5	✓	✓	✓	✓
4. What is important about this relationship, and what do you get out of being involved with the Rural Clinical School?	1, 2, 3, 4, 5	✓	✓	✓	✓
5. Can you identify any benefits of being associated with the Rural Clinical School?	1, 2, 3, 4, 5	✓	✓	✓	✓
6. Can you identify any challenges or disadvantages being associated with the Rural Clinical School?	1, 2, 3, 4, 5	✓	✓	✓	✓
7. Can you tell me about other activities the Rural Clinical School should be directing resources to regarding: • education • community engagement • workforce • research • health services and health care?	1, 2, 3, 4, 5	✓	✓	✓	✓
8. Do you think the medical students contribute to	1, 2, 3, 4, 5	✓	✓	✓	✓

Question	Key areas explored	Participant group			
		Student	Staff member	Healthcare professional	Community and business
healthcare in the region and if so, in what way?					
9. Would you like to be more involved with the Rural Clinical School and if so, how?	1, 2, 3, 4, 5	✓	✓	✓	✓
10. In what way does the School of Rural Health—Bairnsdale impact on the local economy	4	✓	✓	✓	✓
11. How much spending do you feel can be contributed to the School of Rural Health—Bairnsdale being situated in the EG region?	4	✓	✓	✓	✓
12. If you were to change anything about the Rural Clinical School, what would you change?	1, 2, 3, 4, 5	✓	✓	✓	✓
13. What do you think the Rural Clinical School does well/not so well?	1, 2, 3, 4, 5	✓	✓	✓	✓

Appendix H: Student Expenditure Economic Impact Analysis

Steps and general considerations in the analysis process

- The researcher created a quantitative questionnaire for local spending in the East Gippsland region using Qualtrics software. The questionnaire included specific questions related to spending by students and their visitors.
- The aggregated data from the online questionnaire for the student group was transferred into an Excel spreadsheet.
- The data were interrogated for accuracy using the original Qualtrics software and cleaned in preparation for analysis.
- The data were aggregated into responses and answers using Excel worksheets.
- The data were compared with Australian Bureau of Statistics data for one adult and no household member employed consumption spending.
- Defining the local government area (LGA) for the study was important because it affects the magnitude of the results. The East Gippsland LGA was chosen because this was where the students were placed, and all the interactions (expenditure and placement) occurred.
- The researcher used an input–output table for East Gippsland and national tables (covering all LGAs) created by the National Institute of Economic and Industry Research.

Student expenditure considerations and analysis process

- Student spending data for 2016 to 2018 from the questionnaires was included.
- Federally supported places and international students were identified. All fees for these students remain with the central faculty and are not distributed to the sites except as an allowance; this allowance was considered in university spending.
- The student spending was summed and averaged for each year.

- The consumer price index (Australian Bureau of Statistics, 2020) was applied to 2016 and 2017 data to obtain total expenditure effects, and the results were averaged for one year.
- Students from 2016 to 2018 completed the questionnaire, and the researcher averaged their spending, determined the number of students in each year (Years 2, 4 and 5) and the number of weeks of placement and used weekly spending to determine annual spending for 2016, 2017 and 2018, using the consumer price index to normalise to 2018 values.

Table H1

Student estimated weekly spend

Year	No of Students who answered the questionnaire	Weekly Spend from student data	Average weekly spend Total spend ÷ number of students who answered the questionnaire
2016	3 students	160, 175, 400, =	$\$735 \div 3 = \$245 \times 1.0385 = \$254$ (average spend) adjusted to 2018 CPI) 254 plus 10% = \$279 average spend adjusted for 2018 CPI plus 10%
2017	8 students	200,300,250,160, 174,250, 200,250 =	$\$1784 \div 8 = \$223 \times 1.0189 = 227$ plus 10% = \$250 average weekly spend adjusted for 2018 CPI plus 10%
2018	8 students	400, 150, 250, 200, 200, 160, 80, 300 =	$\$1740 \div 8 =$ <u>\$218 stay as is for CPI not adjusted for CPI plus 10% = \$240</u>
Year		Student weeks	Total
2016	Y5D	84 x \$245	= \$20,580
	Y4C	288 x \$245	= \$70,560
	Y2	80 x \$245	= \$19,600
			Total = \$110,740.00 x CPI 1.0385 = \$115,004.00 + 10% = \$11,500.00 = 126,504.00 (115,712)
2017	Y5D	60 x \$223	= \$13,380
	Y4C	288 x \$223	= \$64,224
	Y2	84 x \$223	= \$18,732
			Total = \$96,336 x CPI 1.0189 = \$98,157.00 + 10% = \$9816 = \$107,973.00 (110,592)
2018	Y5D	84 x \$218	= \$18,312
	Y4C	288 x \$218	= \$62,784
	Y2	80 x \$218	= \$17,440.00

