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Appendix 1
Questionnaire used in Cairns and Townsville urban travel survey Nov'96/Feb'97.

….(Cairns or Townsville/Thuringowa)…. Urban Mobility Study

Dear resident
Knowing how much people walk, cycle, use motorbikes, drive, share rides, use buses or taxis will help planners to understand current and future urban travel. Planners are also interested in the views of residents about the way Cairns is laid out. I am conducting a survey to learn details of current urban travel, and how people think and feel about that current travel. The research also aims to learn how people think and feel about future urban travel. I hope you can make time to fill in the attached questionnaire.

Only 300 randomly selected households are being surveyed in Cairns, so that you and your household can make a meaningful contribution to planning. **If there are any difficult questions, leave them blank, and I will help with them when I come to pick up the form.**

The survey is about your household's current urban travel; how you think about that travel, and your preferred urban travel patterns. The survey is being done in collaboration with the Centre for Tropical Urban and Regional Planning (JCU Cairns), and is endorsed with interest by Queensland Transport.

Participation in this survey is **voluntary** and all information will remain **strictly confidential**. This is an anonymous survey, but the general location of your house, along with others in the survey, may be included in general maps of journey and attitude patterns.

This gives **your household** a chance to represent people like yourself,
to express your views about the way urban movement is catered for in our urban area.

Taken step by step, I hope you find the survey questions thought-provoking and interesting!

Yours

Douglas Goudie (JCU Urban Researcher, TESAG 077 814913).

This Questionnaire will be picked up from (eg letterbox) .....

On the (date) .....

Nearest intersection .....

North Queensland Resident Travel Study
James Cook University

office only **I M O** Survey # .....

Q1. *Please circle* whether you live in a:

House Unit Flat

Part A Choice of home, and current travel details

A1. Most urban travel which is not work-related is to and from home, so the first important question is why we chose to live where we do. Please write why you chose to live at your current address (rather than anywhere else), starting with the main reasons.

1. .....
2. .....
3. .....
4. .....
5. .....

A1.2 If you have not mentioned this above, where does 'closeness to shops, school or work' fit into you list of reasons for living where you currently do?

Please complete one double-sided coloured sheet for each household member over five years of age.

*Just include **the last 'working day' - either yesterday, or,** if you are filling this out on Saturday, Sunday or Monday, record all movements made **last Friday**. Please include all walking, cycling, driving, taxi, car passenger, or bus trips.*

If there is not enough space, for this or any other sections, please label and write extra information on a separate sheet.

CURRENT MOVEMENT FORM Sheet 1 - please fill out one double-sided pink sheet for each person over 5 years of age who normally lives here.

A 2. Person/ relationship with adult who undertook to complete the transport survey form, eg,

self, partner, son, daughter house mate **.....**

A2.1 Male / Fem	age **.....**	Occupation **.....** FT, PT *[circle]* , or year at school .....

A2.2 DETAILS OF ALL TRAVEL LAST FRIDAY.

Please include all walking
Indicate each return journey, (home to home), and stops along the way.

time of day **started**	**Destination-** please include (general) addresses for later mapping	**purpose** also, write in the cost if **fares** were paid, and **parking costs or problems**	**Transport used**. include walking or push-bikes	Alone, or passenger if not obvious (**A** or **P**), or other (**O**).	**distance travelled**

A2.3. Fairly regular weekly or fortnightly trips (meetings, visits, outings)

CURRENT MOVEMENT FORM - Sheet 2

A2. Person/ relationship with adult who undertook to complete the transport survey form, eg,

self, partner, son, daughter house mate **.....**

A3. Please list any occasional journeys over 100 Km made during the last year, ie annual holidays.

[If long-distance journeys of other household members were done with you, just write - "see self "]

Date.	Journey to	Transport used	Trip distance (Km)	times per year

A4.1 Do you *{other person over 18 years of age* } own a car? *[please circle one*] **yes** **no**

A4.2 Do you *{other person over 18 years of age* } drive a car? *[please circle one*] **yes** **no**

A4.3 How often do you *{other person over 18 years of age*} drive a car?
[please tick one]

[]	[]	[]	[]	[]
more than 10 times per week	5 -10 times per week	1 - 4 times per week	1 -3 times per month	rarely

Comments on how often you drive:

.....

.....

Part B - Home location and travel choices

B1. Please rate how easy it would be for you and other household members to get to each destination without a car. *[circle]*

Rating

N/A = Not Applicable 1 = very difficult, 2 = difficult,
3 = neither difficult nor easy, 4 = easy, 5 = very easy.

	Very difficult					very easy
local convenience store	N/A	1	2	3	4	5
supermarket/s/mall/ normally used	N/A	1	2	3	4	5
getting to work	N/A	1	2	3	4	5
getting to the city	N/A	1	2	3	4	5
schools	N/A	1	2	3	4	5
public transport	N/A	1	2	3	4	5
friends/ social	N/A	1	2	3	4	5
recreation facilities	N/A	1	2	3	4	5
entertainment	N/A	1	2	3	4	5

B1.1. Which three of the destinations in **B1** are the most important to you and other household members?

Most important ....., 2nd....., third.....

B1.2. Considering all aspects, please rate how easy it would be for you and other household members to manage without the use of a car.

Very difficult very easy

1	2	3	4	5

B2 What are some of the strengths and weaknesses of driving a car?

.....

.....

Community attachment.

B3. Please rate the following statements, using the scale provided.

Rating

1 = strongly agree, 2 = agree, 3 = neither agree nor disagree,

4 = disagree, 5 = strongly disagree

	strongly agree				strongly disagree
I visit my neighbours in their homes	1	2	3	4	5
I would like to move from this neighbourhood	1	2	3	4	5
I believe my neighbours would help me in an emergency	1	2	3	4	5
I regularly stop and talk with people in my neighbourhood.	1	2	3	4	5
I am similar to other people who live in this neighbourhood	1	2	3	4	5
Considering travel time and costs, I/we would like to move from this neighbourhood	1	2	3	4	5

B3.1. Comments on any of the above points*. [for this or any further question, if you have no particular answer, just place a slash through the space left for answers]*

.....

.....

B3.2. If you decided to move your place of residence because travel time or travel costs are too great, (and you could afford to) where would you move to?

I/we would move to *[town, city, or suburb].....*

B3.3. because, then .....

.....

Public transport

B4. How often do you personally use buses*? [Please circle one number]*

1. Never	2. Virtually never	3. 2-3 times/month	4. More than once per week	5. Nearly every day

B5. If you or other household members use the bus service more than once per month, please rate the following features of the bus service in Cairns, as you know it.

Rating

1 = very poor, 2 = poor, 3 = neither poor nor good, 4 = good, 5 = very good

	very poor				very good	
convenience - stops for pick up and drop-off are close to your needs	1	2	3	4	5	rank
reliability	1	2	3	4	5	
connections	1	2	3	4	5	
frequency	1	2	3	4	5	
comfort	1	2	3	4	5	
speed	1	2	3	4	5	
affordability	1	2	3	4	5	
passenger information	1	2	3	4	5	
other *[please specify] .....*	1	2	3	4	5	

/

B6. Please rank three of the above in order of importance to you (in the last column).
(1 = most important)

B7. What are some of the strengths and weaknesses of the bus service in Cairns?

.....

.....

Cycling

B8. What are some of the strengths and weaknesses of pushbike use?

.....

.....

B8.1. Would you ride your push-bike more if you could leave it safely at a bus stop?
[please circle yes or no]

Yes **No** Comments.....

Local walking

B9. What are some of the strengths and weaknesses of walking to local destinations?

.....

.....

Car ride-sharing, or car pooling

B10. What are some of the strengths and weaknesses of ride-sharing?

.....

.....

B11. (where applicable) What are some of the strengths and weaknesses of working from home one or two days per week?

.....

.....

B12. What would be some of the strengths and weaknesses of using light or heavy rail transport for urban travel in the Cairns area?

.....

.....

B13. Comments about special needs groups, such as people in wheelchairs:

.....

.....

Part C Perceptions of the people/environment interaction.

Please rate the following statements, depending on how strongly you disagree or agree with them.

Rating

DK = don't know, 1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = strongly agree.

	strongly disagree					strongly agree
Belief /Rating:	DK	1	2	3	4	5
Humans have the absolute right to dominate, acquire, use and discard natural resources.	DK	1	2	3	4	5
Ecology constrains economic growth.	DK	1	2	3	4	5
Putting people and nature at possible risk is acceptable to maximise wealth.	DK	1	2	3	4	5
There are no limits to growth.	DK	1	2	3	4	5
Present decision-making structures and institutions are satisfactory.	DK	1	2	3	4	5
Humans must live in harmony with nature in order to survive.	DK	1	2	3	4	5
Technology will overcome all obstacles to our continued well-being.	DK	1	2	3	4	5
With new fuels, we will continue using vehicles as we do at present.	DK	1	2	3	4	5
Continued abundant natural fish breeding in near-city mangroves is one useful measure of a sustainable urban environment.	DK	1	2	3	4	5
With technology, we can integrate with natural cycles.	DK	1	2	3	4	5

Part D - Perceptions, views, values and beliefs

about current and future travel

D1. Many scientists predict that reserves of petrol, diesel and natural gas will be scarce within 60 years. How long do **you** think petrol, diesel and natural gas will last?.....yrs

More detailed, 'open-ended' questions on current and future urban travel.

The future is the most interesting consideration for planning. Your thoughts, especially to this section, will be considered with great interest.

D1.2. What connection, if any, do you see between the way that suburbs are laid out and the amount of driving you have to do?

.....

.....

.....

I would now like you to write a little on: ....

D2. **your** perceptions of urban mobility now (what you think of the way we travel around at present):

.....

.....

.....

D3. how **you** value and think about your current urban travel :

.....

.....

.....

D4. your beliefs about mobility in the future:

.....

.....

.....

D5. What easy changes would definitely help you or other household members to reduce your car use?

.....

.....

.....

D6. Are there other things that you think we might use or do to **easily** reduce our use of petrol, diesel or gas (LPG)?

.....

.....

.....

.....

D7. If you knew that petrol was going to sharply increase in price, what would you do, and what sorts of changes would you like so that your household needs could continue to be met?

.....

.....

.....

.....

D8. Light rail:
Please rate the following statement: I would like to see light rail (perhaps cane-tram based) used in Cairns for public transport.

Rating *[circle one]*

1. strongly agree	2. agree	3. neither agree nor disagree	4. disagree	5. strongly disagree

Further comments on light rail (developed from question B12)

.....

.....

.....

Part E Demographics

Finally, a few questions to make statistical comparisons between households.

E1. Where were you born?.....

E2. How long have you lived in Cairns? ..... yrs.

E3. How long have you lived in this house? ..... yrs.....months.

E4. Approximate age of building..... yrs.

E5. Ownership of your house/unit/flat:: Own outright, Buying (mortgage), Rent.
[circle one answer]

E6. What is the highest level of education achieved by anyone in your household? *[circle one answer]*
School year: 8, 9, 10, 11, 12 TAFE, University *[please specify level gained]* .....

E7. How long have you been in your current employment? ..... years.

E8. Type and number of cars privately used by household members.
sedan(s) ..... (number of **cyl**inders), age ....; ..... cyl, age ....; ..... cyl, age ....,

stationwagon(s) ..... cyl, age ....; ..... cyl, age ....; ..... cyl, age ....,

ute(s) ....cyl, age .....; ..... cyl, age ..., **4x4**(s) ....cyl, age.....; ..... cyl, age .....

motor cycle(s) CC ....., ... cyl, age .....; CC ....., ... cyl, age ....

E9. Is a car provided by an employer .....

E10. Estimated total $ per week spent on (a) fuel..... (b) public transport .....
(c) parking .....

E11. Please indicate approximate annual household income *[circle one]*
($,000)

0 -15	15 -25	25-35	35-45	45 - 65	65 +

E12. Number of push-bikes owned.....

E12.2. Number of pushbikes used more than one time/wk .....

E13. Distance to nearest convenience store .....

E14. RESIDENTS summary - Please fill out details of people who normally live here.

resident:	1	2	3	4	5
sex					
age					
occupation					

Thank you very much for your patience. With your input, the outcomes of this survey may benefit the future of our urban environment. Douglas Goudie, c/o JCU, 070 421218.

Appendix 2
Hand written notes left to prompt completion or acknowledge receipt of survey.

Appendix 3

Outcomes of pilot study

Results of Cairns pilot study conducted 1 - 4 June 1996

Thirty pilot questionnaires were distributed to every third household, 10 each from the geographic centre of three collector districts. Each selected collector district was randomly chosen from a stratified zoning of the Cairns population area into inner, middle and outer suburbs. This study was undertaken to strengthen the instrument submitted for confirmation of doctoral candidature.

There was an 85% response rate across the three zones, higher than expected (Buckner 1988). There were four refusals from all households approached, about 85% acceptance. One in seven respondents had problems with QA6. The written sections of section D were left by one in five, but the 80% response rate to section D provides the material for multiple choice answers in the main instrument (See Appendix 1).

Otherwise, people willingly (and sometimes painstakingly) spent the half to three quarters of an hour needed to fill out the forms, often involving other household members. I assisted four people from non-English speaking backgrounds with the survey. Three lived in the inner zone, and one household in the outer zone. What follows is a record of written responses. Aiming to improve the ease of completion for the respondent, and streamlining or deleting some questions, notably QA6 and some of the D section. Some early results indicate strong support for rail and carpark links, and clear support to develop cane-tram based lightrail systems.

Question A1 Outer suburb sample (cd 2061403, 3011603):

ranked reasons for chosen home location

1	2	3	4
Price was right	liked the location	close to beach	only 15 minute drive to work
liked the house	quiet area	not far from sea	distance no problem
I like the area	got this house at separation	close to Smithfield	-
close to school and school bus	quiet area	close to shopping	near ballet school
proximity to school/services	proximity to shopping	proximity to city	-
close to family	not too close to work	close to beach	nice area
nice environment	close to beach	away from city problems	cost of housing compared to other areas
OTHER	closeness to shops; - ; - ; close to friends; - ; low crime; close to amenities/		

Question A1 Middle suburb sample ranked reasons for chosen home location

1	2	3	4
Quality of suburb	availability of suitable-sized building blocks	access to services	- ;
good area for kids	safe	close to mountains and bush	quiet
Reasonable rent	children near grandparents	near Freshwater	distances to usual destinations not great
Reasonable rent	quiet roads	not on reclaimed swamp	fairly good bus service
Transferred with navy	-	-	-
area and surrounding houses well kept	backs on to a council easement (no back neighbours)	reasonably close to town	-
backs onto park land	quiet location	desired distance from work and facilities	-
low rent	easy lease arrangement	large yard for dog	nicer than city living
Quiet	reasonable rent	-	-
OTHER:			
	lots of trees		
	close to shops		

Question A1 Inner suburb sample ranked reasons for chosen home location

1	2	3	4
Lifestyle	close to shops, schools and theatre	close to beaches	-
close to city centre	away from tourists	faces north	good view of trees
close to town	reasonable price	close to work	-
Location	price	backyard	size of building (not density housing)
easy access to town	easy access to work	-	-
like house	can buy and extend later	close to school	close to town
close to all conveniences	work	city	chemist, doctor, (shops)
house was available and affordable	late wife liked it	-	-
close to town	close to work	the house	-
OTHER:	quiet; physical properties of flat; handy to shops; stable neighbourhood;		

A1.2 Two respondents from the middle suburb sample said that 'closeness to shops, school or work' did not have any effect on choice of home location.

B1 First given reason for choice of home location ranking of importance

	outer	middle	inner	total
Price	1	1,1, 1	1	5
liked house	1	1	1,	3
liked area	1, 1	1, 1, 1,1	1,	7
close to school and school bus	1			1
close to family	1			1
close to city centre			1, 1, 1, 1, 1,1	6

Table A5 Pilot issues of public importance in urban travel

LEVEL **A**	LEVEL **B**	Applicable modes [1. Note values of '+ and -" below]				
		Car	Bus	Bike	Walk	Ride share
Safety	Poor drivers	--	-	---	-	
	Road trauma			---	-	
	Assault			-	---	
Convenience	Speed	++++	--	-	-	
	Independence	+++	--	++	+	---
	Efficient	++	--	+	+	+
	Freedom	+++	-	++	++	--
	Reliable	++	--	++		-
	Lack of information.		--			
	Congestion	-				+
	Parking	-				
Cost		---	+	+	+	+

Weather	Heat			--	---	
	Rain			-	-	
Carry loads		++++	-	--	--	
	Shopping	+		-	-	
	People	++		-	-	
	Other	+	-	-	-	
Health		-		+++	++	
	Pollution	-		++	++	+
	Energy	--		++	++	

Note 1. A value of "+" shows that a significant number of respondents wrote that the issue under consideration of a particular travel mode was seen as an asset to that mode, and conversely for a "-".

Note 2. The above table draws only on two Collector Districts.

Note 3. The above levels of importance for urban travel issues were drawn from survey responses, and do not necessarily represent the author's priority, nor that reported in the literature.

A6. Please rate the importance of the following features of your /{others} main travel.

Rating scale

N/A = not applicable, 1 = very unimportant, 2 = unimportant,
3 = neither important nor unimportant, 4 = important, 5 = very important.

Outer very unimportant Very important

RATING VALUE	N/A	1	2	3	4	5
time taken	1					
Cost	1					
Comfort					1	
ease of use					1	
Reliability						1
temperature when travelling (Summer) (Winter)					1 1	
keeping fit					1	
traffic congestion					1	
getting to work	1					
Safety					1	
other						

B5. Please rate the following features of the **bus service in Cairns, as you know it**.

very poor very good

Outer	1	2	3	4	5	rank
convenience - stops for pick up and drop-off are close to your needs			1			4
reliability			1			1
connections			1			3
frequency			1			5
comfort			1			7
speed			1			8
affordability			1			2
passenger information			1			6
other *[please specify]*			1			

Part C Perceptions of the people/environment interaction.
Please rate the following statements, depending on how strongly you disagree or agree with them.

	strongly disagree					strongly agree
Outer Belief /Rating:	DK	1	2	3	4	5
Humans have the absolute right to dominate, acquire, use and discard natural resources.			1			
Ecology constrains economic growth.	1					
Putting people and nature at possible risk is acceptable to maximise wealth.			1			
There are no limits to growth.				1		
Present decision-making structures and institutions are satisfactory.					1	
Humans must live in harmony with nature in order to survive.					1	
Technology will overcome all obstacles to our continued well-being.			1			
With new fuels, we will continue using vehicles as we do at present.			1			
Continued abundant natural fish breeding in Trinity Inlet is one useful measure of a sustainable Cairns environment.					1	
With technology, we can integrate with natural cycles.					1	

Section D

zone/ question	**D1 - years**	**D1.2 - connection between urban travel and design**
outer	40, 50, DK, 100, DK, 40, 60/	lack of transport; nothing is perfect, I like the space; - ; eg Kewarra Beach and trinity Beach - no through road means that I drive further to go to the school, laundromat and post office than I would if the road was connected through. I do these things to or from work or ballet lessons.; ease of travel, services; There is no connection, the planners of (towns eg) don't think about the time of driving it takes, just how many buildings they can fit in and how much money they'll make. -/
middle	30; ? ; 50; 20; - ; 50; 50; 10; DK/	Cairns is largely linear and I currently work south-side of the city.; Effective and safe vehicle movement is vital. ; need bus, rail or tram as part of the urban design; - ; - ; I feel that there is a distinct lack of main arterial roads in the Cairns area.; no connection ; More congested due to increased population around suburbs.; great deal. We are moved into the suburbs before public transport is provided. Only when population increases is public transport provided. Unfortunately by then the car has been entrenched as the prime form of transport - thus we drive nearly twice as much as necessary. However, Canberra is an exception, as much thought and care is given to this in the ACT. ; - ; - ;
inner	- ; - ; DK; 20; - ; indefinitely	very well designed; like the parallel roads in Cairns; suburbs laid out all right - I can drive where I want.; Important to have basic amenities. That does not mean shopping malls in every suburb.; -

	; 100; 100 ; 45/	; I do a lot of driving, but there is a need for more signs so that people don't get lost.; Town planning has to be a priority. ; creeks, gullies, cliffs etc., prevent laying out streets in squares; -/

	D2 Perceptions of current mobility
Outer	okay; happy; love a road from here [Kewarra Beach] to Trinity (good to link). There is a reserve.; Definitely think more people should car pool. It is important to me to be able to use my car whenever I want or need to. I enjoy watching my children in school activities or helping on the canteen, and the flexibility of my own vehicle gives security.; Apart from the time factor/pollution and cost, my urban mobility suites my circumstances. OK; -, - : - /
middle	Moderate, easy at the moment except for constant road work. Limited road network and often single-route access; I would like to see greater development and use of solar/electric vehicles for commuter use. We burn too much fossil fuel just travelling short distances.; Hard for every family to have two cars; Too many cars, trucks, buses. The air in Cairns city is smelly these days, because of vehicle engine fumes.; - ; satisfied; presently OK generally. City parking is a problem. ; Basically, we are all on the roads around the same time (work): (7:30 - 8:00 am) and (4:00 - 5:00 PM) so roads are congested - takes longer. ; We (Australians) rely far too heavily on personal transport: that is, we tend to use cars too much for too few (usually only the driver)/
inner (D2)	Some road surface very poor, otherwise OK; happy; happy; Far too reliant on cars/car parking - problem with public perception of "having to catch a bus", safety considerations with public transport and night-time use (worry for women and personal safety).; - ; Dangerous for elderly - need more pedestrian crossings. There should be hold rails at intersections for the elderly.; Too much reliance on the car.; Ordinary courtesy - giving way - would help us all to move about more easily. ; public transport is limited at certain times of the day/

	D 3 - values and thoughts on current mobility
Outer	OK; happy; - ; it is important to me to be able to use my car whenever I want or need to. I enjoy watching my children in school activities or helping on canteen and the flexibility of my own vehicle gives security. ; OK ; - ; - /
middle	Would like to reduce this by changing work pattern.; Most is done out of necessity, ie work/school.; - ; - ; - ; satisfied; currently no problems. I think at present it's OK compared to Sydney/Brisbane etc. Our roads are improving. ; I don't give it much thought except when I move (on average every twelve months) due to work./
inner	- ; - ; happy ; Easy - very rarely travel at night except by car.; - ; fine, good to get in the car, don't have to pay bus fares, and can travel wherever you like.; Getting increasingly difficult due to traffic build-up. ; Except at peak hour, travel is pleasant.; -/

	D4 - future mobility
Outer	okay; monorail along the coast, Ellis Beach into town; Have a transit station on

	the Trinity side of the road to catch a train into town.; Believe more people will continue using bicycles as improvements are made to highways to accommodate bikes.; Streamlined monorail system!!!; Better be faster, easier and cheaper.; - /
middle	Mobility may become more difficult unless the current usage of vehicles alters. Road systems in Cairns are improving to cope with future requirements.; Will have to be more public transport in the future.; I think we need to utilise our railway lines, bring back the Motor rail, and clean up the air, keep private vehicles out of town. More push bikes. ; - ; Perhaps a rail system could be utilised using existing cane tracks to ferry people in to town.; electric cars; More public transport (not buses) will be needed, (perhaps tram or train) ; I wonder what fuels are going to be invented or if we are doing enough to research/fund or investigate enviro friendly fuels/transport./
inner	- ; similar to the present; much the same ; I can't see it changing until personal safety is more assured - I would not walk with my family at night. ; - ; Flood-proof monorail to northern beaches.; Down the same reliable path (lights, overpasses, underpasses etc.); Would be improved with better public transport.; alternative transportation will be available (new innovations etc)/

Zone/ question	**D 5 easy reduction changes**
Outer	public transport availability; none; Much better connecting service may make P/T a little more attractive; - ; -; Move closer, use bikes (but that is not convenient, which is what today is apparently all about); - /
Middle	Don't know. No easy changes currently available.; Better school bus service to our area. ; More public transport.; - ; - ; none ; car pooling and more information regarding bus services (perhaps letter drop). ; cheaper public transport/ more info on timetables/more shelters at stops, and a run to work./
Inner	- ; - ; don't use much; increase petrol and rego and insurance fees - but please don't. ; - ; - ; use public transport; better household deliveries.; - /

Zone/ question	**D6 - More reductions**
Outer	solar powered vehicles, electric cars, electric trains and trams; - ; Trains connected to big car parks, and need good connections in town; Use trains more for freight purposes to reduce truck use; use own bikes more often; - ; - /
Middle	Biomass fuels. Solar.; use more solar/electric.; - ; use the railways, we used to have a motor rail, now we have traffic jams and air pollution.; - ; - ; electric cars ; not "easily" (solar power etc.) ; I am saving to convert my V8 engine to LPG, however, as a Ford enthusiast, I doubt it could run with the same (emotional) sound on alternate fuels./
Inner	- ; - ; people have to use cars;- ; - ; push-bikes; LPG short-term, electric cars long term; Public transport and better household deliveries.; battery powered cars or other forms of fuel./

Zone/ question	**D7 - petrol rises**
Outer	Hope there would be more bus routes; go by bus; Still have to go to work, might travel less for sport; consider converting one car to LPG; Less use of private car, more use of public transport; - ; -/
Middle	Nil. Currently very little use of vehicles for purely recreation. We have already

	made changes to minimise car usage.; Buy an electric car for running around town. ; More public transport, otherwise, too much financial pressure on families, and family outings would be curtailed.; More bike tracks or, USE THE EXISTING RAILWAY LINES - PLEASE. ; - ; - ; none ; - ; Probably speed the conversion of V8s to LPG, and encourage my spouse to sell her car or get a job!, and see that a bus run was introduced for work./
Inner	Would strongly object to a fuel increase; I would make no change; don't care - don't use much, don't care what price, I still have to get around,; Limit the use of the car as much as possible - we use it now only when necessary.; - ; Would just use the car to go to shops once per week,; motor bike, push -bike, less unnecessary travel.; better public transport; walk and ride a bike./

Zone/ question	**D8 - Light rail - rating (1 = strongly agree)**	**Light rail comments**
Outer	1, 2, 2, 2, 2, - ; 1/	Convert trams to electric power, fun for kids; might be good; - ; - ; use the existing easements, but convert to suspended monorail.; - ; -/
Middle	2, 4, 1 , 1 , 2 , 3 , 1, 1 (heavily circled)/	- ; May interfere with that other enjoyable amenity - peace and quiet.; - ; yes yes yes; - ; already suggested this in response to QD4.; impractical. ; direct routes ; more comfortable and reliable than buses) ; Used trams/trains when we lived in Melbourne - more reliable than buses and uses existing infrastructure without placing stress on roads or traffic conditions./
Inner	1, 2 , 4 , 1 ; - ; 4 ; 1 ; 1 ; 1/	- ; - ; - ; If it will reduce pollution and use of fossil fuels - and if it was effective ie. people used it.; - ; Put train back. Queensland Rail from Mareeba to Tully. ; rail is the answer; Would need separate pathways if on roadways, push-bike wheels fit in the grooves for the wheel flanges, which is dangerous.; In Melbourne the system is great, fast, efficient, inexpensive and not polluting./

Appendix 4
North Queensland travel variables and codes
including
4 b Generalised North Queensland travel variables and codes for multiple written responses (page A
4 c North Queensland travel diary details variables and codes (page A

In sequence of questionnaire

CITY City
1 Cairns 2 Townsville

ZONE zone
1 central 2 middle 3 edge

CD Collector district
1 Nth. Cairns
2 Central Cairns
3 Paramatta Park
4 Brindsmead Glen
5 Mooroobool
6 Earlville
7 Kewarra Beach
8 Yorkeys Knob
9 Edmonton

SUBURB suburb
1 Nth. Cairns
2 Central Cairns
3 Paramatta Park
4 Brindsmead Glen
5 Mooroobool
6 Earlville
7 Kewarra Beach
8 Yorkeys Knob
9 Edmonton
11 Upper Nth Ward
12 Lower Nth Ward
13 Sth T/ville
14 Kirwan
15 Heatley
16 Garbutt
17 Balgal Beach
18 Rupertswood
19 Kelso

HHID Household identification number

HUF House, unit or flat.
1 house 2 unit 3 flat

ANSCHOI Answered section on choice of location
1 yes 2 no

HMCHS1 Home location choice - first reason

1	close to city	17	quality of suburb
2	close to shops	18	good land avail.
3	close to school	19	safe
4	close to work	20	good for kids
5	like residence	21	mount.s/bush
6	low rent	22	good resale
7	close to beach	23	parkland
8	price	24	like area
9	quiet	25	close to bus
10	like yard	26	near day care
11	urban village	27	medical care
11	close to most destinations	28	club oriented
12	close to friends/family	29	flood free
13	sea breezes	30	good views
14	employer provided	31	privacy
15	other	32	near sports
16	good transport network	33	large block

HMCHS2 - 5 **Coded as above**

RESPAGE Respondent's age

R_AGE_GP Age group of respondent (years)

1	0-9	6	50-59
2	10-19	7	60-69
3	20-29	8	70-79
4	30-39	9	80+
5	40-49		

SEX Gender of respondent

1 male 2 female

AVDTRIPS Average daily trips made by householders

AVJOURN Average number of annual trips made by householders

OWNCAR Do you own a car

1 yes 2 no

DRIVECAR Do you drive a car?