			Total = \$98,536 + 10% = \$9854 = \$108,390.00 (total spend for 2018) (115,712) = \$116,000 (256 x 452 = 115,712 (116,00))
Student Weekly Spend: Calculated by adding weekly spend \$279 (inc. CPI and 10%) plus \$250 (inc. CPI and 10%) plus 240 (plus 10%) = \$769 divide by 3 years = \$256 average weekly spend adjusted to 2018 CPI and additional 10% (used the reported average weekly spend from 2016, 2017, 2018)			
Student total Spend for 2018: To get \$116,000 I used the reported estimated weekly spend from the students for 2016, 2017 and 2018, to get weekly spend but only used 2018 student numbers (did not use light or medium grey rows)			

Appendix I: Student Visitor Expenditure Economic Impact

Analysis

Steps and general considerations in the analysis process

The 2016 to 2018 student data provided information about the number of visitors, the activities undertaken, accommodation and expenditure.

Visitor and Tourism Expenditure Analysis

- An average of the number of visitors per student was taken from the quantitative questionnaire.
- From the student questionnaire, there were 213.5 visitor days from 19 students.
- Dividing 213.5 visitor days by 720 student weeks in one year gave 0.296528 average visitor days per student week.
- In 2016, there were 482 student weeks; in 2017, there were 432 student weeks; and in 2018, there were 450 student weeks. These totals were multiplied by .296528 visitor days per student week.
- In 2016, there were 143 visitor days; in 2017, there were 123.1 visitor days; and in 2018, there were 133.4 visitor days. This gave a total of 404.4 days in 3 years.
- The result was an average of **134.8 visitor nights** per year from all students in 2016 to 2018.

Expenditure In the Region

- The Australian Bureau of Statistics tourism satellite account was used to compare statistics for visitor spending.
- The visitor spending was adjusted because some visitors were expected to stay with students or friends. The visitor spending was increased by 25% based on the analysis and after discussions with Dr Peter Brain.

- The tourism satellite account for East Gippsland gave accommodation costs as \$109 per night in 2018. This figure was compared with the Australian Bureau of Statistics tourism consumption account for accommodation across Victoria, which was \$58 million in 2018. The sum was divided by number of visitors to East Gippsland (2,306,000) to give \$25.15 accommodation per person per night. The estimate was considered low when compared with the tourist satellite account. The actual accommodation costs at the time of the study were between \$80 and \$200 in Bairnsdale. The accommodation costs were doubled because few visitors stayed in student housing; this change brought housing costs to \$50.30 per visitor. This estimate was still considered low; however, after considering that some visitors stayed with students and had more money available to spend, the figure for the purchases of goods and services was increased by 50%.

Table I1

Tourism consumption for Victoria 2018-19

VICTORIA	
Tourism consumption	2018-19 \$ million
Tourism products	
Accommodation services	58.0
Actual and imputed rent on dwellings	22.6
Takeaway and restaurant meals	163.4
Taxi fares	7.3
Local area passenger transportation	7.0
Long distance passenger transportation	129.4
Motor vehicle hire and lease	11.0
Travel agency and tour operator services	62.4
Recreational, cultural and sporting services	60.2
Gambling and betting services	5.3
Shopping (including gifts and souvenirs)	120.6
Food products	50.6
Alcoholic beverages and other beverages	47.3
Motor vehicles, caravans, boats, etc	23.3
Fuel (petrol, diesel)	112.3
Repair and maintenance of motor vehicles	4.1
Education services	11.8
Other tourism goods and services	15.6
Direct tourism consumption	912

Note. Data taken from “Australian Trade and Investment Commission – Regional Tourism Satellite Account” by Australian Government 2018-19. Accessed 2020. <https://www.tra.gov.au/economic-analysis/economic-value/regional-tourism-satellite-account/regional-tourism-satellite-account>.