1 yes 2 no

FREQ_DVE drives taken per week

1 more than 10x per week
2 5-10 x per week
3 1 - 4 x per week
4 1 - 3 x per month
5 rarely
6 never

ANSEASE Answered section on ease of travel without a car

1 yes 2 no

ESHOP Ease of travel to local shop without a car

0 not relevant
1 very difficult
2 difficult
3 neither
4 easy
5 very easy

Coded as above

EMALL Ease of travel to shopping mall without a car.
EWORK Ease of travel to work without a car
ECITY Ease of travel to the city without a car
ESCHOOL Ease of travel to school without a
EPUBPTP Ease of travel to public transport without a
EFRIENDS Ease of travel to visit friends without a car
EREC Ease of travel to recreation without a car
EENT Ease of travel to entertainment without a car

DEST1 Most important household travel destination

1 local shop
2 supermarket
3 work
4 city
5 school
6 public transport
7 friends/social
8 recreation
9 entertainment

Coded as above

DEST2 + 3 Second and third most important household travel destinations

CARLESS Ease of travel without a car

1 very difficult
2 difficult
3 neither
4 easy
5 very easy

PER_CAR1 Perceptions of car use 1 [**code used for all modes**]

-14.81	inflexible (used for rail)	-1.20	fear assault
-8.20	v. car dependent	-1.10	fear poor drivers
-8.10	do not like	-1.00	dangerous
-7.90	more cars	1.00	safe
-7.70	not possible	1.10	drivers good
-7.60	not 24 hr. service	1.20	don't fear assult
-7.50	too far	1.31	safer at night
-7.40	getting worse	2.00	convenience
-7.30	not catered for	2.10	independence
-7.20	wastes energy	2.11	freedom
-7.11	noisy	2.12	relaxing
-7.10	polluting	2.20	reliable
-7.00	other	2.30	speedy
-6.30	cannot carry kids	2.40	efficient
-6.00	cannot carry loads	2.41	comfortable
-5.3	hilly	2.42	support/good
-5.20	deterred by rain	2.43	frequent
-5.10	deterred by heat	2.50	smooth route
-5.00	weather deters	2.53	plenty of paths
-4.50	poor access	2.55	widen roads
-4.30	isolating	2.60	easier parking
-4.00	makes you lazy	2.70	reduces congestion
-3.50	don't need	2.81	use cane tracks
-3.40	high built costs	2.90	helps cross travel
-3.30	high rego costs	3.00	cheap
-3.20	high repair costs	3.20	low repair costs
-3.10	high petrol cost	3.50	need
-3.00	high cost	4.00	exercise/healthy
-2.90	ignores cross travel	4.10	relaxing
-2.80	lack of information	4.20	enjoyable
-2.70	causes congestion	4.30	people contact
-2.60	parking problems	4.40	nice environment
-2.54	obstructs traffic	4.50	good access
-2.53	lacks paths	4.60	privacy
-2.52	lacks bike lanes	5.00	weather proof
-2.51	rough terrain	5.20	protects from rain
-2.50	obstacles/congestion	6.00	can carry loads
-2.43	infrequent	6.10	carries shopping
-2.42	don't support	6.20	carries people
-2.40	inefficient	6.30	carries kids
-2.30	too slow	7.00	other
-2.20	unreliable	7.10	reduces/no pollution
-2.12	stressful	7.20	energy conservating
-2.10	dependent	7.30	taxis
-2.00	inconvenient	7.40	getting better
-1.50	don't like helments	7.60	24 hr. service
-1.40	theft	7.90	less cars
-1.31	danger at night	8.11	good
-1.30	dislike dogs	12.70	more shelters

Coded as above

PER_CAR2 - 4 Perceptions of car use 2 - 4

ANSNGH Answer questions on neighbourhood

1 yes 2 no

NGHVISIT Home visits to neighbours

1 strongly agree
2 agree
3 neither
4 disagree
5 strongly disagree

Coded as above

NGHMOVE Would like to move from this neighbourhood

NGHELP Beleive neighbours would help in emergency

NGHTALK Regularly talk with

NGHSIMIL I am similiar to my neighbours

NGHTRVTM Would like to move to reduce travel

NGHCOMM Comments on neighbourhood attachment

MOVETO Would move to *Space for written comments*

MOVEBEC We would move from our current address because:
Space for written comments

BUSUSE Frequency of personal bus use

1 never
2 virtually never
3 2-3 x per month
4 weekly or more
5 nearly every day

ANSBUS Answered bus use section. (Only people who use buses more th

1 yes 2 no

BCON Convenience of

1 very poor
2 poor
3 neutral
4 good
5 very good

Coded as above

BREL Reliability of buses

BCONN Connections for linked bus journeys

BFREQ Frequency of buses

BCOMF Comfort of buses

BSPEED Speed of buses from pick up to destination

BAFFORD Affordability of bus

BINFO Passenger information for buses

BOTHER Other issues of bus use *Space for written comments*

BRANK1 First ranked importance in bus use

1 convenience
2 reliability
3 connections
4 frequency
5 comfort
6 speed
7 affordability
8 passenger information
10 other

Coded as above
BRANK2 + 3 Second and third ranked importance in bus use

Coded as above for perceptions of cars (same for all modes)
PER_BUS1- 3 Perceptions of bus use
PER_CYC1 - 4 Perceptions of cycle use

CYCLESEC Would you use your pushbike more if it could be securely
1 yes 2 no
SWCYCOM Strengths an weaknesses of safely 'parking' a push bike
Space for written comments

Coded as above for perceptions of cars (same for all modes)
PER_WLK Perceptions of walking_1 - 4
PER_RID Perceptions of ride sharing_1 - 3
PER_WFH Perceptions of working from home_1 – 3
PER_RAI Perceptions of rail use 1 – 4

COMSPNDS Comments on special needs groups - ie wheelchair bound.
Space for written comments

ANSNV Answered section on environmental
1 yes 2 no
NVLINE Environmental beliefs - supports the linear industrial model
0 no opinion
1 strongly disagree
2 disagree
3 neither
4 agree
5 strongly agree

Coded as above
NVECOCON Environmental beliefs - ecology constrains economic growth
NVRSKPRO Environmental beliefs - impact risks are acceptable to maximise wealth
NVLIMLES Environmental beliefs - there are no limits to
NVSTRS Environmental beliefs - existing decision-making
NVHARMY Environmental beliefs - harmony with nature is needed for survival
NVTECFIX Environmental beliefs - technology will provide for our continued
NVNEWFU Environmental beliefs - new fuels will support unconstrained vehicle
NVFISH Environmental beliefs - natural fish breeding indicates envtl well being
NVTECINT Environmental beliefs - with technology, we can integrate with natural

PETLAST How long do you think petroleum will last

ANSTB Answered questions on travel beliefs
1 yes 2 no

TBSUBS_1 Travel beliefs - connection between urban design and car

Used for all travel belief responses

-14.81	inflexible
-8.8	wasteful
-8.60	too many cars
-8.50	strip dev. congests
-8.30	'peak' problem
-8.22	lack social infrastr.
-8.21	urban sprawl
-8.20	v.car dependent
-8.10	do not like
-8.00	current travel
-7.20	wastes energy
-7.10	polluting
-4.00	makes you lazy
-3.00	high cost
-2.70	causes congestion
-2.30	too slow
-1.10	fear poor drivers
-1.00	make safe
1.10	drivers good
2.00	convenient
3.00	cheaper
2.70	reduces congestion
8.10	acceptable
8.11	good
8.40	more roads
8.70	topography limits
9.00	none
9.10	don't use much
10.00	planning changes
10.10	improve flow
10.11	more night light
10.20	park and shuttle
10.30	urban rail
10.40	more paths
10.50	improve paths
10.60	'urban villages'
10.70	mixed housing
10.71	more corner stores
10.80	more cross town
11.10	increase car costs
11.11	increased parking costs
11.20	more home dels.
12.00	better pub t/port
12.10	more pub/tport.
12.20	better bus info.
12.30	connecting pub/tport.
12.40	better sch. buses
12.50	attractive pub/tport.
12.60	cheaper pub/tport.
12.70	more bus shelters
12.80	cheaper taxis
13.00	Tech/fuel changes
13.10	R+D alt. fuels
13.20	efficient engines
13.21	use m.bikes/scooters
13.30	electric cars
13.40	solar cars
13.41	solar electric
13.50	biomass
13.60	smaller, weaker cars
13.61	motor bikes/scooters
13.70	lpg
13.80	fuel cells
13.90	ban big cars
14.00	behaviour changes
14.10	no change
14.20	reduce need
14.21	plan trips
14.30	ride share
14.40	walk/more
14.41	cycle/more
14.42	run
14.50	home work
14.60	educate
14.70	move
14.71	move closer
14.80	flexible start times

Coded as above

TBSUBS2 + 3 Travel beliefs - connection between urban design and car
TBMONOW1 – 3 Travel beliefs - perceptions of urban mobility now
TBVALCU1 - 3 Travel beliefs - value placed on own urban travel
TBFUTMO1 – 3 Travel beliefs about future urban mobility
TBESCH1 - 4 Travel beliefs - easy changes to reduce car use
TBINCPC1 +2 Travel beliefs - changes if there was a sharp increase in

SUPLRAIL Support for use of light
1 strongly agree
2 agree
3 neutral
4 disagree
5 strongly disagree

Coded as above for perceptions of cars
PER_RAI4 Perceptions of rail use

POFBTH Place of birth *Space for written answer*
POFBTH2 General place of birth
1 Cairns/Cairns region
2 Queensland
3 Australasia
4 outside Australasia
5 T/ville - region
YRSCITY Years lived in current
GRP_YRCI Grouped years lived in current city

1	0-1	5	11-20
2	2-4	6	21-30
3	5-7	7	31-40
4	8-10	8	41+

YSRHOUSE Years lived in current home
GP_YRHOU Grouped years lived in current home (years)
Coded the same as grouped years in current city (above)
BLDAGE Approximate age of building
GP_BI_AG Grouped age of residence (years)
Coded the same as grouped years in current city (above)
OWN Ownership status of residence
1 own outright 2 mortgage 3 renting
ED Highest education level of anyone in household
Years secondary school, then
13 TAFE
14 University degree
15 higher degree
YRWORK years working in current employment (years)
GP_Y_WRK Grouped years in current employment (years)
Coded the same as grouped years in current city (above)
TOTVEH Total number of vehicles privately used by householders
VEH1 - 3 [Type]

1	car	5	4 X 4
2	stationwagon	6	van
3	utility	7	light truck
4	motor cycle		

AGEVEH1- 3 Age of first designated household vehicle - 3rd
NOCYL1 - 3 number of cylinders in first – 3rd. designated

CAREMP Vehicle provided by employer
1 yes 2 no
FUELCOST Approximate fuel costs per week ($)
PTPCOST Approximate public transport costs per week ($)
PARKCOST Approximate parking costs per week ($)
HHINC Approximate annual household income ($,000)
1 0 - 15
2 15 - 25
3 25 - 35
4 35 - 45
5 45 - 65
6 65 +
PBOWN Number of push bikes owned
PBUSED Number of push bikes used more than once per week
NORES Number of residents
DISHOP Distance to nearest convenience store (Km)
SEXR1 - 5 Gender of resident 1 – 5
1 male 2 female
AGE_R1 - 5 Age of resident 1 - 5
OCC_R1 - 5 Occupation of resident 1 - 5

1	Manager/admin.	9	Labourer
2	Professionals	12	Home duties
3	Assoc. professionals.	14	Unemployed
4	Tradespersons	16	School
5	Advanced clerk	17	Uni. student
6	Clerk	18	Preschool
7	Prod. +T/port workers	19	Retired/pen.
8	Basic clerk		

204 variables.

Appendix 4b

Generalised North Queensland travel variables and codes for multiple written responses

SYSFILE INFO: D:\0 0 QTzip disc\SPSS data\NQ\0 3 NQ combo m.sav
N of Cases: 2448
Total # of Defined Variable Elements: 24
# of Named Variables: 24

From the many codes shown in Appendix 4a, those with open-ended and multiple answers have been collapsed into their nearest equivalent, guided by gravitation into the more frequent responses. For example, '8 good price' includes '6 low rent' and '14 provided', and '22 good resale' For practicioners, this is easily achieved through SPSS: transform, recode, into same variable, and follow instructions.

GP_HMCHS Grouped home location choices

1	close to city	8	good price
2	close to shops	11	near local needs
3	close to school	12	social links
4	close to work	13	natural features
5	like property	17	like suburb

Generalised codes for modes

-7.70	not possible	-2.10	dependent
-7.50	too far	-2.00	inconvenient
-7.40	getting worse	-1.00	dangerous
-7.10	wastes energy	2.00	convenience
-7.11	noisy	2.10	independence
-7.10	polluting	2.12	relaxing
-6.00	cannot carry loads	2.20	reliable
-5.00	weather deters	2.40	efficient
-4.30	isolating	2.42	support/good
-4.00	makes you lazy	2.53	plenty of paths
-3.00	high cost	2.60	easier parking
-2.80	lack of information	2.70	reduces congestion
-2.70	causes congestion	3.00	cheap
-2.60	parking problems	4.00	exercise/healthy
-2.53	lacks paths	4.20	enjoyable
-2.42	don't support	5.00	weather proof
-2.40	inefficient	6.00	can carry loads
-2.20	unreliable	7.10	reduces/no pollution
-2.12	stressful	7.40	getting better

Generalised coding used for all planning and unban perceptions

-8.60	too many cars	9.00	none
-8.20	cars = urban sprawl	10.00	planning changes
-7.20	wastes energy	10.30	urban rail
-7.10	polluting	11.10	increase car costs
-3.00	high cost	12.00	better pub t/port
-2.70	causes congestion	13.00	Tech/fuel changes
-2.53	lacks paths	13.40	solar cars
-2.42	do not support	14.00	behaviour changes
-1.00	make safe	14.71	move closer
2.42	support		
2.70	reduces congestion		

T_VEHIC Total types of vehicles used

1.0	car	5.0	4X4
2.0	stationwagon	6.0	van
3.0	utility	7.0	light truck
4.0	motor cycle		

T_AGEVEH Total age of household vehicle(s)

T_NOCYL Total number of cylinders in vehicle(s)

T_SEX Total sample gender mix

1 male 2 female

T_RESAGE Age of sample residents

T_AGE_GP Total age groups surveyed

1.00	1-10	6.00	51-60
2.00	11-20	7.00	61-70
3.00	21-30	8.00	71-80
4.00	31-40	9.00	81-90
5.00	41-50	10.00	91+

T_OCCUPA Total occupation sample residents

1	Manager/admin.	9	Labourer
2	Professionals	12	Home duties
3	Assoc. professionals.	14	Unemployed
4	Tradespersons	16	School
5	Advanced clerks	17	Uni. student
6	Clerk	18	Preschool
7	Prod. +T/port workers	19	Retired/pen.
8	Basic clerk		

Appendix 4c

North Queensland travel diary details variables and codes

N of Cases: 3500

TRIPID trip identification #

CD Collector district

1	Nth. Cairns	11	inner Nth Ward
2	Central Cairns	12	outer Nth Ward
3	Paramatta Park	13	Sth T/ville
4	Brindsmead Glen	14	Kirwan
5	Mooroobool	15	Heatley
6	Earlville	16	Garbutt
7	Kewarra Beach	17	Balgal Beach
8	Yorkeys Knob	18	Rupertswood
9	Edmonton	19	Kelso/Condon

ZONE Urban zone

1 central
2 middle
3 outer

HHID Household identification number

RESID Resident identification #

GENDER gender

1 male 2 female

AGE_GPS Age groups

1	1-10	6	51-60
2	11-20	7	61-70
3	21-30	8	71-80
4	31-40	9	81-90
5	41-50	10	91-100

OCCUP Occupation

1	Manager/admin.	9	Labourer
2	Professionals	10	Employed
3	Assoc. professionals.	12	Home duties
4	Tradespersons	14	Unemployed
5	Advanced clerks	16	School
6	Clerk	17	Uni. student
7	Prod. +T/port workers	18	Preschool
8	Basic clerk	19	Retired/pen.

TTIME time commence travel, hour intervals

TT_GPS grouped travel time

0	00 - 06	15	15 - 16
7	07 - 08	17	17 - 18
9	09 - 10	19	19 - 21
11	11 - 14	22	22 - 24

TDESTN Travel Destination

1	Work - centre
2	Work - industrial
3	Work - dispersed
4	Work - tourism
5	Other home based
6	University
7	TAFE
8	School
9	Preschool
10	Supermarket
11	Shopping
12	Social
13	Exercise
14	Home
15	Lavarack Barracks
16	RAAF/airport
17	JCU

TMODE travel mode

1.0	car, solo
1.5	car, dvr with pass.
2.0	car, passenger
3.0	bus
3.3	bus, school
3.5	private bus
4.0	walk
5.0	cycle
6.0	taxi
7.0	motor cycle
8.0	ferry
9.0	wheel chair

TDISTT approx. dist. trav. (Km)

TDIS_GPS Travel distances (Km)

0	0 - .4
1	.5 - 1
2	1.1 - 4
5	4.1 - 7
10	7.1 - 14
15	14.1 - 100

CD and Household coding system

Surveyed Cairns CDs and their codes

Collector District	Household survey code	ABS CD code
Central		
1. North Cairns	101+	3,011,104
2. Central Cairns	201+	3,011,008
3. Parrammatta Park	301+	3,011,108
Middle		
4. Brinsmead Glen	401+	3,011,909
5. Mooroobool	501+	3,011,508
6. Earlville	601+	3,011,316
Edge		
7. Kewarra Beach.	701+	3,011,607
8. Yorkys Knob	801+	3,011,712
9. Edmonton	901+	3,012,101

CD codes 1-9 Cairns CDs, 11 – 19 Townsville CDs from Inner to Outer zones.

Household codes: Cairns 3 digits, first digit represents CD, 2nd and 3rd digits show household number within specific CD. Townsville is 4 digits: 1st digit (2) identifies Townsville, 2nd digit identifies CD, 3rd and 4th digits identify household within specified CD.

Surveyed Townsville CDs and their codes

Zone CD suburb	**Household survey code**	**ABS CD code**
Central		
11. Upper North Ward	2101+	3041406
12. Lower North Ward	2201+	3041405
13. South Townsville	2301+	3042005
Middle		
14. Kirwan	2401+	3040906
15. Heatley (high armed forces presence)	2501+	3042901
16. Garbutt	2601+	3041808
Edge		
17. Balgal Beach (semi weekenders)	2701+	3040608
18. Rupertswood (acreage)	2801+	3040808
Kelso/Condon	2901+	3041101

Appendix 5 Summary Statistics for Cairns

Summary descriptive statistics for Cairns of all Collector district results (# or %)

CT, MT and ET represent zone totals, GT represents the aggregates

	Central suburbs				Middle suburbs				Edge suburbs				
Variable	**C1**	**C2**	**C3**	**IT**	**M4**	**M5**	**M6**	**MT**	**E7**	**E8**	**E9**	**OT**	**GT**
Demographic information													
Number of respondents/group	23	19	21	**61**	28	26	28	**76**	25	16	25	**65**	**202**
Number of residents/household	2.7	2.1	2.5	**2.4**	3.2	3.1	2.6	**2.9**	2.9	2.4	3.0	**2.8**	**2.7**
HH income ($, 000)	30	31	39	**34**	43	39	35	**38**	37	40	34	**36**	**36**
Age of respondent (yrs)	47	39	41	**43**	42	40	52	**46**	42	43	47	**44**	**44**
Born in Cairns area (%)	14	11	14	**13**	25	31	25	**29**	4	0	17	**8**	**17**
Years lived in Cairns	25	13	11	**17**	17	25	24	**22**	6	7	19	**12**	**17**
Years in current home	11	9	7	**9**	5	9	14	**10**	3	3	6	**4**	**8**
Male respondents (%)	65	63	43	**57**	50	41	29	**42**	50	67	56	**57**	**52**
Highest education	11	11	13	**12**	12	12	11	**12**	12	12	11	**12**	**12**
Current employment (yrs)	11	4	8	**8**	10	6	12	**10**	8	4	8	**7**	**8**
Housing information													
Approx. building age	39	34	39	**38**	11	15	24	**17**	7	16	10	**10**	**21**
House (%)	65	32	80	**58**	100	100	100	**100**	100	47	96	**85**	**83**
Unit (%)	13	42	15	**27**	0	0	0	**0**	0	53	4	**16**	**13**
Flat (%)	22	26	5	**15**	0	0	0	**0**	0	0	0	**0**	**5**
House ownership- own outright (%)	32	21	24	**26**	29	47	67	**50**	16	27	36	**27**	**35**
- Mortgage (%)	5	5	24	**12**	36	21	15	**25**	48	7	44	**38**	**25**
- Rent (%)	63	74	52	**62**	36	30	19	**25**	32	67	12	**34**	**38**

Variable	C1	C2	C3	CT	M4	M5	M6	MT	E7	E8	E9	ET	GT
Response rate to different sections of questionnaire													
Answer location choice section (%)	91	90	91	**92**	96	89	90	**95**	92	94	92	**94**	**94**
Answered section on ease of travel (%)	100	100	95	**98**	100	96	93	**96**	96	94	96	**95**	**97**
Answered Qs on neighbourhood (%)	96	93	100	**97**	96	100	93	**97**	100	94	100	**98**	**98**
Answer Q on bus use (%)	30	16	19	**23**	50	31	28	**40**	50	56	36	**46**	**37**
Answered Qs on envt'l beliefs (%)	91	95	100	**97**	93	92	86	**93**	96	88	92	**94**	**95**
Answered Q longevity of petrol (%)	39	74	39	**59**	57	42	54	**55**	69	50	56	**62**	**58**
Answered Q on travel beliefs (%)	73	53	86	**72**	68	85	69	**80**	77	75	88	**84**	**81**
Transport details													
Respondent owns a car (%)	78	68	86	**77**	96	96	86	**92**	100	94	88	**94**	**88**
Respondent drives a car (%)	74	84	91	**84**	100	96	89	**94**	100	94	96	**97**	**92**
No vehicles owned in household (%)	17	21	14	**17**	0	0	0	**0**	0	0	0	**0**	**5**
One vehicle owned (%)	44	56	62	**53**	43	30	46	**39**	80	56	52	**65**	**52**
Two vehicles owned (%)	30	22	23	**26**	50	56	39	**50**	19	19	44	**29**	**36**
Total vehicles/HH	1.4	1.0	1.1	**1.2**	1.6	1.8	1.7	**1.7**	1.2	1.8	1.5	**1.4**	**1.5**
Age of 1st. Vehicle	9	9	11	**9**	9	9	9	**9**	12	9	8	**10**	**10**
Average # of cylinders in 1st. Vehicle	4.6	4.6	5.6	**4.8**	5.2	4.6	4.6	**4.8**	5.0	4.3	4.7	**4.7**	**4.8**
Vehicle provided by employer (%)	13	9	19	**13**	29	8	17	**18**	12	7	13	**11**	**14**
Car as main vehicle (%)	57	42	43	**48**	71	81	72	**78**	53	81	68	**68**	**65**
Station wagon as main vehicle (%)	26	10	24	**21**	21	4	14	**13**	21	6	20	**19**	**17**
Weekly fuel costs ($)	19	15	16	**17**	39	36	23	**32**	38	41	38	**39**	**30**
Average cost of public t/port users ($)	0	5.5	23	**19**	1	14	4.5	**10**	8.5	10	4.5	**10**	**12**
Av. cost of paid parking by users ($)	.5	.6	8.6	**5.7**	.3	4.8	2.9	**5**	3.4	7.5	2.2	**5**	**5.50**
Push bikes owned	.8	1.5	1.4	**1.3**	1.6	1.3	1.0	**1.3**	2.1	.8	1.5	**1.6**	**1.4**
Pushbikes used	.4	.8	.8	**.7**	.6	.4	.5	**.5**	1.4	.3	.8	**.9**	**.7**

Variable	C1	C2	C3	CT	M4	M5	M6	MT	E7	E8	E9	ET	GT
Travel details													
Daily trips	2.9	3.2	3.5	**3.2**	4.8	3.8	3.3	**4.6**	3.6	3.2	3.1	**3.3**	**3.6**
Annual journeys from Cairns area	.9	.8	2.2	**1.3**	2.1	1.3	1.2	**1.5**	1.4	1.7	1.8	**1.6**	**1.5**
Drives more than 10 times per week (%)	36	32	47	**37**	75	70	46	**58**	73	60	40	**59**	**52**
Drives 5 - 10 times per week (%)	21	16	32	**23**	13	17	29	**23**	19	27	40	**29**	**25**
Distance from shop (Km)	.3	.3	.3	**.3**	1.2	.7	.7	**.9**	1.4	.4	1	**1**	**.7**
Bus use – never/ virtually never (%)	100	89	85	**90**	96	92	81	**89**	81	75	84	**81**	**88**
Group % using public transport	4	16	19	**13**	14	12	14	**14**	35	31	8	**25**	**17**
Group % paying for parking	17	21	33	**25**	11	23	10	**17**	31	6	8	**17**	**19**
Bus use – never/ virtually never (%)	100	89	85	**90**	96	92	81	**89**	81	75	84	**81**	**88**
Cognative issues													
Use push bikes more if secure parking (%)	17	32	14	**21**	7	8	14	**11**	19	25	32	**26**	**19**
Difficult without car (%)	52	53	52	**52**	86	88	76	**84**	84	73	68	**79**	**73**
How long petrol will last (mean in yrs)	52	68	52	**61**	65	71	78	**71**	57	50	61	**57**	**64**
How long petrol will last (median in yrs)	50	52	50	**50**	50	60	60	**50**	35	55	50	**50**	**50**
Support light rail (%)	58	50	62	**52**	43	66	44	**51**	73	60	68	**74**	**57**

Appendix 6

Record of verbal responses
Cairns JCU travel survey

Full representative *Verbatim* responses to open-ended questions from the North Queensland urban travel survey.

The follow portion of this PhD research into Sustainable urban travel set out to achieve an understanding of how people thought and felt about their current and future urban mobility. This section records representative written responses from nine collector districts: three each from inner, middle and outer suburbs. The presentation sequence follows Table A5.1 below.

Table A5.1 Presentation sequence of *verbatim* responses

QUESTION
D2. Your perceptions of urban mobility now (what you think of the way we travel around at present):
D1.2. What connection, if any, do you see between the way that suburbs are laid out and the amount of driving you have to do?
D3. How you value and think about your current urban travel :
B2 What are some of the strengths and weaknesses of driving a car?
B10. What are some of the strengths and weaknesses of ride-sharing?
B8. What are some of the strengths and weaknesses of pushbike use?
B9. What are some of the strengths and weaknesses of walking to local destinations?
B7. What are some of the strengths and weaknesses of the bus service in Cairns?
B12. What would be some of the strengths and weaknesses of using light or heavy rail transport for urban travel in the Cairns area?
Further comments on light rail (developed from question B12)
B11. (where applicable) What are some of the strengths and weaknesses of working from home one or two days per week?
D5. What easy changes would definitely help you or other household members to reduce your car use.
D6. Are there other things that you think we might use or do to **easily** reduce our use of petrol, diesel or gas (LPG)?
D7. If you knew that petrol was going to sharply increase in price, what would you do, and what sorts of changes would you like so that your household needs could continue to be met?
D4. Your beliefs about mobility in the future:
B8.1. Comments on the Question: “Would you ride your push-bike more if you could leave it safely at a bus stop?”
B13. Comments about special needs groups, such as people in wheelchairs:
I/we would move to [town, city, or suburb]
B3.3. because, then

The responses are grouped from a strong statement of perceived problems (-3), to the most clear and full statements of benefits (+ 3), using the consensus from the literature as a value guide toward sustainable urban travel

Quantification included a judgement of the meaning of written responses. There were about 17 completed responses per Collector District. The survey method aimed to have al least 15 complete travel records per CD, and fifty complete forms per zone (inner, middle and outer), 150 per city, and 300 for the full study of the two 'proto cities' of Cairns and Townsville. This allows for comparisons, contrasts and generalisations. The Cairns responses are given first. Only remarkable or contrasting Townsville responses are then recorded.

The 60 random responses from three Cairns CDs were supplemented by others which complement the detail of the quantified responses. The following extracted written responses show the range of public thought in this exercise of community consultation about our urban travel.

For each question, the response range and frequency are indicated. Each household surveyed in Cairns has a three digit number, from 101 to 928. The first digit indicates the collector district, grouped into the three zones:

1, 2 and 3 in the inner zone,
4, 5 and 6 in the middle zone, and
7, 8 and 9 in the outer zone.

The 2nd. and 3rd. digits range from 01 to 30, the largest number of useable surveys from the 36 distributed in each CD. (see Section 2.6 *Survey methodology* for full CD designation and locations, and Map 1, p39).

D2. Your perceptions of urban mobility now (what you think of the way we travel around at present):

Score	House Hold #	Response
-3	101	I acknowledge that too often single occupant trips are made. This creates huge demand on resources including road maintenance, and creates unacceptable levels of pollution levels. Solution? Better public transport, pollution free fuels, more efficient ride sharing.
	102	existing public transport is irregular, slow and expensive. Some main roads could be improved and railway crossings having boom gates or lights instead of stop signs.
	415	A sort of insanity which cannot be maintained. Moving a tonne and a half of metal and rubber to transport a 70Kg person is a massive waste of energy. Most people however have no practical alternative.
-2	104	Cars are too powerful and too expensive to buy and maintain - simpler, slower and cheaper cars would serve us just as well.
	107	still reliant on cheap fossil fuels. Some good mass transit in big cities.
	111	far too reliant on cars/car parking – problem with public perception of "having to catch a bus", safety considerations with public transport and night time use (worry for women and personal safety).
	404	too many cars, trucks and buses. The air in Cairns city is smelly these days, because of vehicle engine fumes.
	409	We (Australians) rely far too heavily on personal transport: that is, we tend to use cars too much for too few (usually only the driver).
	410	suburbs should be laid out with low and medium density housing, local shops, church, sport, parks, primary education and kindergartens accessed by closes, sub collector roads, collector roads, sub arterials: "A structured road system".
	907	problems exist for too long before rectification - should be pro-active not re-active.
-1	103	too many cars.
	105	Cairns public transport is limited, run at certain times. That's why a large percentage of people drive cars.
	106	At the moment we travel for our own convenience. I hate driving, and try to drive as little as possible. Most travel is not for pleasure, but for general running of household and business.
	108	probably too many cars on the road, but I understand people's desire to just get in their car and go.
	112	some road surfaces poor, otherwise ok.

	115	dangerous for elderly - need more pedestrian crossings - have hold rails at intersections for elderly.
	116	enough private vehicles already but there is still a need to employ more urban and rural buses for low income earners.
	401	moderate easy at moment except for constant road work. Limited road network and often single route.
	403	hard for every family to have 2 cars.
	408	Basically, we're all on the roads around the same times (work, 7.30 - 8.00 am) and 4 - 5pm, so roads are congested - takes longer.
	412	there is an overuse of motor vehicles to the detriment of the ozone layer. I think most people are aware of this but public transport is a pain.
	416	primarily centred on private transport. [There is a] growing concern over capital investment in infrastructure to facilitate workable mass transit systems given the direction of current planning strategy.
	422	Tourists, school children and lower income families tend to use public transport. Middle class families tend to have two cars (his 'n' hers). Status symbols.
	425	Cairns is reaching some sort of major population growth, and needs better highways. The connections between Cairns and the tablelands, and Port Douglas need upgrading.
	609	Attention to street names. McCoombe St (in Westcourt) becomes Alfred and then Pease St., Greenslope St. becomes Arthur St., Anderson St (Manunda) becomes James St.
	924	Not enough traffic lanes (8.4). Too many kids go to school in cars. Huge difference in traffic in school holidays - much less cars (12.4).
0	114	ordinary courtesy - giving way - would help us all to move about more easily.
+1	109	we enjoy the use of our own car.
	110	environment wise - the amount of carbon dioxide could be reduced if more people chose to use public transport.
	117	quite good.
	120	happy.
	121	Happy
	402	I would like to see greater development and use of solar/electric vehicles for commuter use. We burn too much fossil fuels just travelling short distances.
	406	satisfied.
	407	presently ok generally.
	410	we travel extensively by car, with push bike and walking for recreation.
	417	All buses/trains are designed to go in and out of town, but neglect people who live in one suburb and work in another, ie the

		problem of going around rather than in to the city.
	418	cars are fine. Maybe Cairns should have trains.
	427	we should utilise rail and sugar train tracks.
	428	given our preferred life-style where majority live in detached dwellings.
+2	905	I can see suburb design getting better for people who are not driving. I think a lot more could be done. Eg: designing suburbs around shopping areas, schools, sporting areas and bus transport terminals with access to the city (like a spider's web)

D1.2. What connection, if any, do you see between the way that suburbs are laid out and the amount of driving you have to do?

Score	house hold #	Response
-3	409	A great deal. We all move into the suburbs before public transport is provided. Only when the population increases is public transport provided. Unfortunately by then the car has been entrenched as the prime form of transport - thus we drive nearly twice as much as necessary. However, Canberra is an exception, as much thought and care is given to this in the ACT.
	906	Decentralised, localised facilities, no hospital facilities, not enough, no main arterial road access
-2	102	Large detours and backtracking and traffic jams and overspill into back streets occur with bad planning and bad signage.
	106	I live in Nth. Cairns/city, but travel out to the suburbs because of lack of parking in the city.
	117	More distance to cover - more fuel, more expenditure, and more pollution.
	315	People travel about much more now than they used to. They do not always go to the closest school or shop, but are now able to exercise more choice (Fem age 57).
	321	Suburbs are designed for vehicular access without the human element even considered.
	403	Need bus, rail or train as part of the urban design.
	412	Many suburbs are spread out and you have to drive when going out socially and recreationally.
	415	Development in and around Cairns is in a strip following the coastal plain. This increases distance from north side to southside suburbs.
	601	Suburbs are supposed to have some sort of Council town planning concerning their layout. However, in practice it is the developer of the land trying to maximise his/her profit that twists the rules to get the most profitable layout, not the most practical!

		So we do a lot of driving.
	911	Lots. I need to get to and from work, and to the shops and school. The further away I am, the further I travel.
	914	Less traffic lights and more over/under passes on the main roads, eg Southern Access Junction (10.1, 8.4)
-1	101	Distance to travel to facilities, ie shops, libraries, Government services, schools etc. However, I don't suggest an increase in huge shopping malls - I prefer town shopping, or for convenient every day items, local small shops.
	107	The more spread out, the more driving.
	108	Limited knowledge, but probably not enough planning.
	109	As more suburbs are developed, the more driving will be required.
	115	Do a lot of driving, can get lost, need more signs.
	116	Maybe need more public transport.
	401	Cairns is largely linear and I work currently south side of the city.
	406	I feel there is a distinct lack of main arterial roads in the Cairns area.
	408	More congested due to increased population around suburbs.
	418	Suburbs are on main roads out of town. Shopping is the same.
	419	Self sufficiency.
	422	Depends on land suitable for homes. If you want to live closer to the city it will cost you to do so. The cheaper the home, the further to travel.
	425	The highways need to be upgraded to inter-link suburbs. Also,, some suburban streets need speed bumps to slow traffic.
	426	Suburbs are formed where land is made available. Layout depends on returns to developer.*
	502	I find Cairns is generally convenient for most destinations using a car but it is the congestion that is the problem at schools , particularly in the Woree area where four schools are closely located – Woree primary + high, St Gerards and St Marys.
	505	Lots of winding roads. You seem to have to go a long way to get a short distance.
0	114	Creeks, gullies, cliffs etc. Prevent laying out streets in squares.
	407	No connection.
	414	None.
	516	Access through back roads rather than main roads would be much easier.
+1	110	In a lot of places if they just thought about it, a lot of side streets could be created, making short cuts, allowing your destination to be quicker.
	116	So far self driving to work is good.
	120	All parallel roads - I like that.
	121	Suburbs laid out all right - I can drive where I want.

	402	Effective and safe vehicle movement is vital.
	413	It is fine, but maybe more lanes should be made.
+2	112	Very well designed.
	416	The establishing of villages within a metropolitan area separated by natural and rehabilitated corridors would reduce the desire to get away from the built environment, and basic services and entertainment would be readily accessible.
	417	Just look at Sydney many people spend 3 hours per day driving. The spread outward has to be replaced with more dense living (eg townhouse development).
+3	202	Urban sprawl means more driving. Suburbs should have more community facilities, smaller blocks, higher density, plant fruit trees and have communal gardens, discourage local traffic, have bikeways etc., And make developers pay for the necessary infrastructure.

D3. How you value and think about your current urban travel :

Score	**house hold #**	**Response**
-2	101	[I recognise that my enjoyment of car's advantages is] not helping the community and global environment.
	4.5	Very poor. Brindsmead to Cairns needs upgrading
-1	102	You have to own a car to live in Cairns comfortably.
	110	At the moment it is pretty sad.
	401	Would like to change this by changing work pattern.
	402	Most is done out of necessity, ie work/school.
	427	As a builder, I have no viable alternative.
	615	I would like to be able to afford a car, as visiting friends is inconvenient.
	620	Satisfactory, but I find the islands put in the middle of the new roads unnecessary and dangerous (not the round abouts).
0	103	Just a means of transport.
	104	As it is only a few minutes per day for me, it is no big deal.
	105	I don't use it enough to really judge.
	409	I dont give it much though except when I move (on average every 12 mths.) Due to work.
+1	106	I go into the city as little as possible, I try to do as much as I can in the local area or drive out of the city. The city is too crowded, I park once and walk long distances within the city.
	107	Adequate for my needs, but I live close to work.
	108	I am quite happy with things as they are.

	109	There appears to be a good bus service in Cairns, but we prefer to use our car.
	111	Easy - very rarely travel at night except by car.
	114	Except at peak hours, travel is pleasant.
	116	Just satisfactory.
	117	It's ok at present.
	406	Satisfied.
	407	Currently no problems.
	408	I think at present its ok compared to Sydney, Brisbane etc. Our roads are improving.
	410	The collector road "Resevoir to Redlynch" is in the process of being upgraded [Feb. 1997]. Stage one has been completed. This has helped reduce a lot of peak hour hold up. The full project will take time but the investment will be beneficial o all suburbs accessing it.
	412	My sole means of transport is by car. If I go out socialising I will catch a taxi to and fro. I do not like to use buses.
	415	A necessary part of my life for work and leisure.
	416	Acceptable given the current population and infrastructure. Should the need arise to rely on public transport, it would be adequate.
	417	Having lived in Sydney/Melbourne/Perth UK/Cairns, Cairns is very good. However, it should take advantage of the predominantly flat terrain to promote bike riding (cycle paths).
	418	Use a car.
	421	We want to live away from the city and as a consequence need to travel by car to go to work.
	427	It is getting better, especially the bus service.
	609	Urban speed limits should be lowered to 50 kph in view of greater volume of traffic.
+2	101	I value the independence, spontaneous decision possibility comfort and convenience.
	115	Fine - good to get in the car - no bus fare - can travel when you like.
	422	Would be lost without my car.

B2 What are some of the strengths and weaknesses of driving a car?

Score	house hold #	Response
-2	101	consuming finite resources, pollution, lack of exercises, don't experience your surroundings.
	105	fuel consumption, maintenance, poor roads.
	110	loss of fuel, effects on the environment, the hazards of driving, costs of vehicle maintenance, purchase cost.
	114	parking. people in dark clothes walking on roads, kids on bikes without lights.
	404	too much traffic on roads, fuel is expensive, too much air pollution, amny scared and unsure drivers.
	426	expensive fuel, some bad drivers on the road, cost of running a car.
-1	102	costs involved in car ownership.
	104	expense of purchase and maintenance, parking space needed.
	106	cost. parking problem in the city.
	107	cost.
	111	cost, drink driving.
	113	cost.
	115	got no alternatives. Traffic banks up in front of house.
	116	does not keep you physically fit in the long run.
	118	inability to judge flow of traffic at roundabouts due to growth of plants in centre of roundabouts obscuring oncoming signals from approaching vehicles.
	122	traffic and drivers who think they are the only ones on the road.
	401	Cost
	402	traffic congestion on Reservoir Rd., our main access to work and school.
	403	traffic congestion, parking problems.
	406	contending with drivers who do not observe the rules of the road.
	408	cost.
	409	cost of rego and parking.
	413	cost of fuel and running costs.
	414	makes you lazy – drive to corner store instead of walk.
	415	cost, pollution.
	417	cost, the drinking/driving/socialising equation.
	419	parking in CBD.
	420	you can get lazy and cause damage to the ozone.
	421	congested roads, and is sometimes difficult to park.
	422	breakdowns - left without other transport, time waiting for public transport.
	423	sometimes traffic can be very congested in the morning.
	424	pollutes the earth, clutters the roads.

	425	Difficulties are parking and roads
	427	a car is no good if you want to party after having a few drinks.
	428	not safe, inconvenient, unreliable.
+1	102	freedom of movement.
	108	able to get to any destination.
	109	able to go out at any time.
	111	easy to use.
	112	convenience.
	113	convenience.
	114	independence of transport.
	115	able to visit and go to shops.
	116	fast.
	118	ability to chose time and route to destination.
	119	independence.
	120	no weakness.
	121	no problems.
	122	convenience.
	401	ability to reach required destination.
	408	independence and convenience.
	411	convenience. Required for work duties.
	412	independence.
	415	convenience, independence.
	416	convenience.
	419	Independence
	420	you know you will get there on time if you take yourself.
	421	very convenient.
	423	can do things around own time table.
	424	makes life easy to get around.
	425	easy access to work and town.
	427	a car is very handy - you can jump into it whenever you want.
+2	101	flexible timing, lift giving, carrying goods, fast, comfortable, music
	104	car carries luggage and family, protects from sun and rain, fast.
	105	convenient, fast, no waiting, dry.
	106	convenience, time saving, flexibility.
	107	freedom, hauling of loads and groceries.
	402	freedom of mobility, not having to rely on the unreliable local bus service.
	403	dont have to wait for bus, carry shopping, need car, especially with young children.
	407	independence, comfort, time taken.
	409	makes it easy and reliable to and from work. Less time wasted in transit.
	410	independence, reliability, weaknesses - none.
	417	flexability of times and destinations, load carrying ability.

	418	no time table, gets you to a specific location when you want.
	428	personal safety, convenience, timely.
+3	422	flexability, safety, convenience, mobility.

B10. What are some of the strengths and weaknesses of ride-sharing?

Score	house hold #	Response
-2	409	Unreliable partners could jepardise reliable work arrival, and irregular work hours make it very difficult.
	410	You need to rely on other people and lose flexibility for work hours.
	912	The time factor (ie finding some-one locally who starts and finishes when I do. I have seven or eight local work mates but due to our rosters it is impossible to car share. (-7.3)
-1	101	Different time needs
	102	Detours
	103	A bit hard for people working in different locations
	104	Inconvenient, no flexibility in time use.
	105	Not applicable at the moment - don't travel to work or take children to school.
	107	Inflexible schedule.
	110	Not always reliable.
	111	Reliability - availability.
	116	Sometimes the driver is hesitant to which road you want to be taken. [?]
	401	Do not do. Does not suit the work pattern of different destinations each day.
	403	Haven't hear of it here in Cairns. One car per person means 'one hell of a lot' of cars on the road.
	407	Have to rely on other people.
	408	No independence.
	413	Not convenient for our work.
	414	Running late and having to depend on some-one.
	415	Lack of flexibility, must operate to a group timetable.
	416	I like independence.
	417	Same destinations, same timing, impaired flexibility.
	419	Lack of independence.
	422	Other people's children - responsibility/behaviour.
	423	Finding the same people wanting to go to the same places at the same time.
	425	No strengths, because I am a shift worker.
	426	Not going or coming at the same time or place.

	427	It is not good if you wish to do something at lunch time.
+1	102	Save money on fuel, less wear and tear on car.
	103	All right for office workers or people who work at the same place every day.
	107	Meet people.
	108	Good idea if share rider works in similar area and is well known.
	109	We're happy to share with friends when going to entertainment.
	110	Saves money.
	111	Cost.
	112	Very good.
	114	Reduce traffic.
	119	Cheaper on fuel.
	121	Get a lift if car breaks down.
	403	Would be a good idea.
	404	Get some cars off the road, cut air pollution.
	408	Cheaper and more reliable [?].
	412	Reduce costs.
	413	Sometimes children can ride-share.
	414	Saves money, less pollutants.
	416	Save trips and petrol.
	417	Shared costs/resources.
	418	Gives you conversation.
	419	Cost savings.
	421	Save fuel and congestion.
	422	Plan time more effectively, less wear and tear on car.
	424	Good savings all round.
	426	Helps save fuel.
	427	It is good if you live in the same neighbourhood.
	714	My workmate and I share driving to work .. Cost effective. I see no weakness in our situation. In my husband's situation, his crew have no cars or drivers licenses, so it is time consuming and extra expense to us , picking them up and driving them to varying destinations.
	718	Good for longer trips.
+2	415	Saves on cost, pollution, road congestion.
	912	Less traffic, especially at peak hour (2.7) , more parking spaces, especially in town (2.6).
+3	1.1	Less fossil fuel, less pollution, community consciousness, friendliness, sharing cost, efficient, helping.

B8. What are some of the strengths and weaknesses of pushbike use?

Score	House	Response

	Hold #	
-2	101	Theft, accidents, pollution, time constraints.
	104	Exposed to weather and traffic, likely to be stolen.
	105	Car drivers in Cairns are dangerous, wet, slow.
	107	Wet, dangerous, can't move all kids or heavy loads.
	110	The drivers are rude, unhelpful and often act as if you are cattle.
	116	Sometimes dangerous - cars might run over them. Should be more bike lanes, keep off main roads.
	401	Unable to carry required equipment for work. Weather.
	404	Bike riding is a treacherous past time on the roads. I used to ride daily, but never ride now - too dangerous.
	409	Poor bike paths and uncomfortable in wet weather.
	417	Load carrying, time, weather, security after dark.
	421	Too long distances and not fast enough to be practical - cant take kids.
	502	Great exercise. Theft of parts or whole of bike if left all day. Some cycle paths are potentially dangerous for school children, specifically: winding area along the De Jarlis Rd. Which joins Toogood from Earlville.
	912	Main roads are too dangerous. I won't let my children ride to Gordonvale High. I hate having to wear a helmet but should be compulsory for kids only.
	915	Cyclists not adhering to road laws, especially tourists. Provision should be made for cyclists only. Would not ride unless proper provisions were made available (-1, -2.53, -2.52).
-1	102	Slow and subject to weather.
	106	Very dangerous riding in Cairns.
	109	Cars tend to be inconsiderate and run you off the road.
	112	Get in the way of vehicles.
	114	Motorists who dash past about 1" from your handlebars.
	115	Cars need to be more careful with bikes.
	119	When riding north along Cook Hwy. There is not enough room on the side of the road.
	401	Insufficient bike paths.
	403	No push bike tracks, especially from Brindsmead Glen to Freshwater.
	406	Lack of cycle lanes.
	407	Dangerous.
	408	Weather and traffic conditions.
	412	It is too far to use a pushbike to get to school, shops etc.
	413	You can easily get hit by a car.
	414	Dangerous on the roads.
	419	Likelihood of theft or accident with motor vehicle.
	420	Ignorant car drivers.
	422	Weather, carrying capacity, ie groceries.

	423	Danger from cars.
	424	Not enough bike tracks.
	425	Not enough push bike lanes provided, and it is very dangerous.
	507	Costs practically nothing to run, but children won't ride because of the helmet law.
+1	102	Relaxing and cheap.
	103	Good exercise.
	104	Cheap to operate.
	105	Exercise, non polluting.
	106	Cost efficient.
	113	Convenience.
	414	Good exercise
	116	Good thing, bike lanes are improving.
	401	Cairns is fairly flat.
	413	Keep fit.
	417	Good exercise.
	419	Affordability.
	423	Enjoyable past time
+2	101	Exercise, fresh air, environmental, less rushed.
	107	Exercise, cheap, efficient, fun.
	111	Cost, reliability, ease of use, health.
	402	Exercise, energy conservation.

B9. What are some of the strengths and weaknesses of walking to local destinations?