Table I2*Visitor spending calculations*

Accommodation: \$58 million (Victorian accommodation) divided by tourists in East Gippsland (2,306,000) = \$25.15 per person per night	$\$25.15 \text{ per person per night} \times 134.8 = \$3,257 (3,390)$ $= \$6,514 (\$6,780)$
Takeaway and restaurant meals	$\$70.85 \text{ per person per night} \times 134.8 = \$9,551$ increased by 50% = 14,327
Local area passenger transport	$\$3.00 \text{ per person per night} \times 134.8 = \$404 = + \$202 = \606
Motor vehicle hire & lease	$\$4.77 \text{ per person per night} \times 134.8 = \$643 = + \$322 = \965
Recreation, cultural & sporting	$\$26.10 \text{ per person per night} \times 134.8 = \$3,518 = + \$1,759 = \$5,277$
Food products	$\$21.94 \text{ per person per night} \times 134.8 = \$2,958 = + \$1,479 = \$4,437$
Alcoholic beverages and other beverages	$\$20.50 \text{ per person per night} \times 134.8 = \$2,763 = + \$1,385 = \$4,148$
Fuel	$\$48.70 \text{ per person per night} \times 134.8 = \$6,565 = + \$3,283 = \$9,848$
Shopping (incl. gifts and souvenirs)	$\$52.29 \text{ per person per night} \times 134.8 = \$7,049 = \$3,525 = \$10,574$
Other tourism goods	$\$6.76 \text{ per person per night} \times 134.8 = \$911 = \$456 = \$1,367$
Actual and imputed rent on dwellings	$\$9.80 \text{ per person per night} \times 134.8 = \$1,321 = + \$661 = \$1,982$
Taxi fares	$\$3.16 \text{ per person per night} \times 134.8 = \$426 = + \$213 = \639
Long distance passenger transport	$\$56.11 \text{ per person per night} \times 134.8 = \$7,564 = + \$3,782 = \$11,346$
Travel agency tour operators	$\$27.05 \text{ per person per night} \times 134.8 = \$3,646 = + \$1,823 = \$5,469$
Gambling and betting service	$\$2.30 \text{ per person per night} \times 134.8 = \$310 = + \$155 = \465
Motor vehicles, caravans, boats	$\$10.10 \text{ per person per night} \times 134.8 = \$1,361 = + \$680 = \$2,042$
Repair and maintenance of motor vehicles	$\$17.78 \text{ per person per night} \times 134.8 = \$2,397 = + \$1,199 = \$3,596$
Education services	$\$5.11 \text{ per person per night} \times 134.8 = \$689 = + \$345 = \$1,036$
	$\$84,638.00 \text{ readjusted to include } \$266 = \$84,904$

Note. The rates for student accommodation were doubled because of minimum accommodation;

students do not have shared accommodation.

- The tourist consumption rates were increased by 50% because the estimates from the survey and student tourism expenditure were considered low, and only a few visitors did not pay for accommodation.
- The estimates of direct spending were rebalanced using the Input-Output Analysis Multipliers (IAM) coefficient table and then aggregated for 86 industries. This provided a percentage of direct spending for each industry. After expenditure was attributed to each industry, the coefficients were applied to the input–output table using Type 2 multipliers to generate from the visitor spending the industry sales, gross regional product and employment generated.

Appendix J: Staff Expenditure Economic Impact Analysis

Steps and general considerations in the analysis process

- The data from the quantitative questionnaire provided little information about staff spending.
- The survey did not ask staff about their weekly expenditure.
- Australian Bureau of Statistics household consumption spending was used to estimate staff spending with consideration given to Question 28 of the online questionnaire about whether, because of their association with the School of Rural Health—Bairnsdale (SRH-B), they completed activities that included buying or constructing houses or renting property.
- Consideration was given to the number of staff employed and the number of staff who completed the survey.
- The university's financial records were used to estimate the number of staff employed and their expenditure in the region.
- Data from the university revealed that 21 staff were employed with the SRH-B in 2018. Ten permanent full-time or part-time staff contributed 3.4 full-time equivalent positions. Wages were \$360,705.00 for 2018. Casual staff (11) who worked 145.5 h for wages of \$37,539.00 in 2018; hence, total wages were \$398,244.00.
- One staff member from the Indigenous unit was not included in the staff expenditure because they did not live in East Gippsland at the time.
- This data covered all staff working at the SRH-B for the year 2018.