Score	House Hold #	Response
-3	707	Lack of footpaths create difficulty for wheel chair user {wheel chair user}
-2	101	Pollution, distance, time constraints.
	102	Slow and subject to weather and no footpaths.
	104	Exposure to sun and rain, risk of assault.
	106	Not safe to walk after dark, too hot most of the year.
	108	Danger of assault +/or attack by dogs.
	401	Cannot walk to other services, ie medical, shopping, libraries.
	409	No foot paths and poor night lighting - security problems.
	418	Not safe and cant carry things.
-1	105	Lacking footpaths, nature-strips overgrown.
	107	Time, hauling loads.
	113	Weather

	114	Cars and dogs who dash out of driveways.
	115	It depends on age - elderly need transport.
	402	Unconstrained dogs.
	403	Too far to visit friends in other suburbs. Like to see made footpaths.
	404	No walking paths.
	406	No foot paths.
	426	Too many barking agro dogs.
	412	We live too far out of town to walk to city or beach etc.
	414	Too hot.
	415	Time taken, UV danger.
	416	Safety.
	419	Neighbourhood dogs.
	420	Get hot in climate.
	421	Too hot!
	422	Cant carry much back (food), weather.
	424	No good in the dark. Not enough lighting.
	425	No water stops. Nothing is provided for walking dogs.
	427	If it is raining it is not much fun.
	920	Too old
0	112	N/a.
	116	That depends on the convenience and distance.
	119	Don't walk.
	120	No walking.
	718	Walk on beach. Need foot bridge across creek after rain when the Kewarra Beach Resort opens sand bar.
+1	102	Relaxing and cheap.
	103	Save money on fuel, exercise.
	104	Good exercise
	105	Less car/vehicle congestion.
	106	Exercise.
	109	Exercise, and close proximity to where we wish to go.
	110	They [shops?] Are not far away, the walk is always pleasant.
	113	Fitness.
	114	Convenience
	401	Brindsmead has a very good variety of walks.
	403	All right to local shop.
	407	Exercise.
	411	Exercise.
	413	Fresh air, open spaces.
	414	Exercise
	415	Exercise, pleasant relaxation.
	416	Health
	419	Independence and exercise.
	420	To keep fit.

	422	Exercise.
	423	Enjoy it, relaxing.
	424	Good in daylight hours.
	425	There are plenty of walking paths in Cairns.
	426	Good exercise.
	427	It is good for exercise.
+2	101	People contact, appreciation of surroundings, exercise, fresh air, head space.
	107	Exercise, relax, cheap.
	111	Fun, fitness, cost, ease of use.
	402	Exercise, energy conservation.

B7. What are some of the strengths and weaknesses of the bus service in Cairns?

Score	house hold #	Response
-2	101	Lack of regularity, not always a direct service, perhaps a change of bus necessary.
	115	Drop kids off in the wrong place.
	120	Extremely unreliable.
	402	Unreliability. Ignorant drivers leaving people stranded.
	403	Keep changing the time table without telling users. New bus drivers ie ½ hr delay in returning children from school b/c of mix up. "service sucks".
	409	Cannot get to work, poor timetable info.
	410	The route is too indirect - it takes too long to get to work, and I can't rely on it to be at work on time because of the number of pick-ups. Also, the drivers drive too fast and too recklessly.
	422	Bad report on school buses - late, and ignoring waiting children. Speeding by drivers.
-1	104	They don't go down every street.
	105	Expensive. Not well publicised.
	116	For people who know the bus timetable is an advantage, or otherwise not enough passenger information and buses.
	203	Attitude of drivers
	208	Strengths – speedy, some good bus drivers, cool, bad bus drivers (driving and rude). Weakness – buses that go to only two beach suburbs instead of the 5 or 6 beaches on one run! [Go] on all runs.
	304	Different bus drivers charge different fares.
	401	Poor service across town.
	413	School fare has increased 100% in last year.

	417	Load limited to what you can carry, increased time.
	419	Routes used.
	809	A lot of hospitality workers live [in Yorkeys Knob] and were happy to hear about the 24 hour bus service coming, but still can't get to work on time and have to leave [very] early to get to their employment.
	906	No 'day rover' information [for day tickets]
0	106	Have never used the bus service as it is today.
	108	Unknown.
	111	Don't know.
	113	Never used.
	406	Do not use service.
	407	Do not use - unaware.
+1	401	Improved availability of services.
	404	I'm sure the bus service will be good. I had some problems with the school buses, but these have been sorted out now.
	409	Great drivers, easy walk to stop from home.
	412	My children use it coming home from school.
	417	Ok if you have no alternative.
	419	Affordability.
+2	105	Timetabling is good, increasing services, frequency.
	410	Great for older people or people with no car, and good after hours service.
	718	All day ticket, or weekly or monthly ticket. Small buses are bouncy. The sun bus is very good. It is much better now.

B12. What would be some of the strengths and weaknesses of using light or heavy rail transport for urban travel in the Cairns area?

Score	**house hold #**	**Response**
-2	104	Massive cost of infrastructure.
	106	No railway stations or infrastructure.
	417	If Cairns cant make justifiable use of buses (which it cant), a rail network has virtually no hope.
	422	Not enough stations, noise pollution, traffic held up at intersections.
	915	Work odd hours. Disruption in suburbs given proximity to dwellings (-2, -7.11)
-1	101	Hold up traffic at crossings.

	102	Peak hour rush.
	108	Good idea, but probably would need considerable planning, and would probably be too expensive to get off the ground.
	116	There is no need for that in Cairns.
	410	Pollution.
	412	Need a lot of money spent to establish rail system.
	415	May be difficult to obtain necessary routes through areas now highly developed.
	416	Safety.
	419	Noise factor.
0	107	A small gauge rail would be impractical. Regular gauge from Gordonvale to Northern Beaches OK.
	703	Environment good. Transport at destination?
+1	101	Great alternative to car use.
	106	Would use it to get to the new shopping centre if there was a Nth. Cairns station.
	206	Advantages if existing new or separate lines are established. Main disadvantage is inflexibility.
	208	Mono rail along Esplanade, up to casino then up to Myers centre and north Cairns.
	418	Lots of flat land should be used - easy method of transport.
	419	Alternative form of transport.
	421	Less cars but would have to be reliable.
	424	Light rail would be good.
+2	102	Faster, cheaper and more regular, cleaner, more convenient.
	110	It would be a lot quicker and probably cheaper.
	314	Rail motor maybe from southern suburbs eg Gordonvale and Northern beaches, but terminating at a point away from main rail station but within town limits then bus into town or other suburbs.
	416	Speed, affordability, frequency.
	502	Rail works well in other places I've lived in, and if stations are well located, would be excellent. As with buses, a good time table would be necessary to cater for all kinds of commuters.
+3	113	Less congestion on roads, lowers use of gases and fuels, convenient (if planned correctly).
*	624	Would be good from the outskirts of town to the city (Edmonton or Gordonvale to city).
	906	Great idea. Why not use something that is already there. Sugar cane rail lines go through the suburbs, , in conjunction with bus and bike tracks would be just great. North, south heavy freight line under used.

Further comments on light rail (developed from question B12)

Score	**house hold #**	**rating to D8.**	**Written comments**
-2	402	4	may interfere with that other enjoyable amenity - peace and quiet.
-1	114	1	would need separate pathways if on the roadways - push bike wheels fit in the grooves for the wheel flanges - upsetting.
	115	4	put train back QR [from] Mareeba to Tully.
	118	4	light rail, or any other type of rail travel, is a point to point operation. Many people will still have to use road transport to reach their departure point, and on arrival will have to use other types of transport to reach their final destination.
	407	3	impractical.
	410	5	The northern beaches and southern development (Centenary park etc) is a linear development and may be a good idea. The established tram system will have to be upgraded to suit smaller, faster trams - more noise, safety, tram crossing/road frequency. Turn the old tram track routes into walk/bike path recreation paths.
0	417	3	I doubt that cane train tracks go anywhere I would want to go.
+1	405	1	YES YES YES
	102	1	a brilliant idea, but rush hour may present problems.*
	103	2	might be a good idea, and safer for tourists.
	104	2	existing tram lines don't bring anyone to centre of city, but probably well worth looking at.
	106	3	set up like the London underground it could work.
	107	4	a small gauge rail would be impractical. Regular gauge from Gordonvale to N. Beaches ok.
	110	1	the use of light rail would definitely be a bonus for Cairns.
	1.11	1	if it will reduce pollution and use of fossil fuels ie people used it!
	408	1	direct routes (more comfortable and reliable than buses).
	412	1	Massive costs in implementing this. It would probably take years but I see this as a positive step.
+2	105	1	In Melbourne the system is great - fast, efficient, inexpensive and not polluting.

+3	409	1	Used trams/trains when we lived in Melbourne - more reliable than buses and use existing infrastructure without placing stress on roads or traffic conditions.

B11. (where applicable) What are some of the strengths and weaknesses of working from home one or two days per week?

Score	house hold #	Response
-2	103	No good for me - a bit hard to build some-ones house at home.
	107	Distractions from home (kids), miss work colleagues.
	113	As a sole parent, it diminishes contact with other people.
	418	Cant have all equipment available. Don't have contact with people.
-1		
	104	Commercially, not likely to attract clientele.
	412	For most jobs, this would not be possible.
	415	Space required in the home
	414	Incompatible with my employment - building.
0	703	More work done. Allocating space for work.
	421	Not practical for us.
	425	None - I am an operations worker at the airport.
+1	101	There aren't any [weaknesses]
	107	Save travel expenses, better thinking environment.
	110	That would definitely be convenient.
	113	It would make it more convenient for my children.
	410	No interruptions, nice environment.
	414	Change of routine, less traffic
	116	That looks all right to me. It depends what kind of work you do.
	424	Good in every way.
	426	Less stress.
+2	101	Less car use, can combine home work ie when not busy work wise, can be homely!
	104	Good for quiet work when wanting to avoid interruptions.
	106	I work from home all the time - no travel time or overheads.
	415	Saves transport costs and time taken dressing to go out.

D5. What easy changes would definitely help you or other household members to reduce your car use?

Score	house hold #	Response
-1	101	none
	109	we don't use the car sufficiently to warrant any changes.
	121	don't use much.
	401	Dont know. No easy changes currently available.
	410	nil that I can think of.
	415	no easy changes.
	417	none.
	418	nil
	411	car required for work duties.
0	105	N/A
	108	nil
	407	none
+1	102	light rail to the northern beaches, more shopping centres.
	103	enough money so wife would not have to work.
	104	live in a milder climate.
	106	greater organisation within the household would cut down on the occasional car use.
	107	if my kids biked to school, I wouldn't have to drive them.*
	114	better household delivery.
	116	I think Cairns needs a mono-rail system connecting the rural and urban areas.
	402	better school bus service to our area.
	403	more public transport.
	408	car pooling and more info. regarding bus services (perhaps letter drop).
	426	other people sharing taking the children to school.
	412	No easy changes. I try to avoid car usage so that when I take children to school in the morning I do errands then. I try to use it once going into town. [already rationalises trips]
	424	a good bus service.
	425	bike lanes. Rail transport.
	414	change employment.
	502	Train service, improved bus service, make the cycle path on the De Jarlais Road safer (cars regularly veer into the cycle path around blind bends).
+2	110	don't own a car.
	111	increase petrol and rego and insurance fees, but please don't!
	202	Increase taxes on [fuels] to reflect the true costs. Eg pollution, deaths (accidents), stress on pedestrians etc. at 75 cents per litre is <u>much</u> too cheap. Milk (renewable resource) is $1.20 per litre, so is mineral water!

	209	Showers at place of work, somewhere to secure bike.
	409	cheaper public transport/more information on timetables/more shelters at stops and a run to work.
	421	direct shuttle, safe and reliable for young school children would remove heaps of morning and afternoon traffic from our roads.*
	422	more regular bus services. Specific destinations ie shops, cinemas, schools, with feeder links to those buses.
	603	[Need] 8 seat mini-buses in Cairns. It could run frequently inside the suburbs. Air conditioned in summer. Tickets could be bulk purchased. Costs need to be developed with passengers {paraphrased}.
+3	416	Decentralisation and fast tracking of technologies. Educate commuters as to the efficiencies of car pooling. Establishing a hybrid urban light rail and monorail (city) transit system.
	611	Large cheap/free parking lots on edge of city centre to park there and then have frequent very cheap (all day/weekly/monthly)/ free city travel by public transport.

D6. Are there other things that you think we might use or do to easily reduce our use of petrol, diesel or gas (LPG)?

Score	House Hold #	Response
-1	121	people have to use cars.
+1	102	ride share
	103	stay at home.
	105	battery powered cars, +/or other forms of fuel.
	108	develop more efficient engines.
	110	create a better public transport system, eg, subway.
	114	better public transport.
	115	Encourage more push bike use.
	401	biomass fuels, solar.
	402	use solar/electric vehicles.
	404	use the railways. We used to have a motor rail, now we have traffic jams and air pollution. *
	408	not “easily” (solar power etc.).
	409	I am saving to convert my V8 engine to LPG, however, as a Ford enthusiast, I doubt it could run with the same (emotional) sound on alternative fuels.
	410	research solar/electric - other fuels.
	411	solar power will become available in the future.
	414	driver education, compulsory defence and efficient driving courses.
	417	matrix of bus/train routes to cater for travellers into/out of town and around town at various radii from the geographic centre.
	418	solar and sugar.
	420	go out once and do everything.
	421	battery operated vehicles.
	425	electric rail. Battery cars. Bike lanes for bikes, and promote as an exercise tool.
+2	101	allow and stimulate the use of alternative power, walk more short trips.
	104	build smaller and less powerful cars. Status symbol cars should be discouraged.
	106	have parking lots outside the city with shuttle bus services running very frequently.
	107	hopefully, some day, affordable electric or solar vehicles. Better bike paths.
	116	electric trains, electric bikes and solar energy.
	122	make more bike lanes away from the roads. New subdivisions should be made to include separate bike lanes. Many people will not ride bikes with the current road system.

	422	car sharing, more home delivery services from supermarkets (you ring order in, they deliver for a fee).[*use set of fuel reduction strategies from 4.122]
+3	415	limit engine size, put environmental taxes on heavier vehicles, leglislate/encourage manufacturers to increase efficiency of engines, design of vehicles. More roundabouts, fewer traffic lights (less stopping and starting).
	416	establish and subsidise organic based fuels and completely rethink our planning strategies for the built environment, the goal being reducing the need to travel.

D7. If you knew that petrol was going to sharply increase in price, what would you do, and what sorts of changes would you like so that your household needs could continue to be met?

Score	house hold #	Response
-1	106	If the price of fuel went up I would worry more, but I have few enough hours in the day as it is without buses etc.
	107	We don't have to drive much,(I use a work vehicle to go to work) - so it wouldn't effect us much.
	108	Nil - car is not over used.
	109	At our time of life we don't think it would worry us.
	112	Would strongly object to fuel increase.
	116	I would like to see an immediate pay rise.
	120	Make no change.
	121	Don't care. I don't use much. Don't care what price, I still have to get around.
0	110	None - thank the lord we don't own a car.
+1	102	Convert car to gas.
	103	If you could afford it, buy some other means of transport, or stock up on fuel.*
	104	Ride my motor cycle more often.
	105	Walk and ride a bike.
	114	Increase public transport.
	115	Just go to shops once per week.
	122	If the prices go up, I would not go out as much.
	403	More public transport, otherwise too much financial pressure on families and family outings would have to be curtailed.
	409	Probably speed the conversion of the V8 to LPG and encourage my spouse to sell her car or get a job! And see that a bus run was introduced for work.
	410	If petrol costs increased then the bus service would improve -

		more frequency and diversity of travel paths. Use couriers more.
	412	Because of my sole reliance on the car I would have to cop the increase, but I would try to further reduce use.
	415	More planning of trips to reduce mileage. [* use in methods discussion to show advantages of multiple prompting.]
	420	Walk more.
	421	Only to make essential journeys - no treats.
	424	Get more organised with travel.
	426	Buy a car with a 4 cylinder engine.
	908	Ride my motor cycle more
+2	101	Probably very few. Perhaps combine more trips. Be more efficient with trip use. Ride a bike.
	404	More bike tracks, or USE THE EXISTING RAIL LINES - PLEASE.
	417	Even more fuel efficient car, cycle lanes, more buses/trains.
	422	Car pool, use public transport, arrange shopping on a roster basis with friends.
+3	4.116	Increase reliance on public transport and establish a car pool plan, better to reduce the amount of travel required and ideally purchase a vehicle with better fuel economy.

D4. Your beliefs about mobility in the future:

Score	House Hold #	Response
-2	111	I can't see it changing until personal safety is assured - I wouldn't go walking with my family at night.
	117	Dangerous to nature as there will probably be more nuclear based forms of transportation used.
	209	It is going to be too expensive to travel in future. Owning a car will be a luxury.
-1	106	The car will always be the main form of transport until fuel runs out.
	108	Probably more vehicles on the roads.
	118	Access to Cairns is limited to two highways - one north and one south. Places like Edmonton and Gordonvale and northern beaches will soon become suburbs of Cairns. Some thought needs to be put into creating "ring roads". A bridge across the inlet connecting with the present Yarrabah Road (upgraded) and syphoning incoming and outgoing traffic through a new highway connecting to the present main highway further south – perhaps Babinda area.
	122	With the powers that be trying to destroy this world, how can I

		possibly have any beliefs about the mobility in the future. If we survive it will be different than what it is today.
	401	Mobility may become more difficult unless the current useage of vehicles alters.
	409	I wonder what fuel are going to be invented or if we are doing enough to research/fund or investigate enviro friendly fuels/transport.
	427	Should be more money spent on roads and transport. The fee charged by the state government for housing blocks in the Cairns area should have been used for roads.
0	428	Anything's possible, but convenience will more than likely remain the top priority.
+1	103	Gas might be better because it burns cleaner, or ethanol, but we still must think of the heat involved. Not good for the planet.
	104	It will always be with us. Current style of vehicles will price themselves out of the market. There will always be private transport.
	105	Alternative transportation will be available (new innovations etc.).
	109	Uncertain.
	110	It's going to be a lot better.
	114	Would be improved with better public transport.
	115	Flood-proof mono-rail to northern suburbs.
	116	Hope Cairns will have a good system in the future.
	120	Similar
	121	Much the same.
	402	Road systems in Cairns are improving to cope with future requirements.
	403	Will have to be more public transport in the future.
	406	Perhaps the rail system could be utilised using existing cane tracks to ferry people in to town.
	407	Electric cars.
	408	More public transport will be needed (not buses, perhaps tram/train).
	410	For information based professions - technology may allow us to work from home more. Computers, video links, modems etc. Will make communications easy. The road network may be used more for delivery and recreation.
	412	The bus system has improved 100%. Cars will still be used as the main form of transport.
	417	People are unlikely to give up their mobility even if the costs rise (its their God-given right). Therefore, as cost rise there will be a demand for and willingness to pay for alternatives.
	418	Fuel from sugar, magnet power, solar power.
	425	A lot more money and planning needs to be done. We do not use rail enough. Eg, sugar from outer areas should be by rail,

		and also a lot of heavy transport could be done by rail or ship.
+2	102	More public transport, walkways, and push bike tracks, more rational road planning
	107	More mass transit, work from home, fuel efficiency.
	404	I think we need to utilize our rail lines, bring back the motor rail, and clean p the air, keep private vehicles out of town, more push bikes.
	415	In the short term we must stop building more roads and start making public transport cheaper, more efficient and more convenient for all. Humans won't stop being mobile, so in the longer term we need clean renewable energy sources.
	416	With the changes in technology, telecommuting and other interactive services combine with the depletion of resources, mobility will become more leisure activities for those who can afford it. Similar to the turn of the century.
	422	More public transport. Why not govt. Cars to share - pay more than bus - ie comm. Type or those with trailers to take the shopping home. Pay for distance travelled on public transport (not a one fare system).
	623	Will be difficult in Cairns if growth is not capped. Geography does not suit further development.
+3	1.1	We will always want mobility now that we have it. So consciousness has to be raised in the wider community about taking steps to minimise the impact - walk when you can, share ride when you can - live close to facilities, and Govt. And industry have to take bold steps. If alternatives are not found, then attitudes will have to change about our mobility.

B8.1. Comments on the Question:
"Would you ride your push-bike more if you could leave it safely at a bus stop?"

Score	house hold #	Response
-1	101	Confess to being spoilt by convenience of car, and time constraints.
	103	I'm a carpenter and can't carry all my tools on a push bike.
	104	I don't want to catch a bus.
	105	Nothing is safe in inner Cairns.
	106	I always have my baby with me when I travel.
	114	Not necessary at a bus stop.
	408	'Safety' would have to mean a locker for each bike.
	427	I'd rather have it at my destination.
+1	409	I could then get to work by combination bike/bus. [* note - internal inconstancies b/w this respondents' answers to bus, and bike security Qs.]
	425	If it were safer [the riding].

B13. Comments about special needs groups, such as people in wheelchairs:

Score	House Hold #	Response
-2	106	I have noticed just with a stroller in the Nth Cairns area the lack of firm paths to walk along, and difficulty in crossing Sheridan St. On foot.
	915	Create financial and legal problems (injury liability) for transport operators.
-1	101	Should be made easier to use public transport and access all facilities.
	104	Stairs are the problem.
	108	Limited knowledge, but easier access for wheelchairs required.
	109	In the CBD, not enough access in many shops for wheelchairs.
	110	There needs to be buses equipped to handle wheelchairs - eg lifts into buses.
	116	There travel needs should be made more comfortable.
	401	Wheelchairs are well served for access, however, many gutters are not suitable.
	406	Lack of facilities.
	409	Have noticed swing doors and lack of w/chair ramps cause problems.
	412	Very hard to use buses. Taxis can cater for specialised needs.

	417	Buses must be impossible.
	422	Building going on in city - hard enough for walking. More 'special' taxis or hire cars.
	424	Much more thought for wheelchair users needs to be given.
+1	415	Public transport should cater for them.
	417	Taxis seem well equipped for such difficulties.
	418	Trains cater for wheelchairs.
	419	Priority should be given to method of transport, ie taxi/bus subsidy of fares.
+2	208	My husband is in a wheel chair and uses his own electric chair to get around locally, and then the taxi buses for longer journeys, and is entitled to half price taxi fares. Locally [Earlville] he finds the pavements are reasonably wheel chair friendly.
	707	{from wheelchair user} Apart from a private car, the only option for a wheelchair user is a taxi (Bah, humbug etc.). Cairns caters reasonably well for wheelchair users. I would definitely like to see policing of disable car parks to keep able bodied people from using them – a <u>big</u> problem. Things that help wheel chair users help other people too – the elderly, pram pushers, the infirm, so think and plan!

B3.1. Comments on any of the "Community attachment" questions.

Score	**house hold #**	**Response**
-2	101	I would like to talk to neighbours more. I want to move not because I don't like the neighbours/street - I do, but because Cairns has become too busy.
-1	106	It is convenient for our work to live in this neighbourhood, otherwise we would probably move.
	404	All my friends live in town.
	425	Transport routes need upgrading.
0	110	We work a lot, so haven't really had any contact with the neighbours.
	111	We only know our immediate neighbours.
+1	409	As my partner chooses to drive as little as possible it would be more convenient for her to live closer to the city, but we love this area.
+2	417	Nice neighbourhood, close to work, schools, shops, distance from city irrelevant (don't go there that much).

	422	Cul-de-sac: regular street parties, kids 'live' in each others homes.

I/we would move to *[town, city, or suburb]*
B3.3. because, then

Score	**House Hold #**	**Response: move to**	**because**
-1	103	a town	slower pace
	108	a suburb	
	519	Adelaide	better public transp
	523	A country town	quiter
	611	Bris/Sydney	more work
	706	Brisbane	better work
	711	Brisbane	cheaper, and more sh
	712	Townsville	more compact
	720	Gold Coast	better for kids
	802	city or bush	
	803	Caravonica	nicer, less mosquito
	806	smaller town	more convenient
	814	Sydney or Perth	better employment
	908	Tablelands	
+1	110	closer to city	reduce travel costs
	404	Edge Hill/Whitfield	we could all ride pushbikes everywhere and have the shopping delivered.
	406		happy where we are.
	409	Cairns city	because I'm away a great % of the time, it would be more convenient and practical for my partner.
	412	Freshwater/ Stratford.	-
	413		close to city and schools.
	415	city	everything one needs is close by.
	418	Brisbane or Freshwater	Brisbane has everything, Freshwater is pretty.
	425	Atherton	smaller town, not as fast as Cairns.
	426	Whitfield/Edge Hill	I'd be a bit closer to town and schools.
	427	suburb	it would be still close to my activities, and it wouldn't be in the hustle and bustle of the city.
	501	unit in Earlville	cheap, could use bus
	507	Woree	easier child travel
	508	city	cut travel
	511	Westcourt	nearer school and wo
	515	Cityview	better views

	516	Maryborough	peace near major cen
	517	city	less costs
	606	city/Edge Hill	walk to school/work
	607	city	closer to work
	610	closer to supermarket	
	624	Mooroobool	closer
	702	Stratford	reduce travel costs
	705	Redlynch	nearer destinations
	714	Trinity Beach	more central to need
	721	Smithfield	near beach and work
	804	city	convenience
	807	inner city	closer
	808	Redlynch	get house
	809	Edge Hill	walk or cycle to wor
	904	Bay View Height	closer to school, wo
	905	Trinity Bay sch	more central for us
	910	Earlville	central
	912	Northern Beache	close to work and li
	917	beach area	like beach area
	918	city	walk everywhere
	923	city	like ocean view
+2	408	Westcourt	it would be walking distance to work, shops, and social activities.
		Would not move	Cairns is a very small town. Distances, and, more significantly, time taken to get somewhere are the best of any city/town we have lived in.
	801	no where else	

B13. Comments about special needs groups, such as people in wheelchairs:

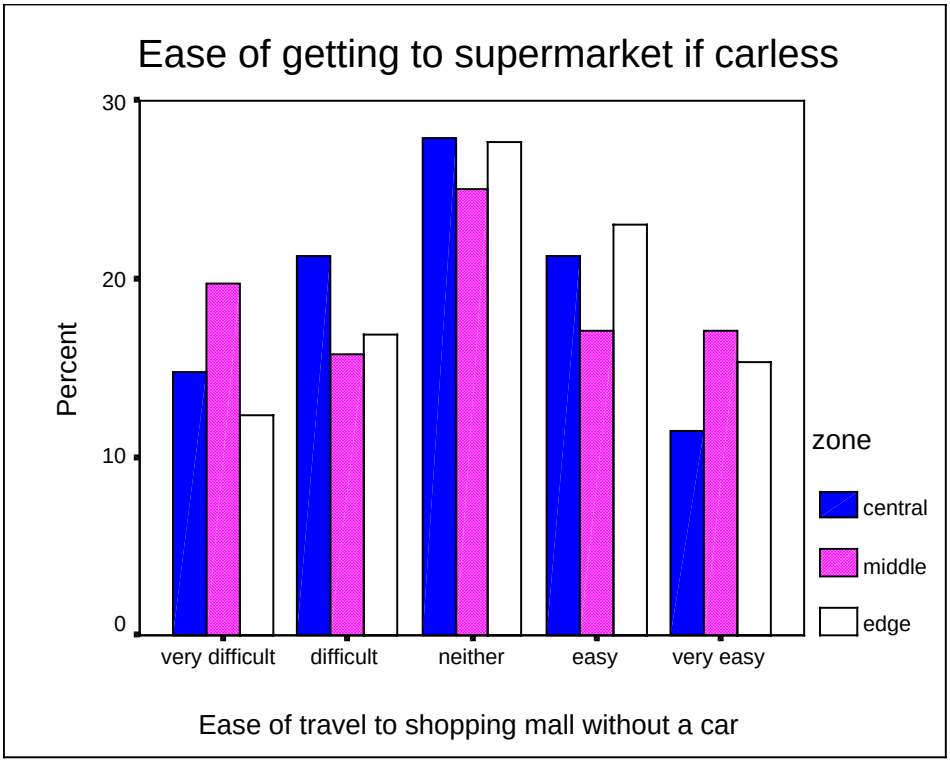
Score	House Hold #	Response
-3	315	impossibe using public transport
-2	104	stairs are the problem
	110	equip buses
	308	very poor in CBD
	316	need more access
	604	very difficult
	709	needs vast improvement
-1	101	needs improvement
	105	lacks paths
	106	lack paths - try a stroller
	108	better access needed
	109	more CBD shop access
	116	make more comfortable
	204	need more ramps
	302	improve buses
	314	police parking bays
	415	fix buses
	508	buses need access, expensive
	607	restricted
	711	not very wheelchair accessable
	714	overhanging tree branches
	803	bad enough with a pram
	901	buildings intolerant
	903	difficult without paths
	912	near-impossible to use buses
	920	not enough support
	921	very variable
	922	t/port access difficult
	925	need ramps
0	207	trains may help
	208	mass transport to have lifts, space and seat belts
	301	provide specialist vehicles
	318	more ramps
	320	more crossing access
	401	fix gutters
	425	only parking good
	409	more ramps, less swing doors
	412	buses hard, taxis good
	417	buses hard, taxis good

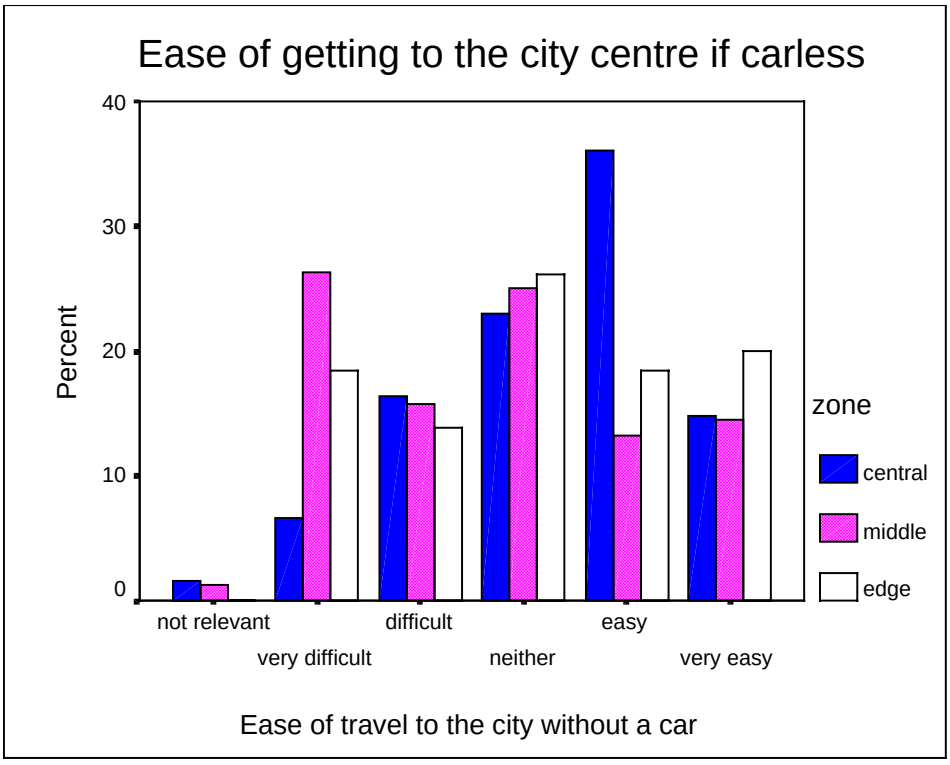
	422	more taxis
	424	better planning
	517	need more access
	522	include in planning
	605	improve building access
	609	more car parks
	610	need more
	611	government planning
	614	smoother road crossings
	617	better planned buildings
	618	buses?
	619	more help
	621	fix guttering
	622	better paths
	703	better access
	704	suburban wheelchair paths
	706	more facitities
	804	in initial planning
	807	Public transport should provide
	811	improve access
	904	need rail
	905	should be designed for
	906	need better access
	907	plan for
	908	cater more
	911	need bus access
	915	hard on t/port operators
	923	improve all accesses
+1	303	improving
	305	improving
	418	trains are easy
	419	subsidise fares
	501	enforce use of parking spaces
	502	husband in wheelchair - acceptable.
	503	taxis provide
	504	improved access and parking
	506	improving
	507	more p/tport and help training
	510	catered for
	512	more needed
	603	taxis cater
	616	improving
	805	taxis good
	806	taxis good
	924	catered for

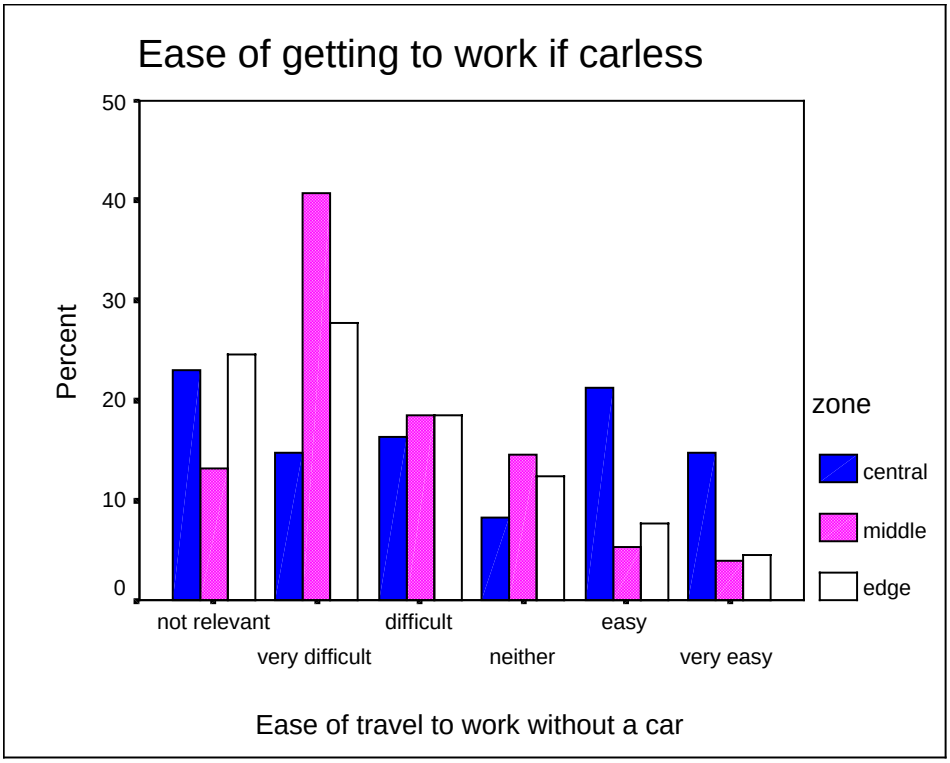
+2	313	plenty of access
	520	blind wife relies on buses

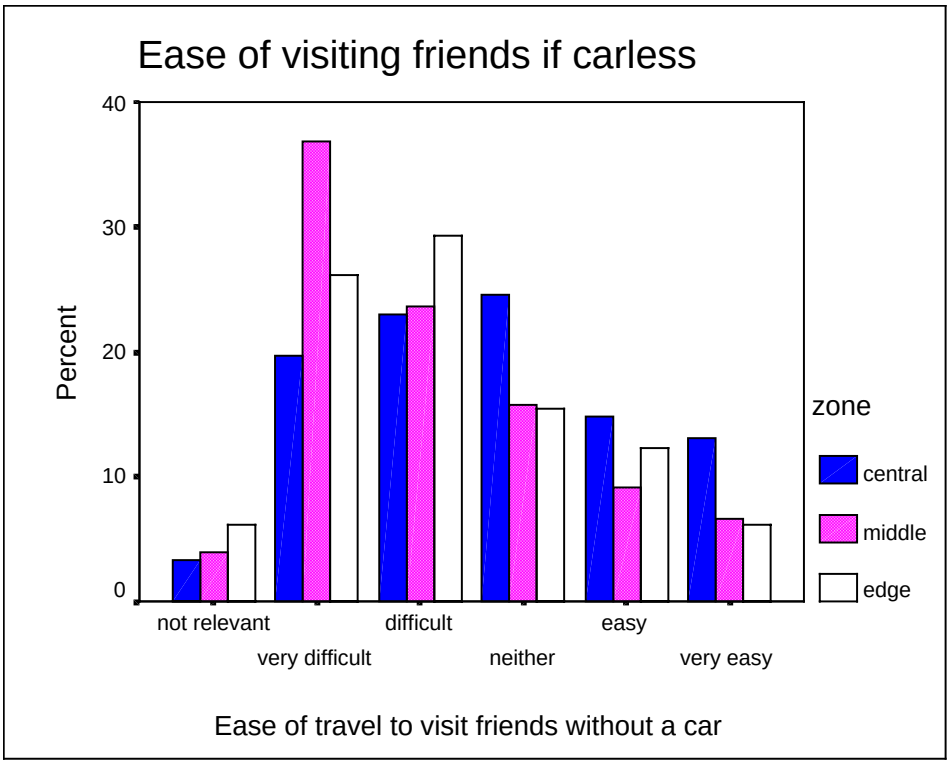
Appendix 7

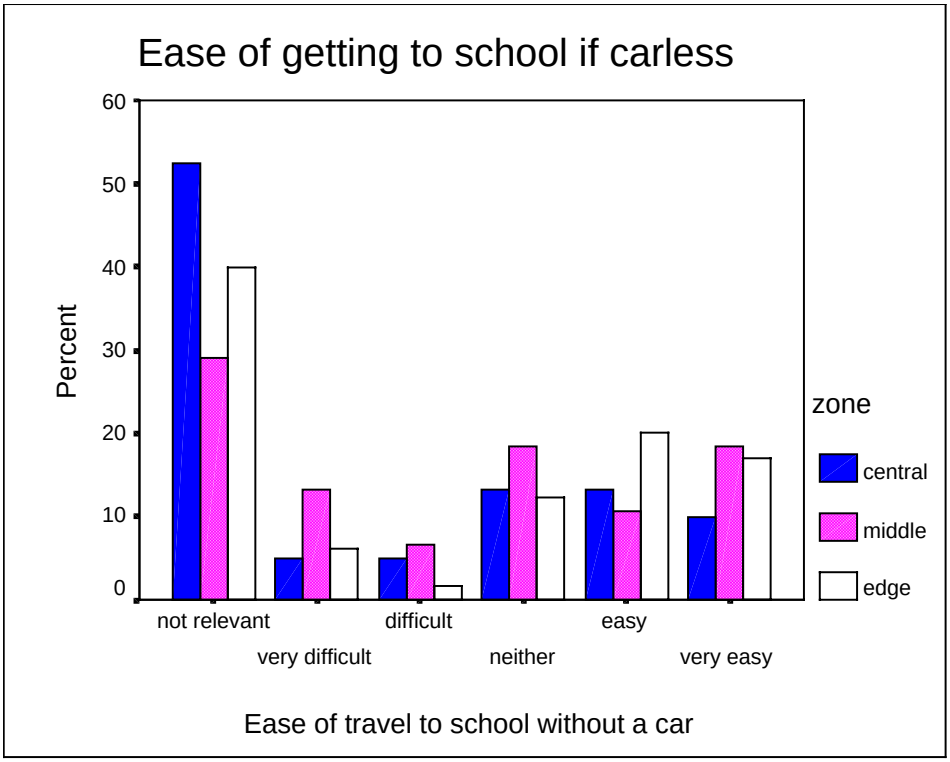
Cairns general charts

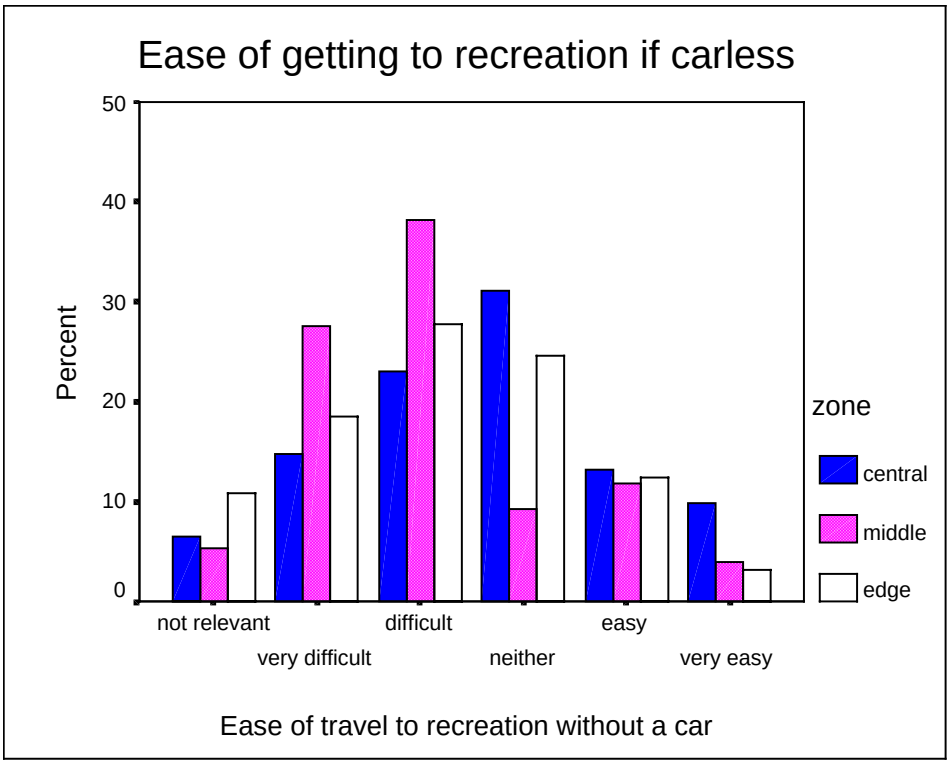


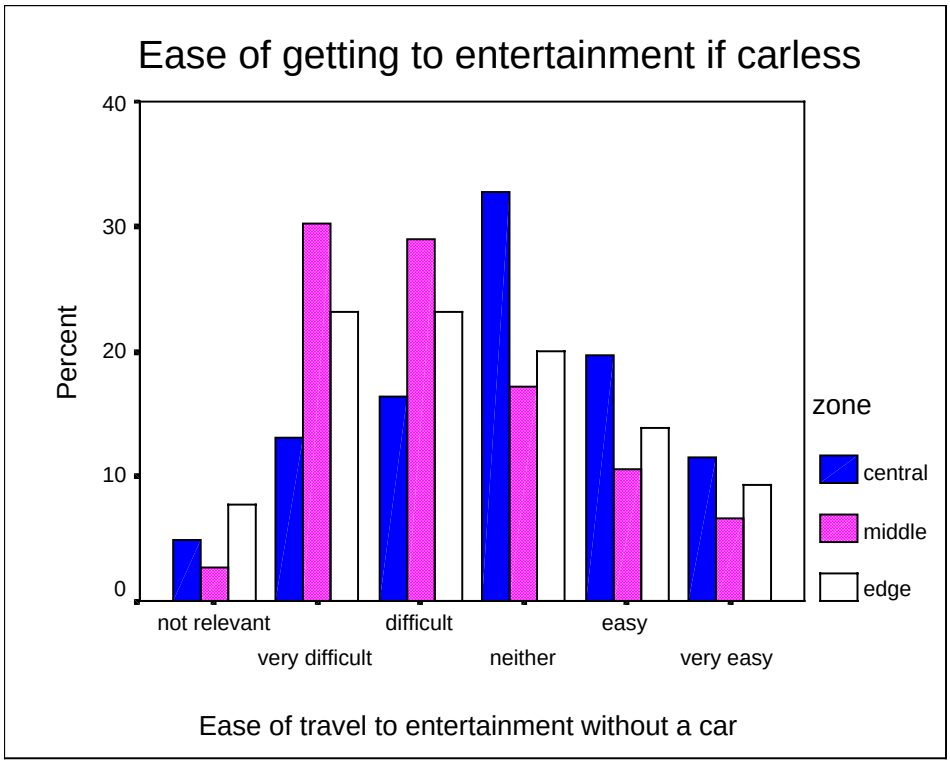


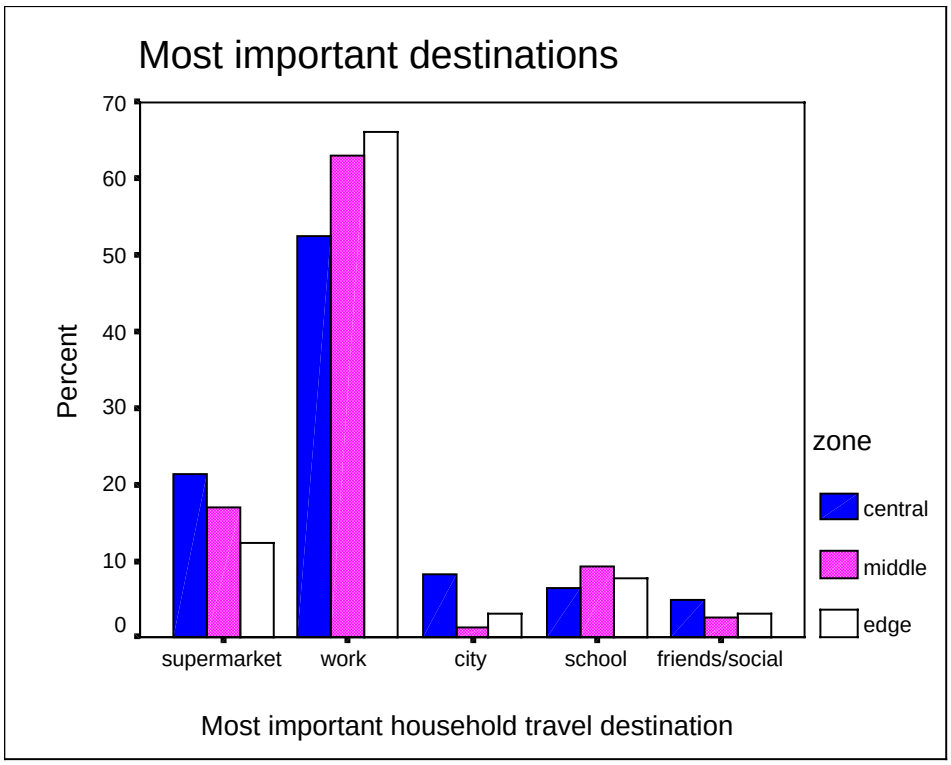

Ease of getting to work if carless
Percent
50
40
30
20
10
0
zone
central
middle
edge
not relevant
very difficult
difficult
neither
easy
very easy
Ease of travel to work without a car

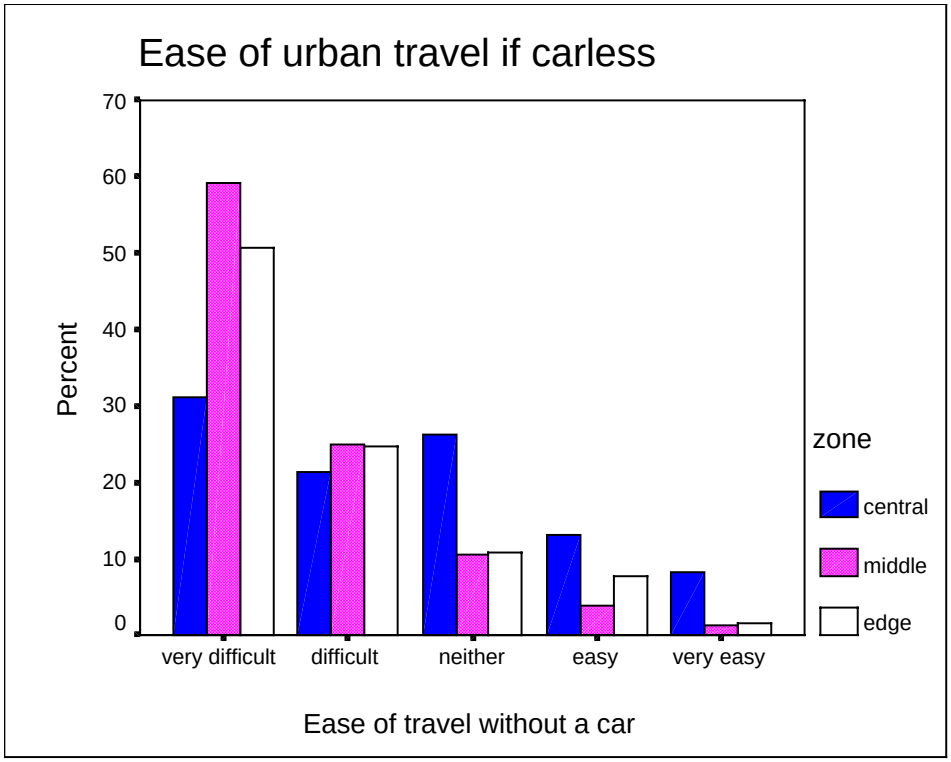

Ease of visiting friends if carless
Percent
40
30
20
10
0
zone
central
middle
edge
not relevant
very difficult
difficult
neither
easy
very easy
Ease of travel to visit friends without a car

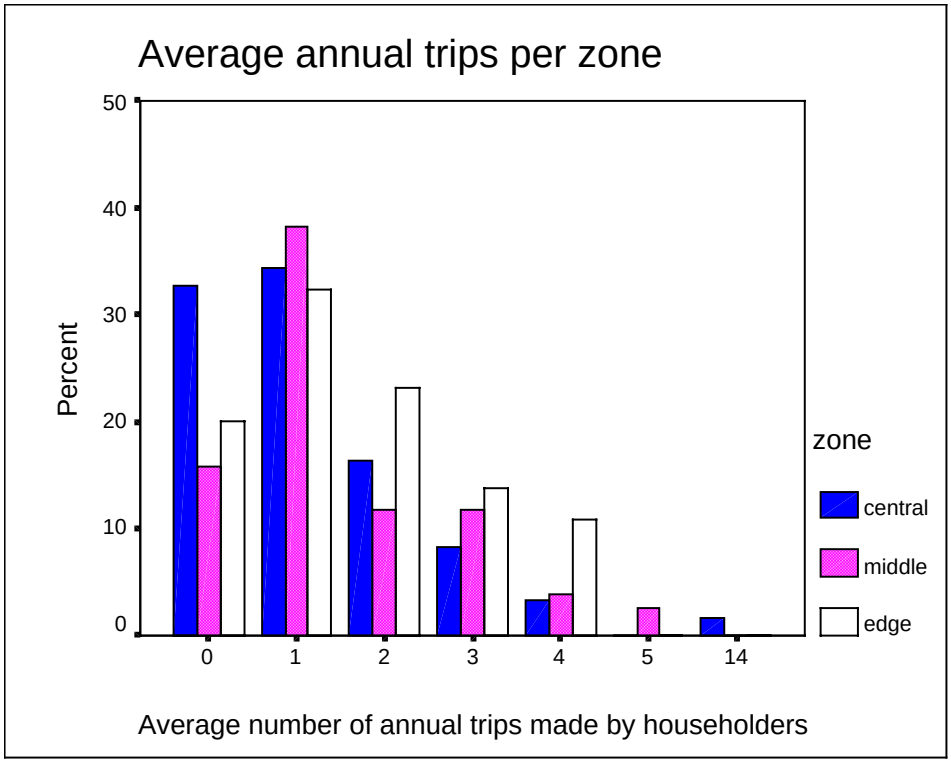

Ease of getting to school if carless
Percent
60
50
40
30
20
10
0
zone
central
middle
edge
not relevant
very difficult
difficult
neither
easy
very easy
Ease of travel to school without a car

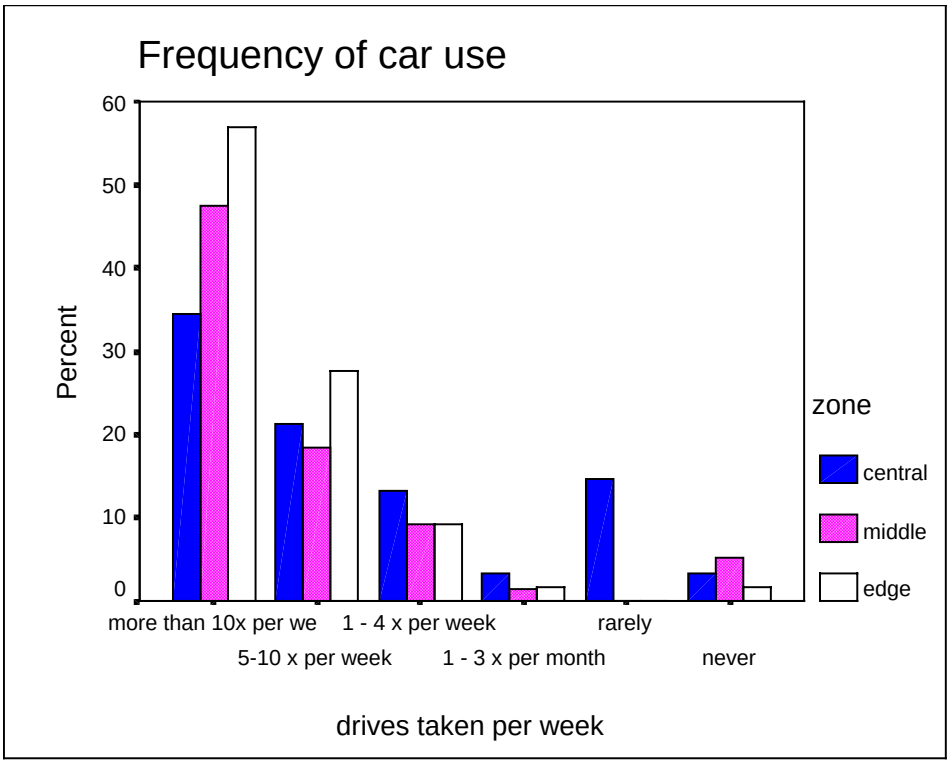

Ease of getting to recreation if carless
Percent
50
40
30
20
10
0
zone
central
middle
edge
not relevant
very difficult
difficult
neither
easy
very easy
Ease of travel to recreation without a car