Table J1*Staff Expenditure Analysis*

<i>Staff Spending</i>	<i>No of Participants</i>
Staff spending:	12 participants
Bought land:	7 participants
Built a house:	8 participants
Rented a property:	4 participants
Other (bought a caravan park or house):	2 participants

- The analysis took into consideration local spending from Question 28.
- Actual shares were total wages of \$360,705.00, The total wages for staff in 2018 included permanent (\$360,705.00) and casual staff (\$37,539.00) for \$398,244.00.
- The total spending was aggregated across household consumption.
- The wages were balanced across 86 industries on the IAM coefficient table. This provided a percentage of direct spending for each industry. After expenditure was attributed to each industry, the coefficients were applied to the input–output table using Type 2 multipliers to generate from staff expenditure the industry sales, gross regional product and employment generated.

Appendix K: University Expenditure Economic Impact Analysis

Steps and general considerations in the analysis process

- The analysis considered the total funds returned to the central faculty each year; this included student accommodation and fees. The accommodation was owned by Monash University. Where accommodation was rented out by Monash University (e.g. for short-term placements), this was evident in the financial records.
- The analysis considered where expenditure by the university was allocated to the community from the financial records.
- Only 2018 financial records were available for university spending.
- The analysis considered other funds (grants, Federal and government funds) received by the community because of the university's presence.
- Consideration was given to the sums paid to the central faculty by the School of Rural Health—Bairnsdale (SRH-B), which totalled \$600,000 for central support charges (e.g. library, car parking).

Table K1*University Expenditure Analysis*

Category	Expenditure (\$)
Accommodation	14,000
Salaries	-
Cleaning (housing)	36,990
Consumables (stationary)	2,000
Bus hire and fuel	3,400
Power and water	4,000
Internet services for accommodation	7,560
Car lease	8,700
Gardening	13,000
Home maintenance	1,500
Skills lab	3,000
	94,150

Note. Accommodation costs covered local short-term accommodation for a student in Year 2.

Salaries are included in staff expenditure. Overhead costs covered by central administration are \$600,000 p.a.

- The total spending in the community for one year was \$94,150
- Other funds paid to the general practice clinic and health services from the university and the state and Federal government in 2018 are given below.

Table K2*University expenditure in East Gippsland for 2018*

Federal and state funds to SRH-B because of the presence of the university and its students	
Practice incentive payments of \$200 per session per student (Medicare)	\$358,400 (224 sessions per year × 8 students = 1,792 sessions × \$200)
Training and development grants (from the state to Bairnsdale Regional Health Service Hospital) for student placement days	\$69,967
Clinic payments from the university to the general practice clinic of \$6,250 per student per term	\$100,000
Rural academic funding from the Federal government to the hospital for supervision	\$194,139
	\$722,506

- The funds to the region due to the presence of the SRH-B were \$816,656 in 2018.
- The \$816,656 expenditure from the university's local spending and Federal and state grants received in East Gippsland were allocated to 'education' in the coefficient table because the added expenditure in the region was attributable to the presence of the SRH-B. The corresponding sum was cycled through the inputs and outputs of different industries to provide an estimate of which industries' sales were influenced, changes in employment and increases in the gross regional product.

Appendix L: Industry Division

The numbers in the tables represent the Australian Bureau of Statistics number of assignments to each of the two-digit Australian and New Zealand Standard Industrial Classification industries. The numbers are not continuous and end at 96.

Industry division title	Description and example of industry subsections
A 1–5 Agriculture, Forestry and Fishing	Agriculture, Aquaculture, Forestry and Logging, Fishing, Hunting and Trapping, Agriculture, Forestry and Fishing Support Services
B 6–10 Mining	Coal Mining, Oil and Gas Extraction, Metal Ore Mining, Non-Metallic Mineral Mining and Quarrying, Exploration and Other Mining Support Services
C 11–25 Manufacturing	Food Product Manufacturing, Beverage and Tobacco Product Manufacturing, Textile, Leather, Clothing and Footwear Manufacturing, Wood Product Manufacturing, Pulp, Paper and Converted Paper Product Manufacturing, Printing (including the Reproduction of Recorded Media), Petroleum and Coal Product Manufacturing, Basic Chemical and Chemical Product Manufacturing, Polymer Product and Rubber Product Manufacturing, Non-Metallic Mineral Product Manufacturing, Primary Metal and Metal Product Manufacturing, Fabricated Metal Product Manufacturing, Transport Equipment Manufacturing, Machinery and Equipment Manufacturing, Furniture and Other Manufacturing
D 26–29 Electricity, Gas, Water and Waste Services	Electricity Supply, Gas Supply, Water Supply, Sewerage and Drainage Services, Waste Collection, Treatment and Disposal Services
E 30–32 Construction	Building Construction, Heavy and Civil Engineering Construction, Construction Services
F 33–38 Wholesale Trade	Basic Material Wholesaling, Machinery and Equipment Wholesaling, Motor Vehicle and Motor Vehicle Parts Wholesaling, Grocery, Liquor and Tobacco Product Wholesaling, Other Goods Wholesaling, Commission-Based Wholesaling
G 39–43 Retail Trade	Motor Vehicle and Motor Vehicle Parts Retailing, Fuel Retailing, Other Store-Based Retailing, Non-Store Retailing and Retail Commission-Based Buying, Food Retailing
H 44–45 Accommodation and Food Services	Accommodation, Food and Beverage Services

Industry division title	Description and example of industry subsections
I 46–53 Transport, Postal and Warehousing	Road Transport, Rail Transport, Water Transport, Air and Space Transport, Other Transport, Postal and Courier Pick-up and Delivery Services, Transport Support Services, Warehousing and Storage Services
J 54–60 Information Media and Telecommunications	Publishing (except Internet and Music Publishing), Motion Picture and Sound Recording Activities, Broadcasting (except Internet), Internet Publishing and Broadcasting, Telecommunications Services, Internet Service Providers, Web Search Portals and Data Processing Services, Library and Other Information Services
K 62–64 Financial and Insurance Services	Finance, Insurance and Superannuation Funds, Auxiliary Financial and Insurance Services
L 66–67 Rental, Hiring and Real Estate Services	Rental and Hiring Services (except Real Estate), Property Operators and Real Estate Services
M 69–70 Professional, Scientific and Technical Services	Professional, Scientific and Technical Services (Except Computer System Design and Related Services), Computer System Design and Related Services
N 72–73 Administrative and Support Services	Administrative Services, Building Cleaning, Pest Control and Other Support Services
O 75–77 Public Administration and Safety	Public Administration, Defence, Public Order, Safety and Regulatory Services
P 80–82 Education and Training	Preschool and School Education, Tertiary Education, Adult, Community and Other Education
Q 84–87 Health Care and Social Assistance	Hospitals, Medical and Other Health Care Services, Residential Care Services, Social Assistance Services
R 89–91 Arts and Recreation Services	Heritage Activities, Creative and Performing Arts Activities, Sports and Recreation Activities
S 92–96 Other Services	Gambling Activities, Repair and Maintenance, Personal and Other Services, Private Households Employing Staff and Undifferentiated Goods

Appendix M: Household Expenditure

The expenditure series for each household type is developed from the unit record data from the Household Expenditure Survey undertaken by the Australian Bureau of Statistics (2017). From the eight household types, the most appropriate categories for the expenditure of students and staff were selected. The household type with one adult with no household member employed was selected as the most appropriate for student expenditure, whereas couple households with at least one household member employed were selected as the most appropriate household type for staff expenditure.

Different types of households are:

- i. couple households with at least one household member employed
- ii. couple households with no household members employed
- iii. households with one adult with one household member employed
- iv. households with one adult with no household member employed
- v. group households with at least one household member employed
- vi. group households with no household member employed
- vii. households with one household adult member 65 and over with at least one household member employed
- viii. households with one household adult member 65 and over with no household members employed.