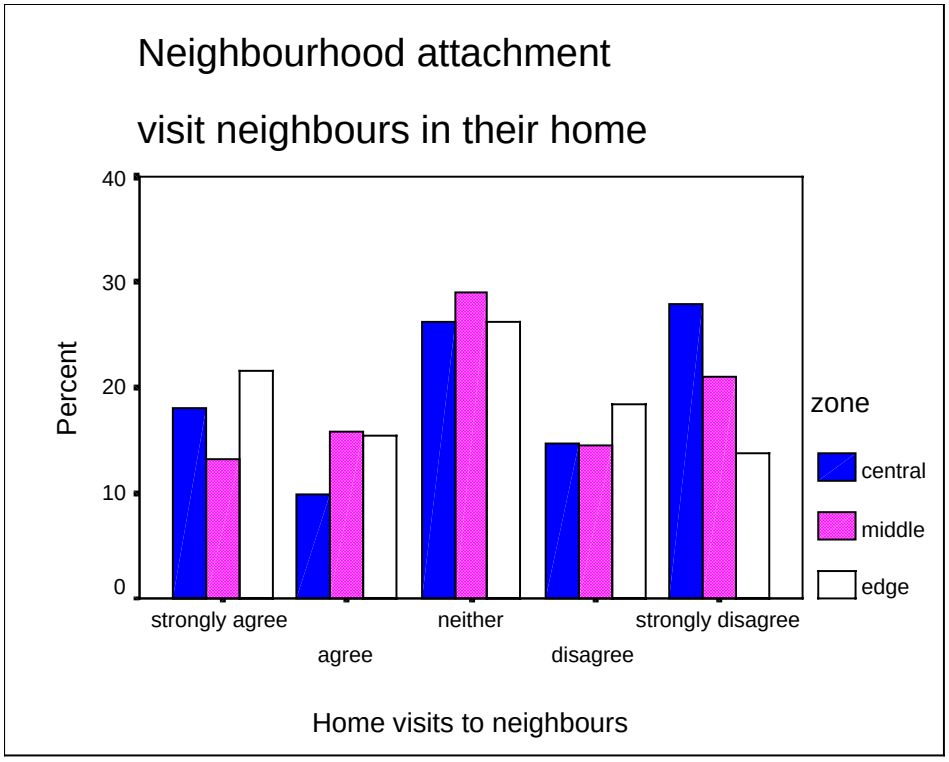

Ease of getting to entertainment if carless
Percent
40
30
20
10
0
not relevant
very difficult
difficult
neither
easy
very easy
zone
central
middle
edge
Ease of travel to entertainment without a car

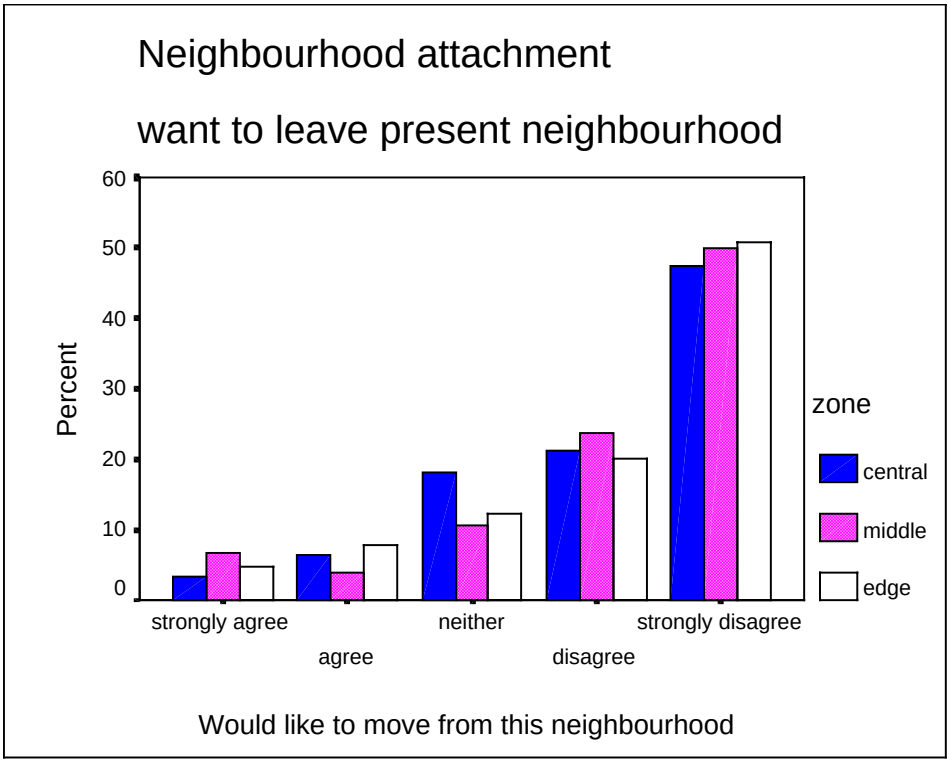

Most important destinations
Percent
70
60
50
40
30
20
10
0
supermarket
work
city
school
friends/social
zone
central
middle
edge
Most important household travel destination

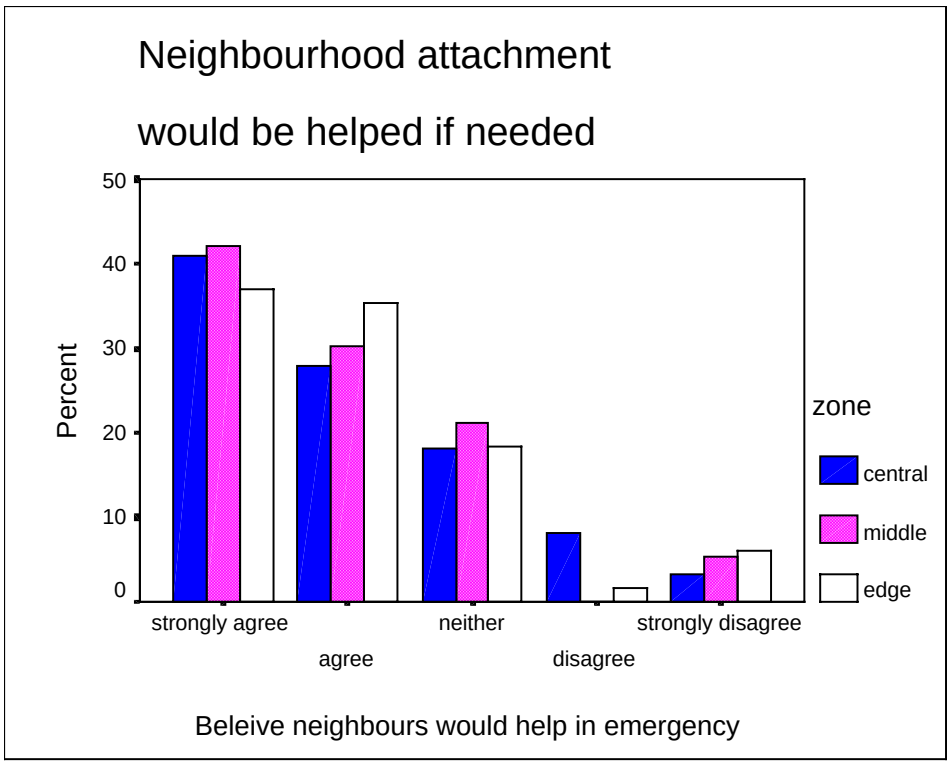

Ease of urban travel if carless
Percent
70
60
50
40
30
20
10
0
very difficult
difficult
neither
easy
very easy
Ease of travel without a car
zone
central
middle
edge

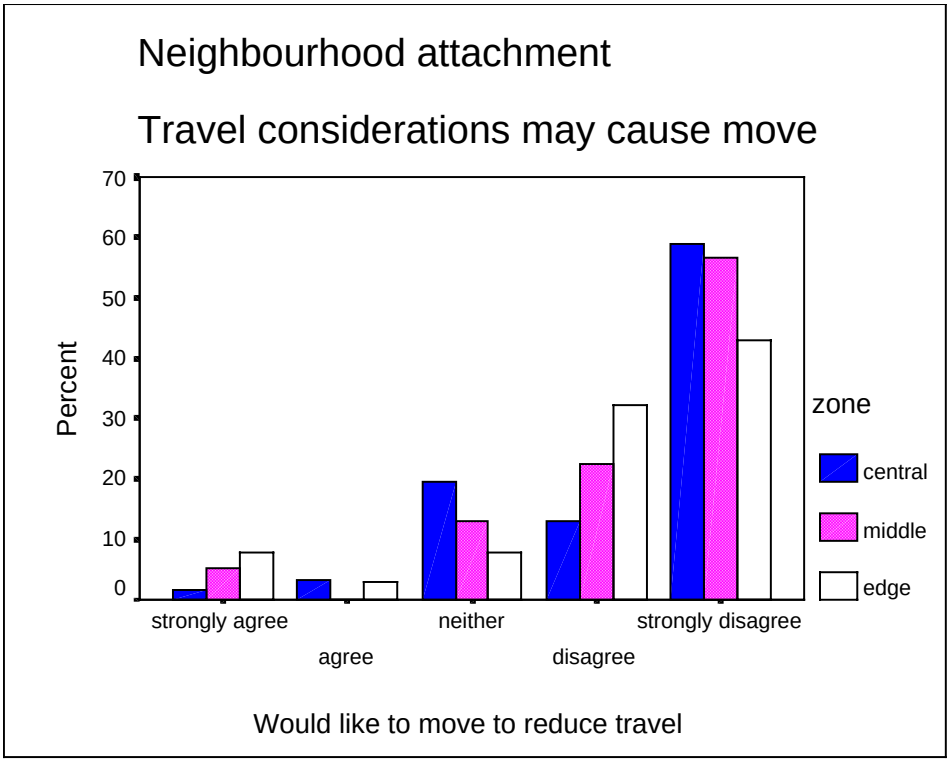

Average annual trips per zone
Percent
50
40
30
20
10
0
0
1
2
3
4
5
14
Average number of annual trips made by householders
zone
central
middle
edge

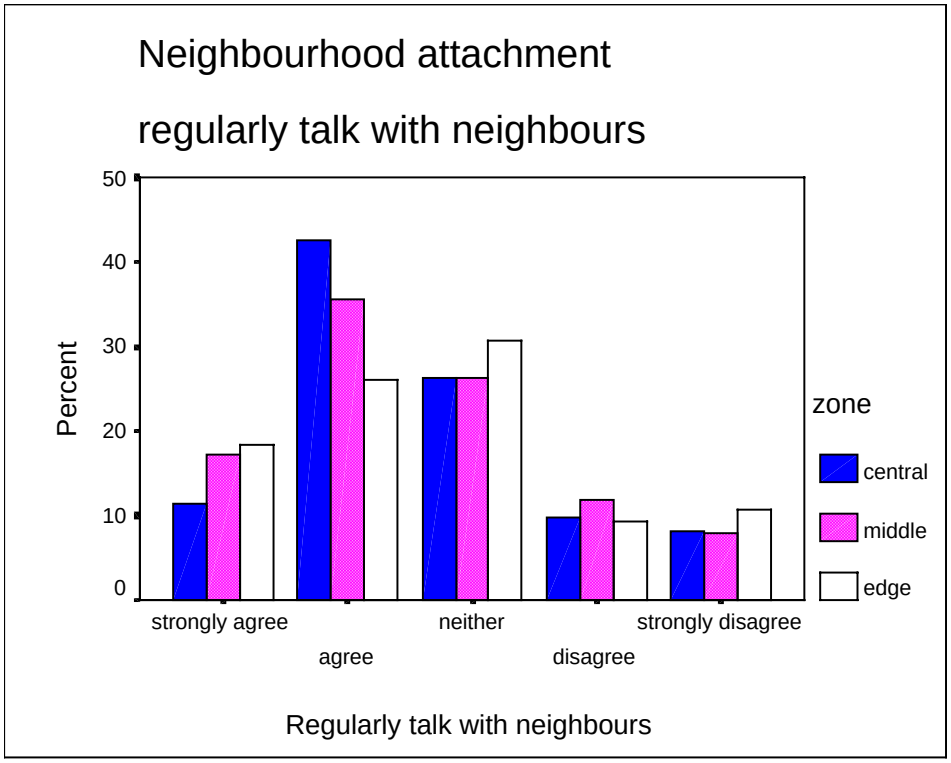

Frequency of car use
Percent
60
50
40
30
20
10
0
more than 10x per we
5-10 x per week
1 - 4 x per week
1 - 3 x per month
rarely
never
drives taken per week
zone
central
middle
edge

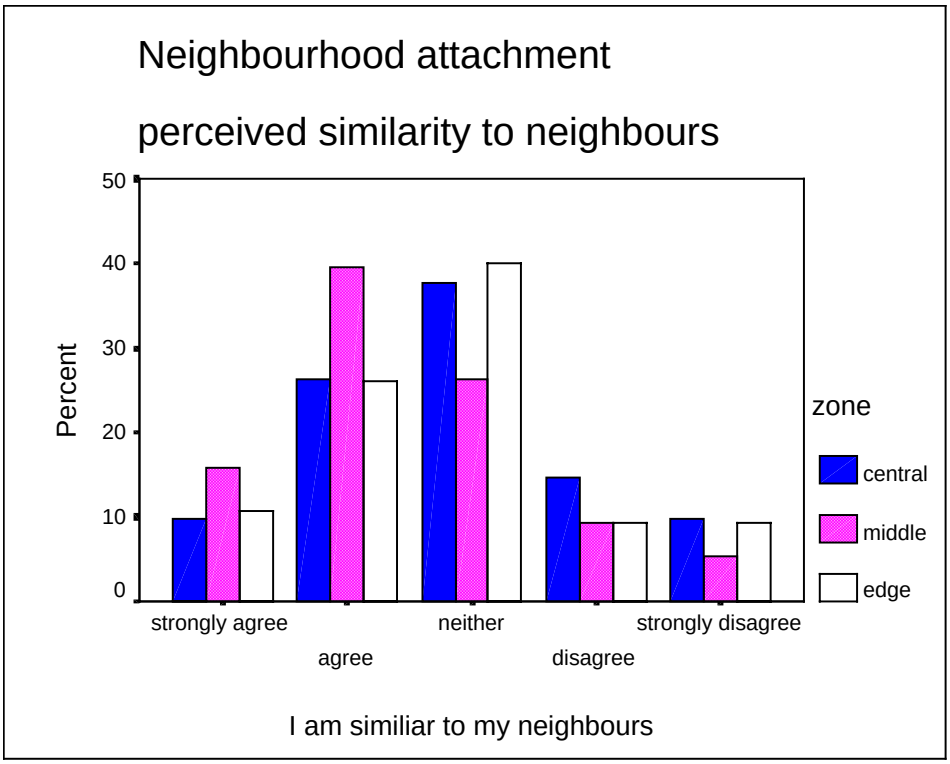

Neighbourhood attachment
visit neighbours in their home
Percent
40
30
20
10
0
strongly agree
agree
neither
disagree
strongly disagree
Home visits to neighbours
zone
central
middle
edge

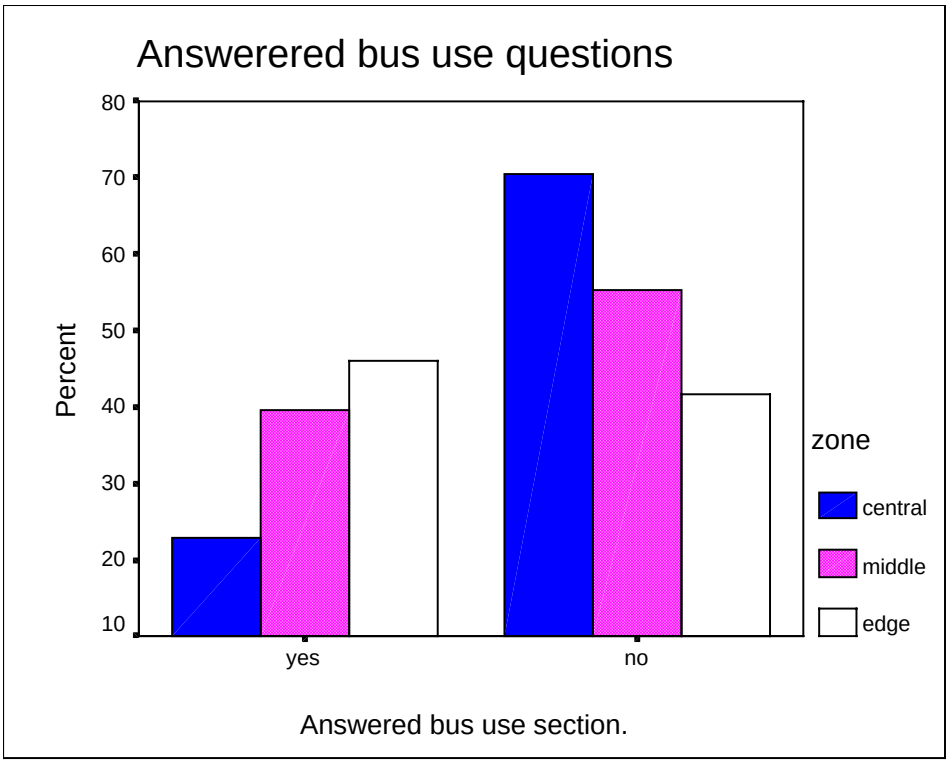

Neighbourhood attachment
want to leave present neighbourhood
Percent
60
50
40
30
20
10
0
strongly agree
agree
neither
disagree
strongly disagree
zone
central
middle
edge
Would like to move from this neighbourhood

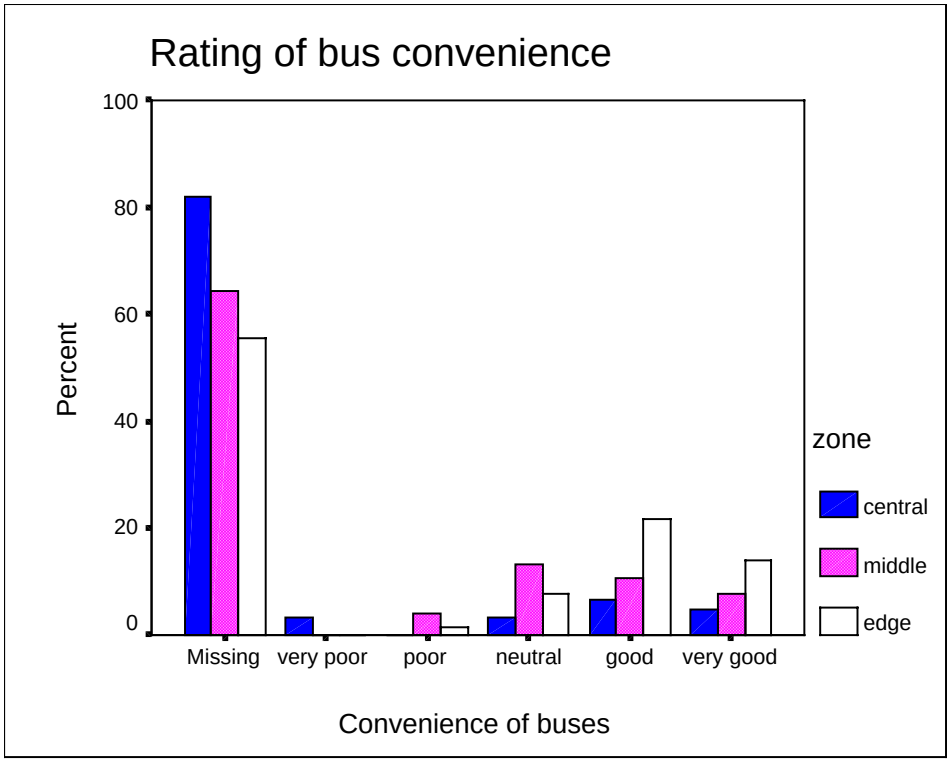

Neighbourhood attachment
would be helped if needed
Percent
50
40
30
20
10
0
strongly agree
agree
neither
disagree
strongly disagree
zone
central
middle
edge
Beleive neighbours would help in emergency

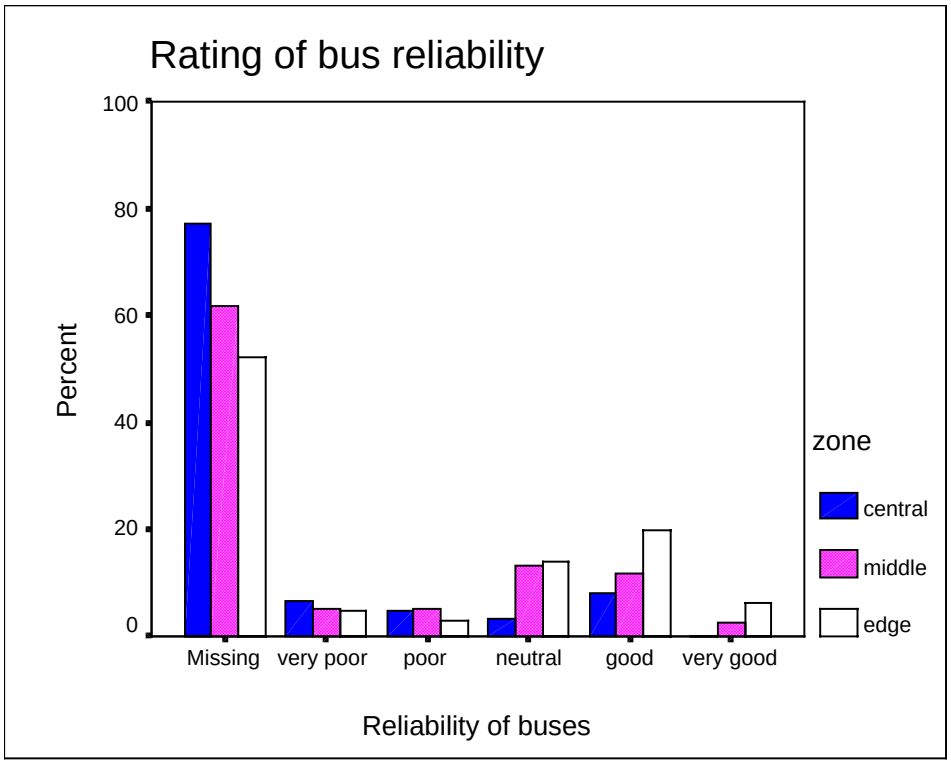

Neighbourhood attachment
Travel considerations may cause move
Percent
70
60
50
40
30
20
10
0
strongly agree
agree
neither
disagree
strongly disagree
zone
central
middle
edge
Would like to move to reduce travel

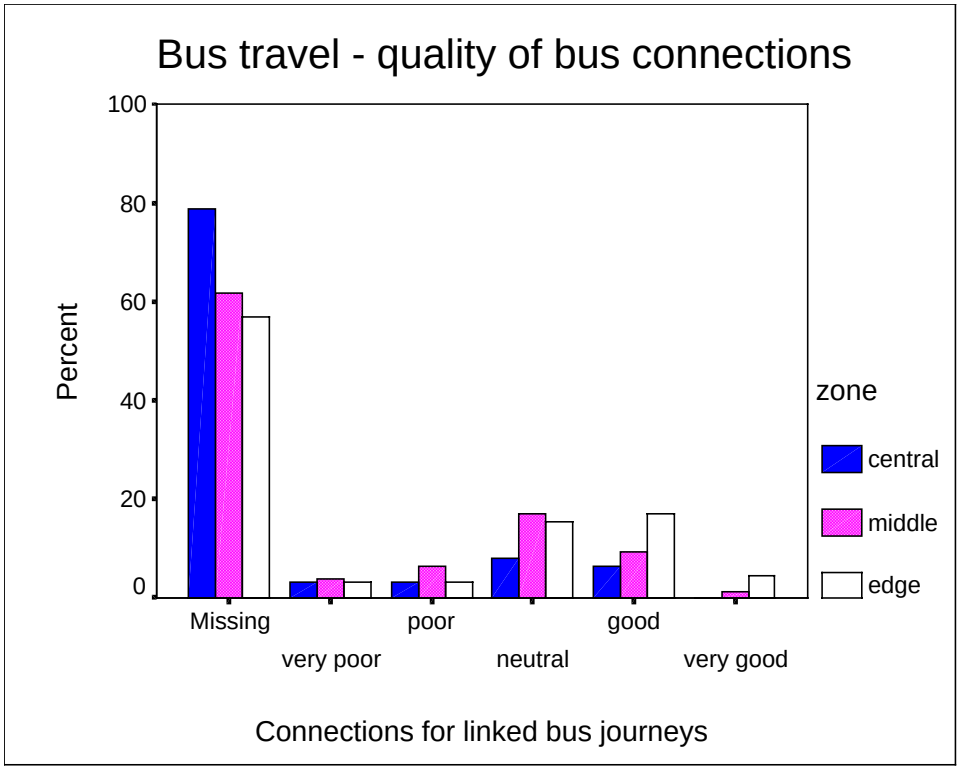

Neighbourhood attachment
regularly talk with neighbours
Percent
50
40
30
20
10
0
strongly agree
agree
neither
disagree
strongly disagree
zone
central
middle
edge
Regularly talk with neighbours