Appendix N: Input-Output Worksheet with Multipliers

LGA17_ID	LGA17_Nar	IA	M_Type	Region_Type	Industry	1	2	3	4	5	
-	-	-	Sales	-	Within_LGA	-	286.1406	2.312512	38.49663	42.41036	26.71182
-	-	-	Sales	-	Within_State	-	17352.22	118.751	462.306	184.3407	1760.636
-	-	-	Sales	-	ALL_LGAs	-	80024.43	1581.624	3305.143	2208.902	7840.135
-	-	-	JTW_Emp	-	Within_LGA	-	1206.966	16.98398	140.2265	241.2822	103.094
-	-	-	JTW_Emp	-	Within_State	-	66112.87	749.0112	1936.054	1128.24	6593.694
-	-	-	JTW_Emp	-	ALL_LGAs	-	264218.5	8084.229	9295.516	7933.999	25156.74
-	-	-	Value_Add	-	Within_LGA	-	126.1901	0.834435	20.2355	20.87498	10.18365
-	-	-	Value_Add	-	Within_State	-	7652.261	42.85894	242.9899	90.73951	670.3287
-	-	-	Value_Add	-	ALL_LGAs	-	36711	673.4119	1931.714	1237.984	3115.514
-	-	-	UR_Emp	-	Within_LGA	-	1293.573	19.87946	152.4002	270.663	121.3656
-	-	-	UR_Emp	-	Within_State	-	67454.48	767.8983	1958.861	1158.55	6857.241
-	-	-	UR_Emp	-	ALL_LGAs	-	264218.4	8084.238	9295.515	7933.997	25156.74
LGA17_ID	LGA17_Nar	IA	M_Type	Region_Type	Industry	1	2	3	4	5	
22110	East_Gipps	Change_in_Sales	Sales	Type_1	Within_LGA	1	1.136782	2.26E-02	6.64E-02	3.45E-02	0.449496
22110	East_Gipps	Change_in_Sales	Sales	Type_1	Within_LGA	2	1.56E-04	1.036231	4.19E-05	1.03E-04	1.42E-04
22110	East_Gipps	Change_in_Sales	Sales	Type_1	Within_LGA	3	1.46E-03	9.93E-04	1.11731	4.12E-04	2.12E-03
22110	East_Gipps	Change_in_Sales	Sales	Type_1	Within_LGA	4	1.09E-03	2.13E-04	1.32E-04	1.007255	6.96E-04
22110	East_Gipps	Change_in_Sales	Sales	Type_1	Within_LGA	5	5.87E-02	1.29E-02	0.154065	5.75E-02	1.05664
22110	East_Gipps	Change_in_Sales	Sales	Type_1	Within_LGA	6	7.60E-04	4.51E-04	2.02E-04	4.21E-04	8.25E-04
22110	East_Gipps	Change_in_Sales	Sales	Type_1	Within_LGA	7	2.84E-03	5.34E-03	3.49E-03	2.84E-03	3.03E-03
22110	East_Gipps	Change_in_Sales	Sales	Type_1	Within_LGA	8	2.08E-03	1.97E-03	6.05E-04	2.23E-03	2.68E-03
22110	East_Gipps	Change_in_Sales	Sales	Type_1	Within_LGA	9	1.04E-03	5.29E-04	2.22E-04	5.90E-04	1.01E-03
22110	East_Gipps	Change_in_Sales	Sales	Type_1	Within_LGA	10	1.37E-03	8.74E-04	3.75E-04	7.64E-04	1.23E-03
22110	East_Gipps	Change_in_Sales	Sales	Type_1	Within_LGA	11	2.76E-02	3.83E-02	4.30E-03	1.27E-02	2.20E-02
22110	East_Gipps	Change_in_Sales	Sales	Type_1	Within_LGA	12	3.71E-04	3.56E-04	1.09E-04	2.54E-04	6.15E-04
22110	East_Gipps	Change_in_Sales	Sales	Type_1	Within_LGA	13	6.03E-04	1.23E-03	3.73E-04	1.67E-03	1.01E-03