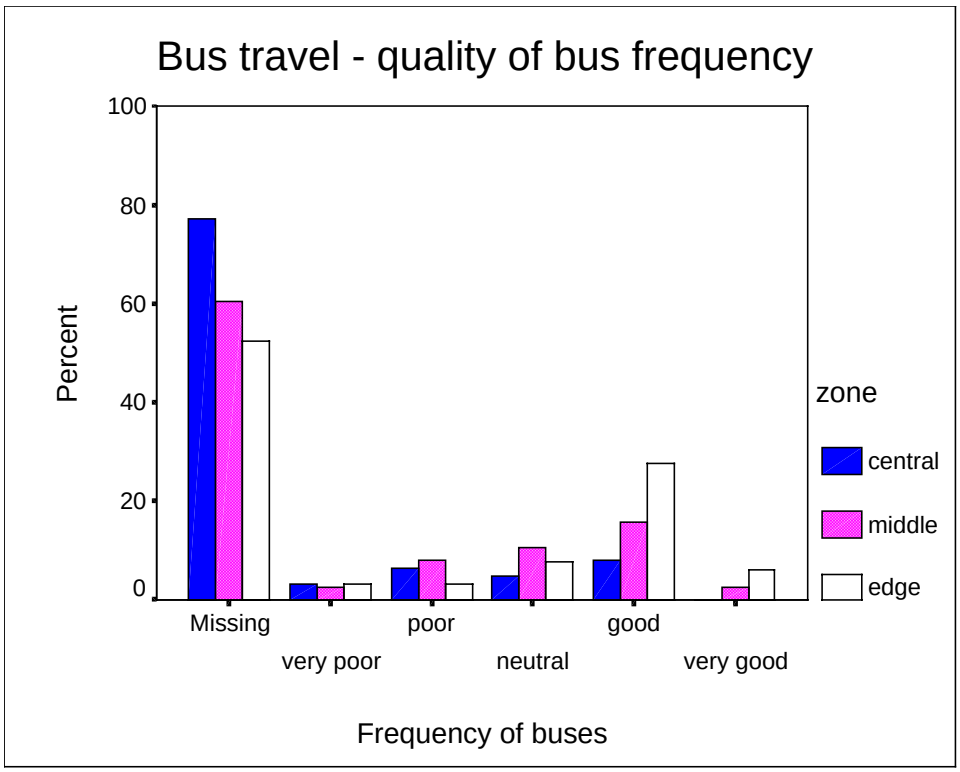

Neighbourhood attachment
perceived similarity to neighbours
Percent
50
40
30
20
10
0
strongly agree
agree
neither
disagree
strongly disagree
zone
central
middle
edge
I am similiar to my neighbours

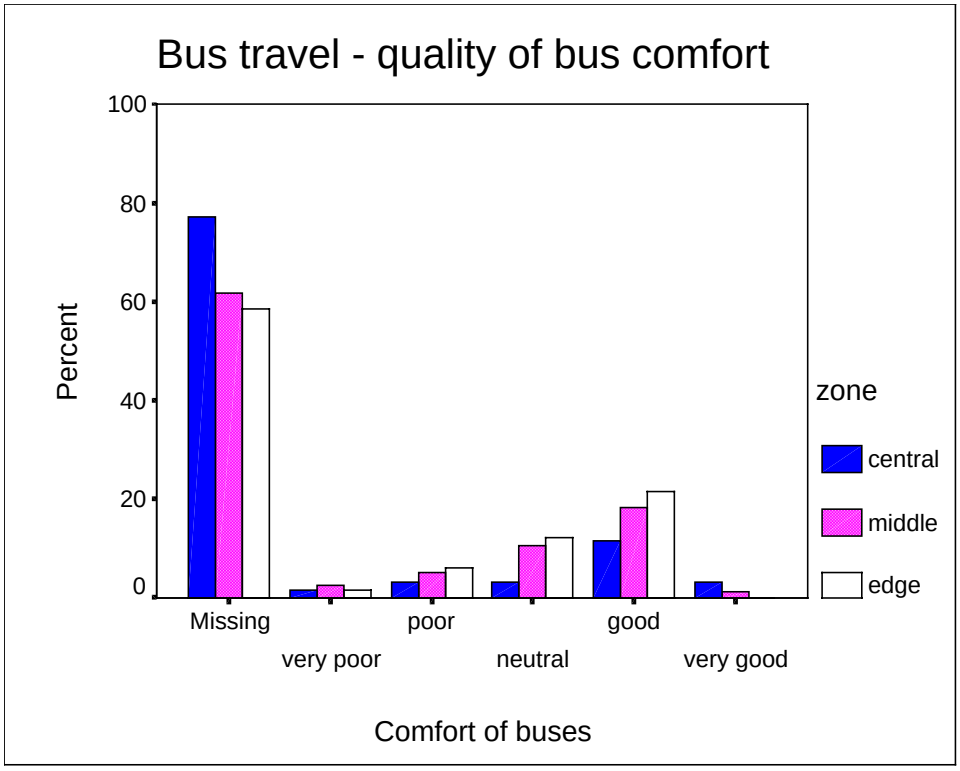

Answerered bus use questions
Percent
80
70
60
50
40
30
20
10
yes
no
zone
central
middle
edge
Answered bus use section.

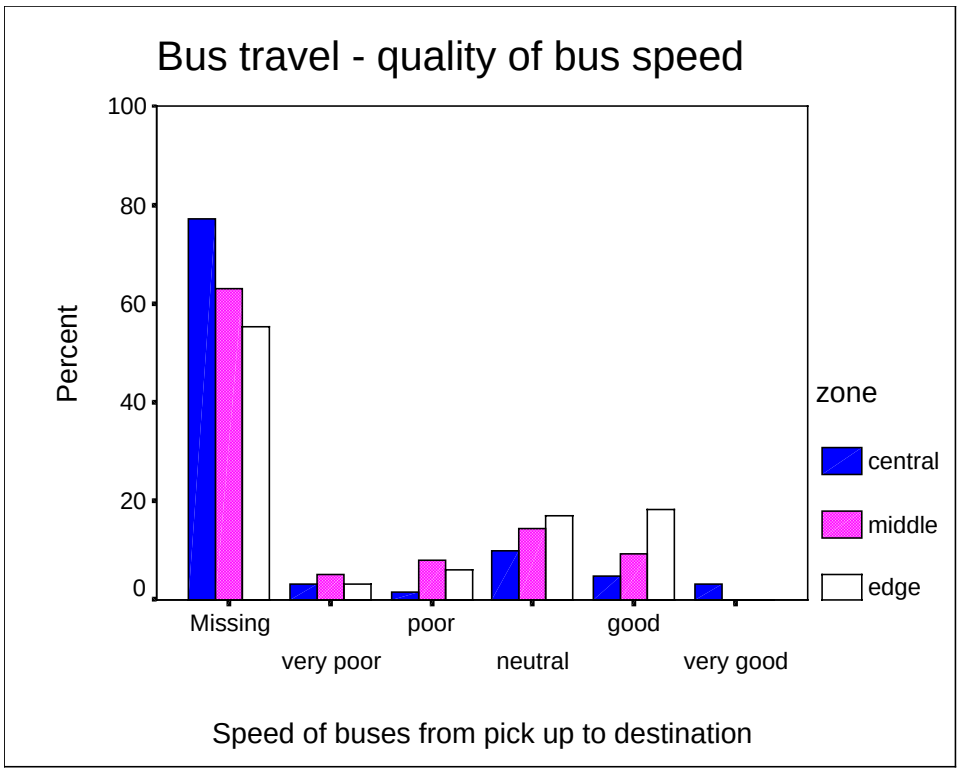

Rating of bus convenience
100
80
60
40
20
0
Percent
Missing
very poor
poor
neutral
good
very good
Convenience of buses
zone
central
middle
edge

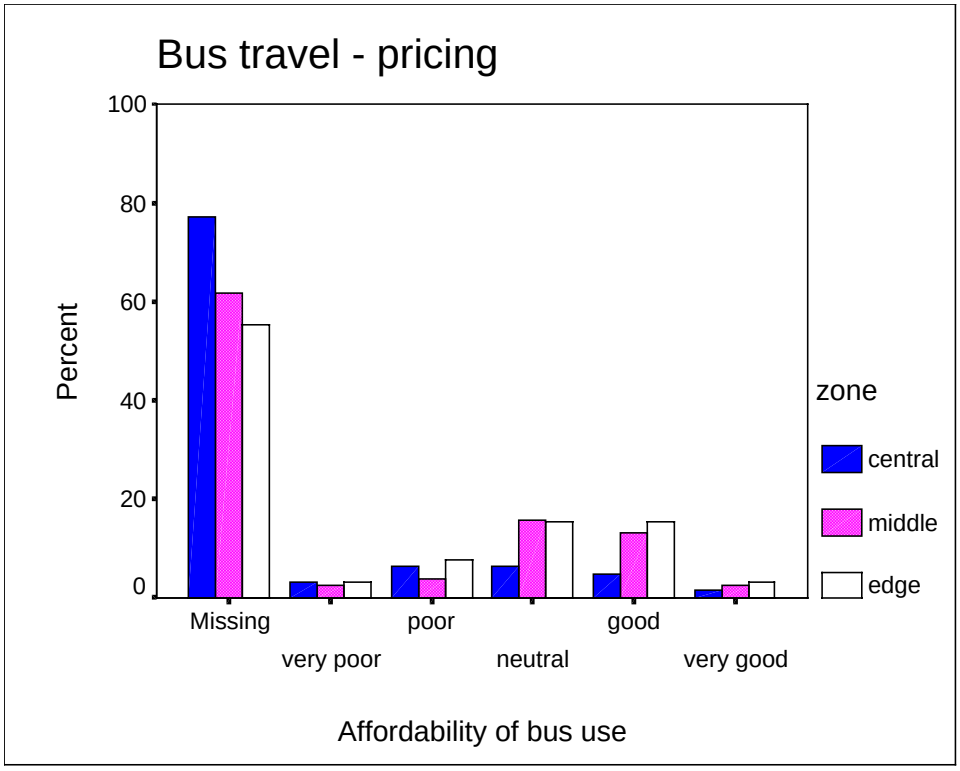

Rating of bus reliability
100
80
60
40
20
0
Percent
Missing
very poor
poor
neutral
good
very good
Reliability of buses
zone
central
middle
edge

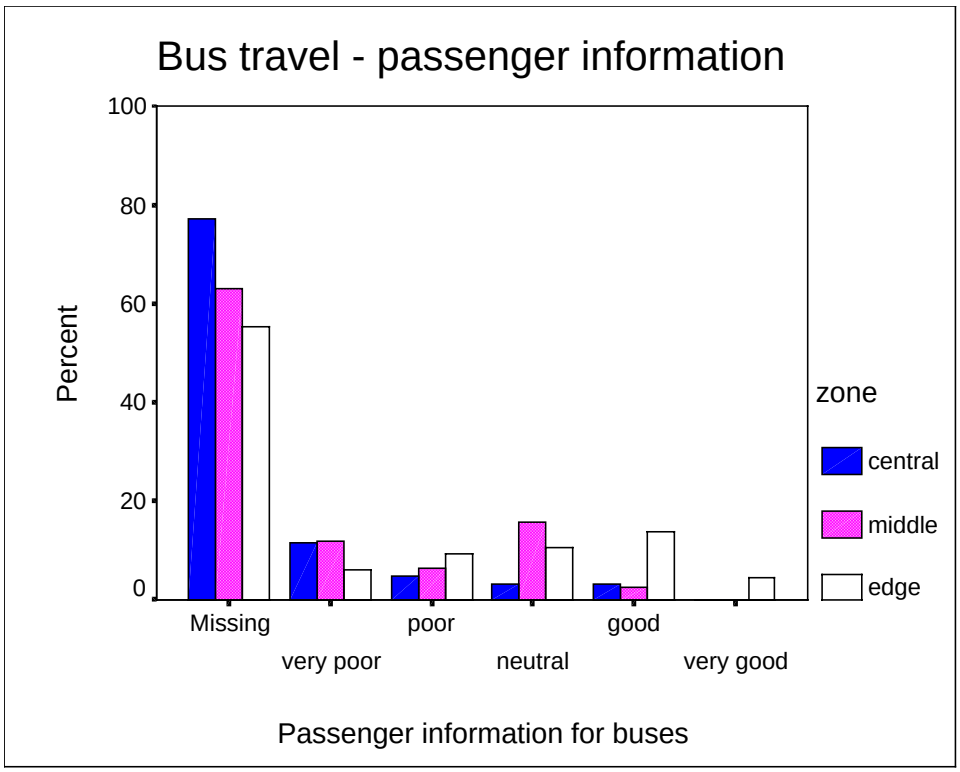

Bus travel - quality of bus connections
Percent
100
80
60
40
20
0
zone
central
middle
edge
Missing
very poor
poor
neutral
good
very good
Connections for linked bus journeys

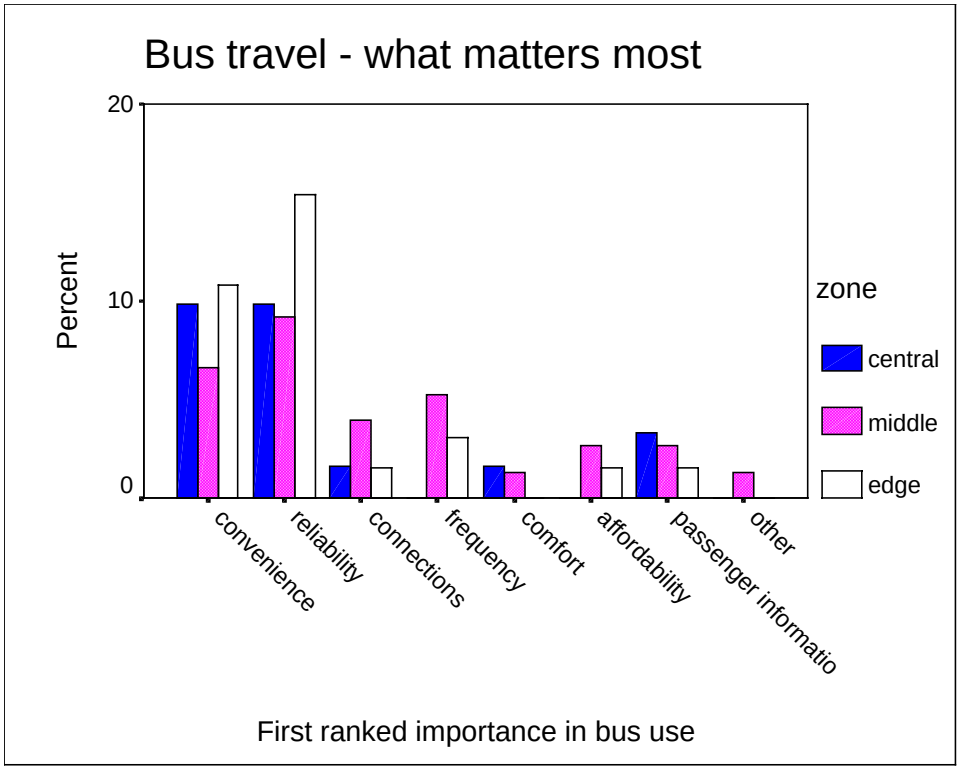

Bus travel - quality of bus frequency
Percent
100
80
60
40
20
0
zone
central
middle
edge
Missing
very poor
poor
neutral
good
very good
Frequency of buses

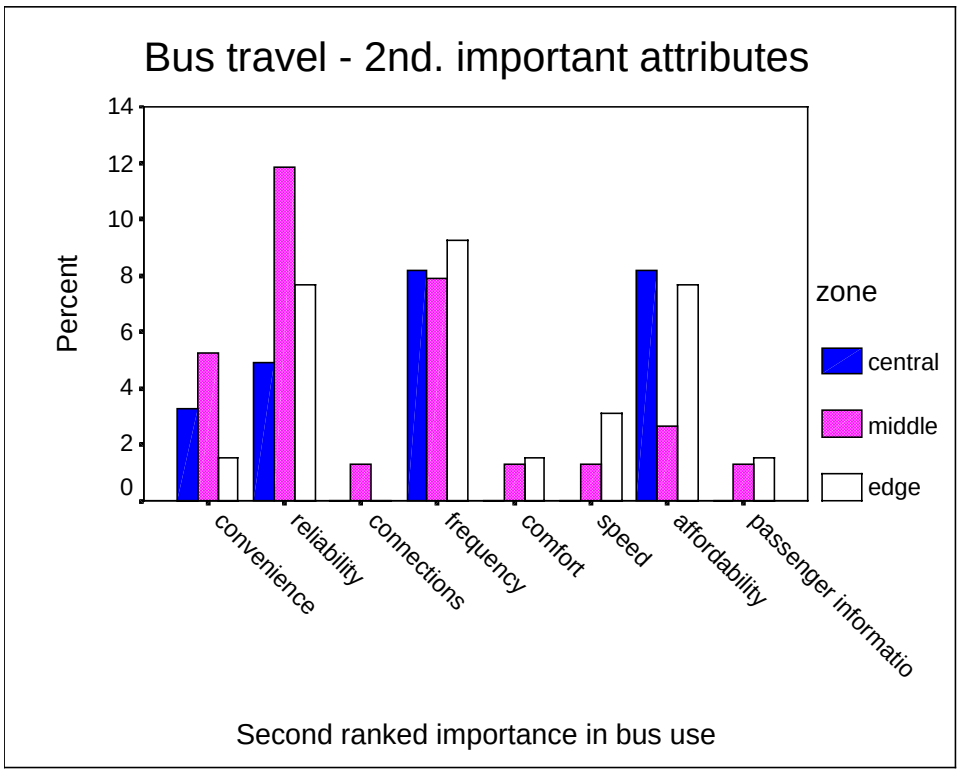

Bus travel - quality of bus comfort
Percent
100
80
60
40
20
0
zone
central
middle
edge
Missing
very poor
poor
neutral
good
very good
Comfort of buses

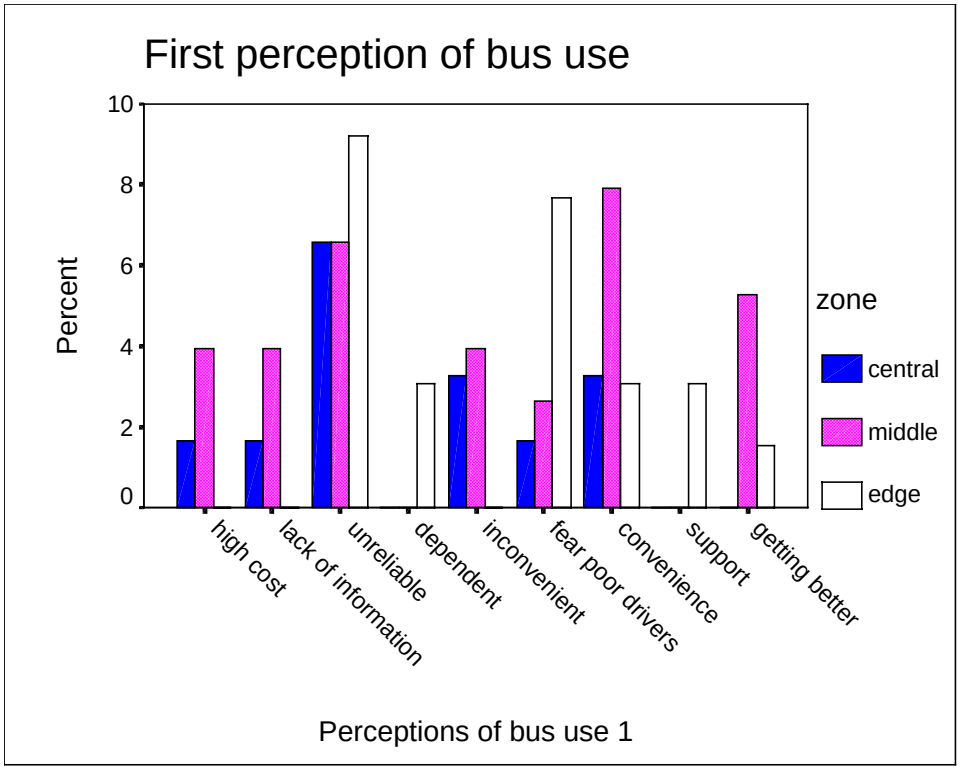

Bus travel - quality of bus speed
Percent
100
80
60
40
20
0
zone
central
middle
edge
Missing
very poor
poor
neutral
good
very good
Speed of buses from pick up to destination


Bus travel - pricing
Percent
100
80
60
40
20
0
zone
central
middle
edge
Missing
very poor
poor
neutral
good
very good
Affordability of bus use

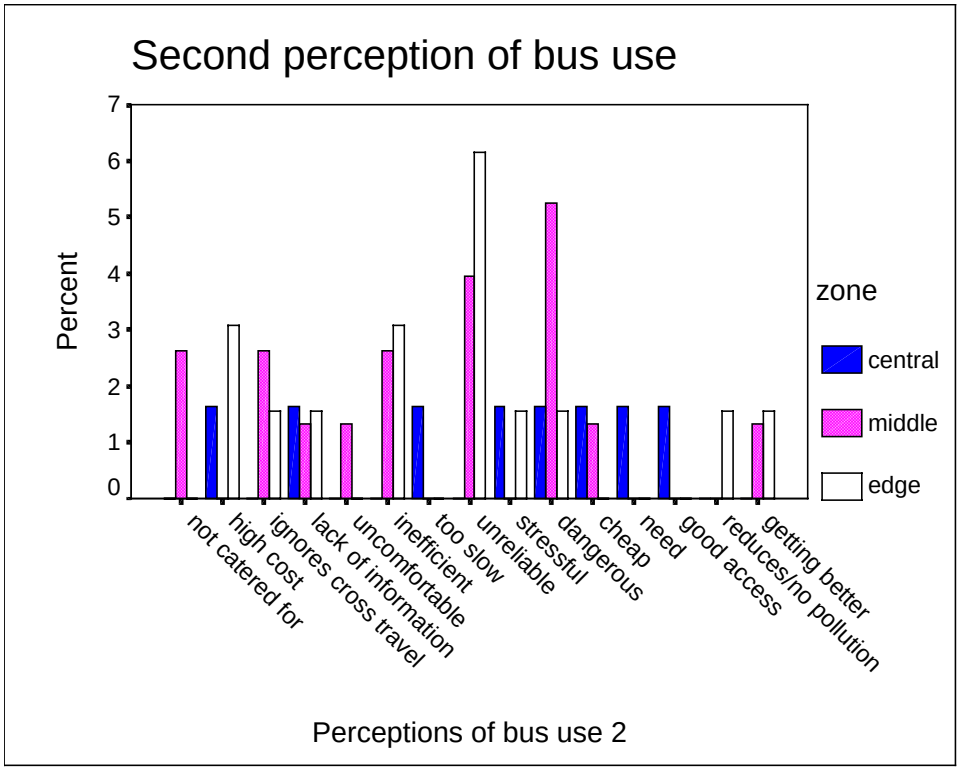

Bus travel - passenger information
Percent
100
80
60
40
20
0
zone
central
middle
edge
Missing
very poor
poor
neutral
good
very good
Passenger information for buses


Bus travel - what matters most
Percent
20
10
0
zone
central
middle
edge
convenience
reliability
connections
frequency
comfort
affordability
passenger informatio
other
First ranked importance in bus use

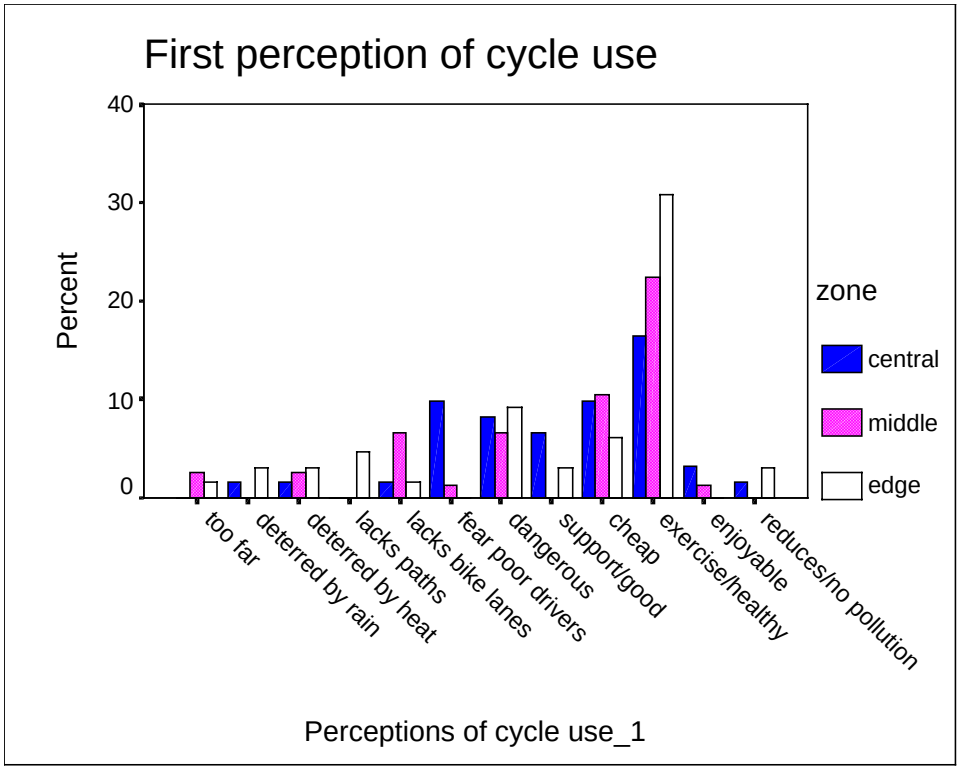

Bus travel - 2nd. important attributes
Percent
14
12
10
8
6
4
2
0
zone
central
middle
edge
convenience
reliability
connections
frequency
comfort
speed
affordability
passenger informatio
Second ranked importance in bus use

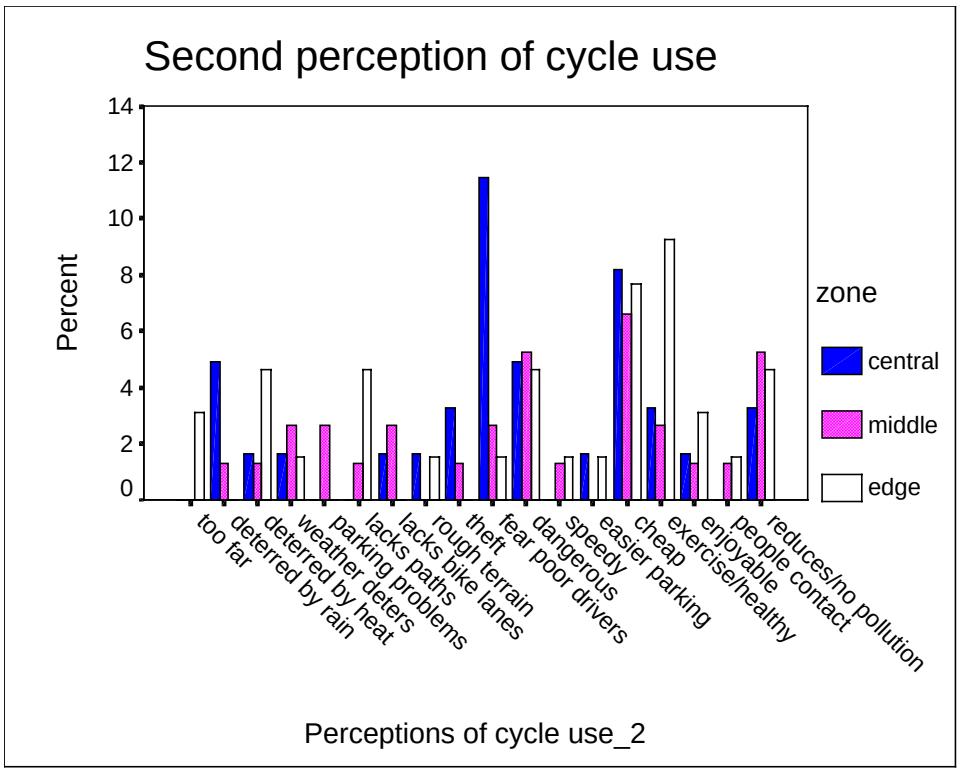


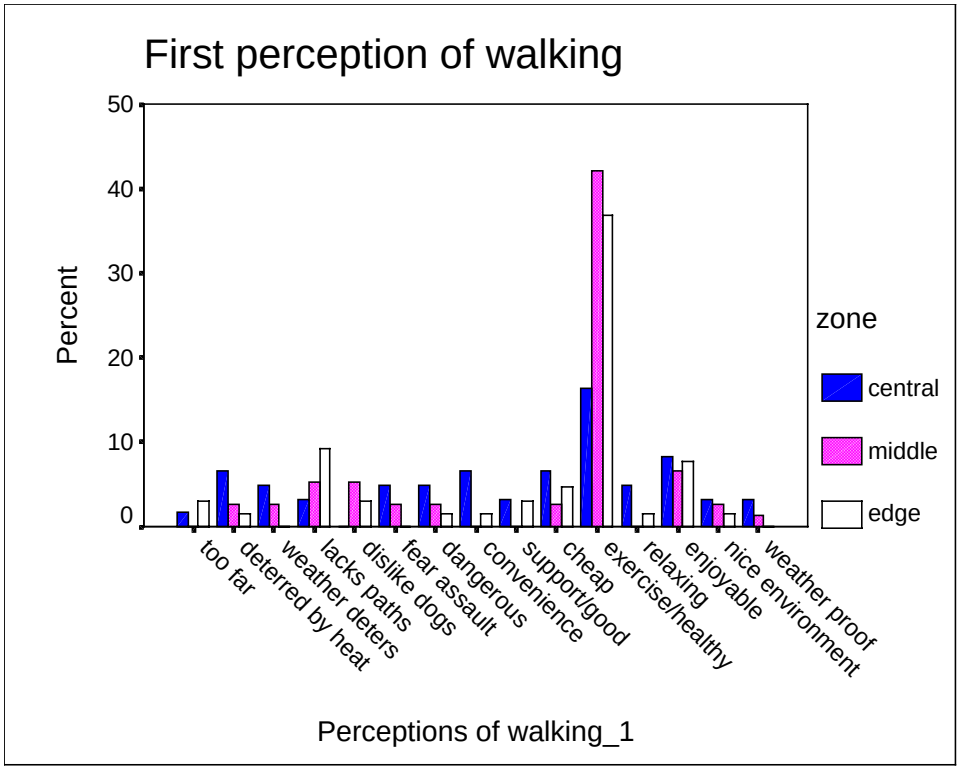
Perceptions of bus use 1

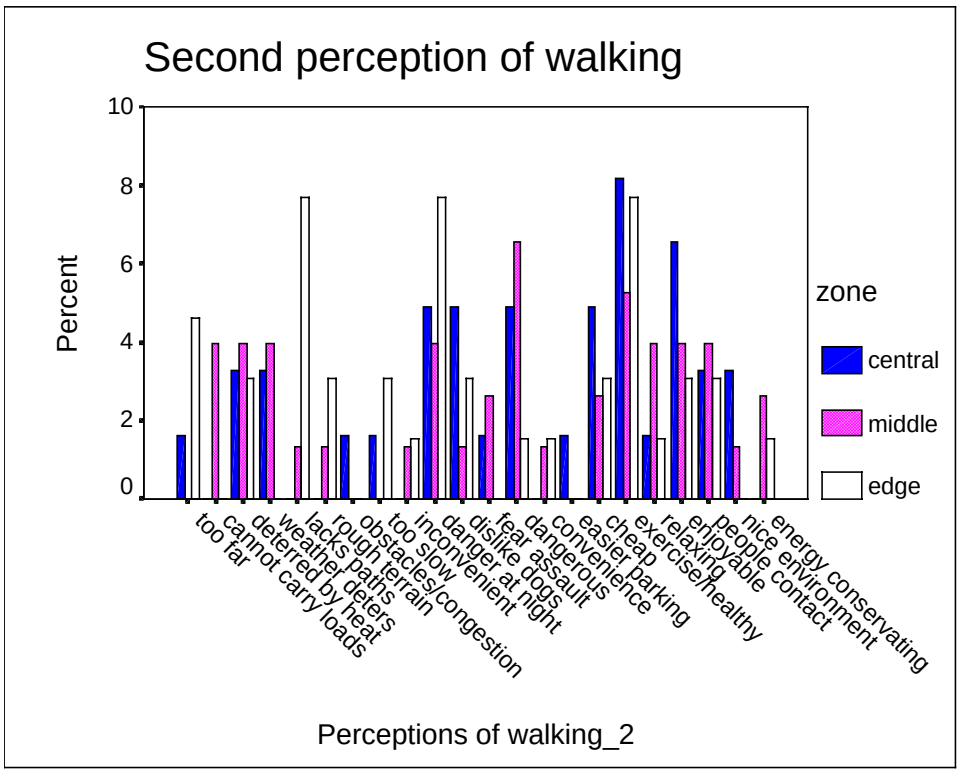


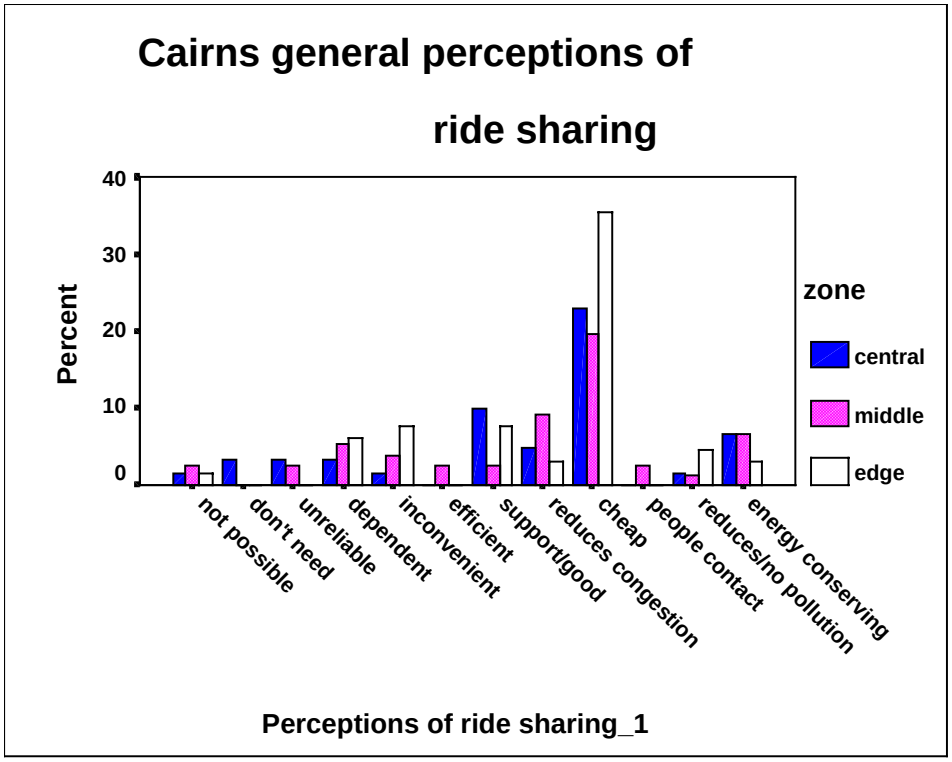
Perceptions of bus use 2

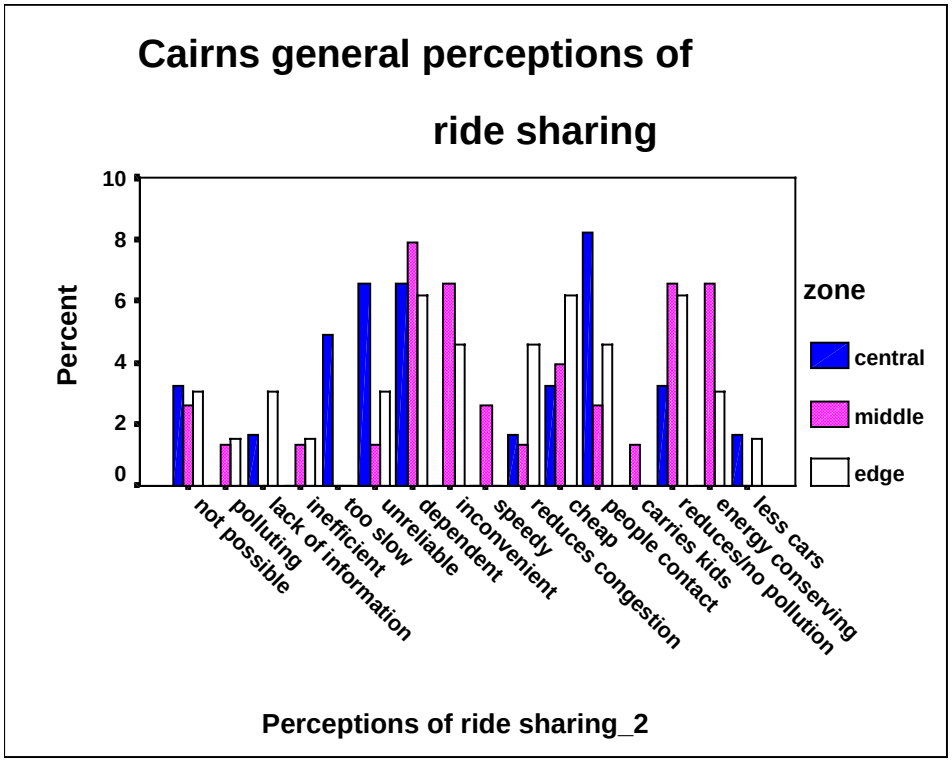

First perception of cycle use
Percent
40
30
20
10
0
zone
central
middle
edge
too far
deterred by rain
deterred by heat
lacks paths
lacks bike lanes
fear poor drivers
dangerous
support/good
cheap
exercise/healthy
enjoyable
reduces/no pollution
Perceptions of cycle use_1

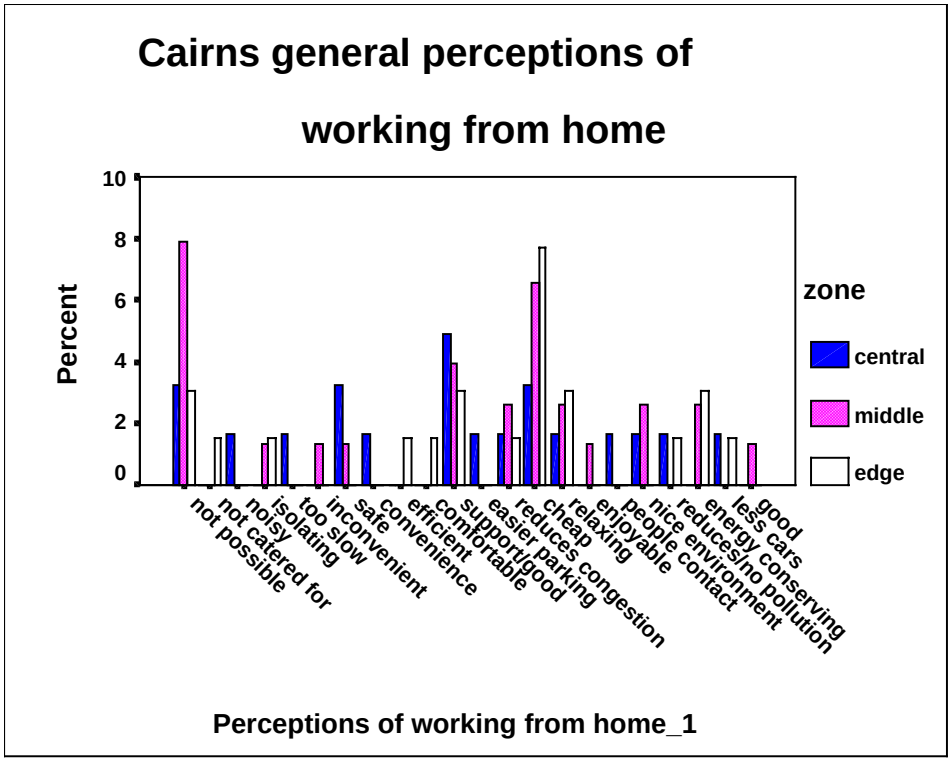

Second perception of cycle use
Percent
14
12
10
8
6
4
2
0
zone
central
middle
edge
too far
deterred by rain
deterred by heat
weather deters
parking problems
lacks paths
lacks bike lanes
rough terrain
theft
fear poor drivers
dangerous
speedy
easier parking
cheap
exercise/healthy
enjoyable
people contact
reduces/no pollution
Perceptions of cycle use_2

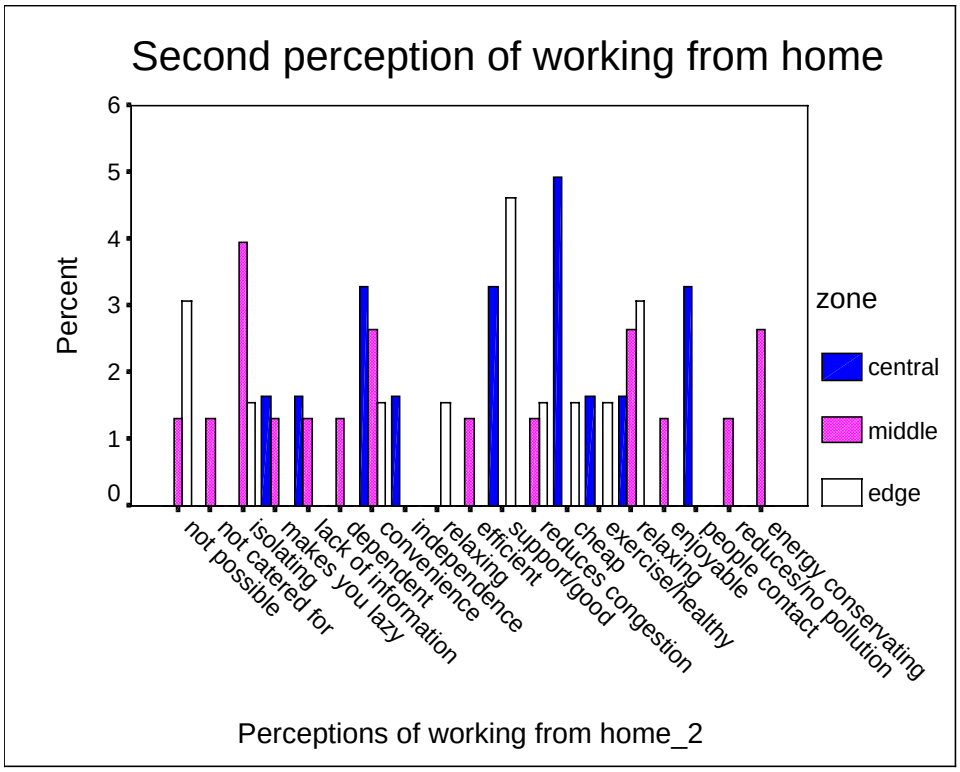

First perception of walking
Percent
50
40
30
20
10
0
too far
deterred by heat
weather deters
lacks paths
dislike dogs
fear assault
dangerous
convenience
support/good
cheap
exercise/healthy
relaxing
enjoyable
nice environment
weather proof
zone
central
middle
edge
Perceptions of walking_1

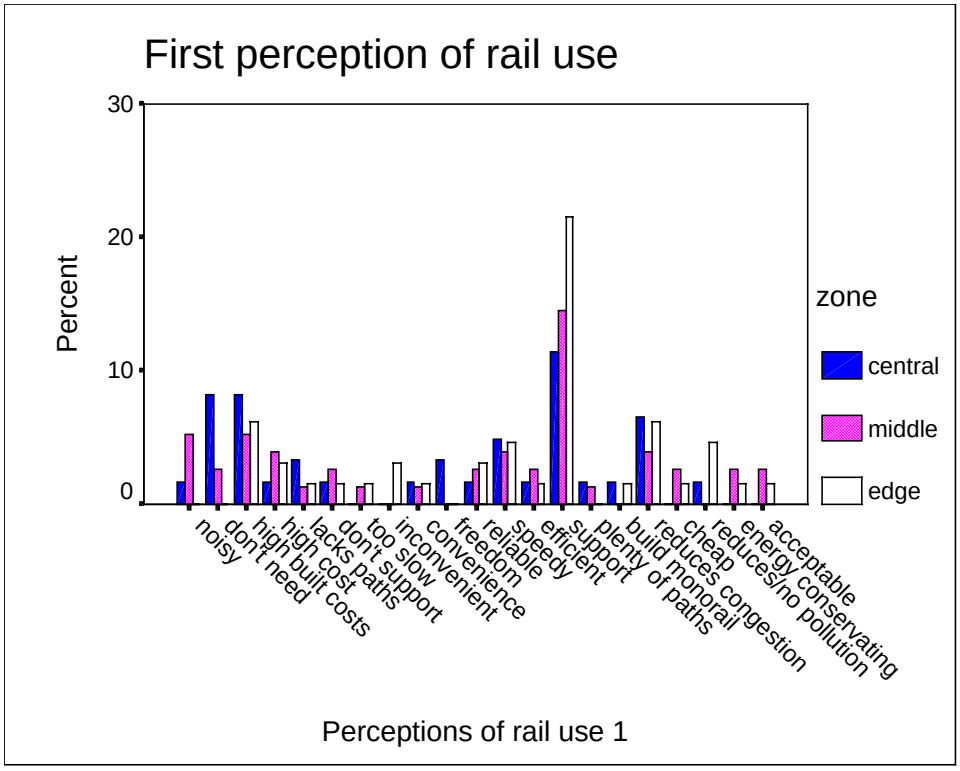

Second perception of walking
Percent
10
8
6
4
2
0
too far
cannot carry loads
deterred by heat
weather deters
lacks paths
rough terrain
obstacles/congestion
too slow
inconvenient
danger at night
dislike dogs
fear assault
dangerous
convenience
easier parking
cheap
exercise/healthy
relaxing
enjoyable
people contact
nice environment
energy conservating
zone
central
middle
edge
Perceptions of walking_2

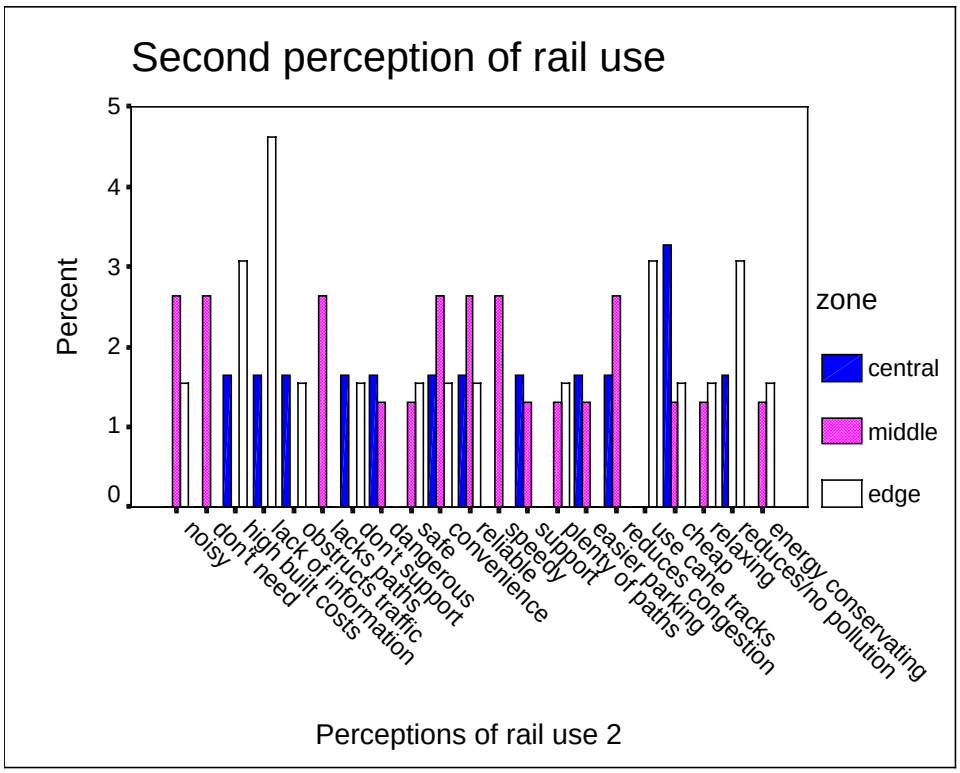

Cairns general perceptions of ride sharing
Percent
40
30
20
10
0
zone
central
middle
edge
not possible
don't need
unreliable
dependent
inconvenient
efficient
support/good
reduces congestion
cheap
people contact
reduces/no pollution
energy conserving
Perceptions of ride sharing_1

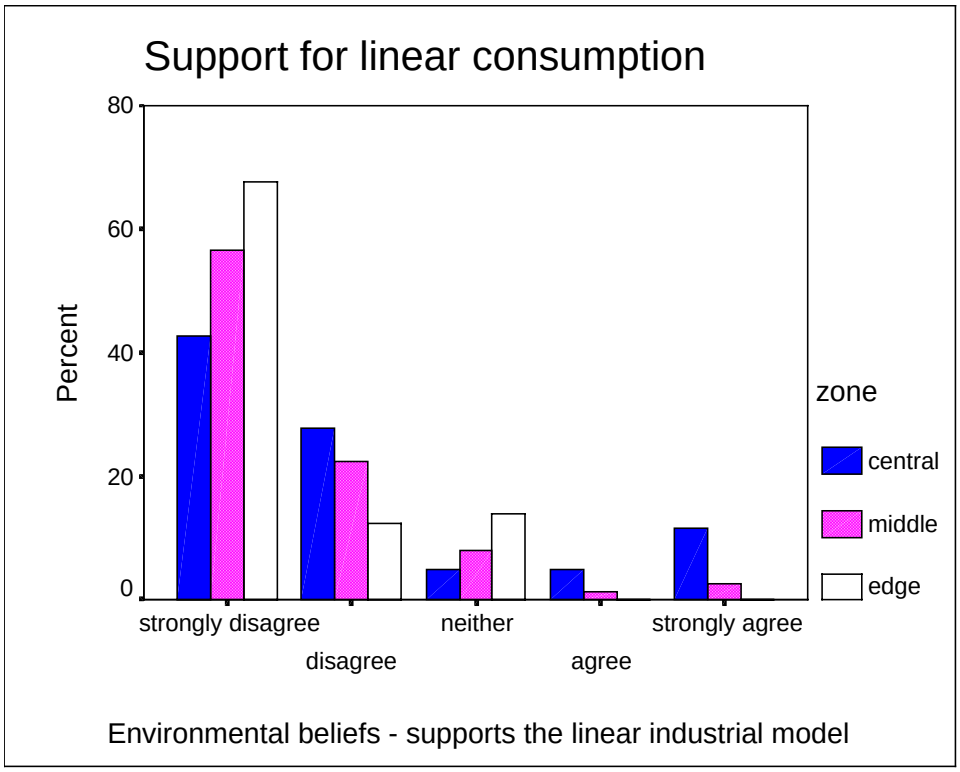

Cairns general perceptions of ride sharing
Percent
10
8
6
4
2
0
zone
central
middle
edge
not possible
polluting
lack of information
inefficient
too slow
unreliable
dependent
inconvenient
speedy
reduces congestion
cheap
people contact
carries kids
reduces/no pollution
energy conserving
less cars
Perceptions of ride sharing_2


Cairns general perceptions of working from home
Percent
10
8
6
4
2
0
zone
central
middle
edge
not possible
not catered for
noisy
isolating
too slow
inconvenient
safe
convenience
efficient
comfortable
support/good
easier parking
reduces congestion
cheap
relaxing
enjoyable
people contact
nice environment
reduces/no pollution
energy conserving
less cars
good
Perceptions of working from home_1

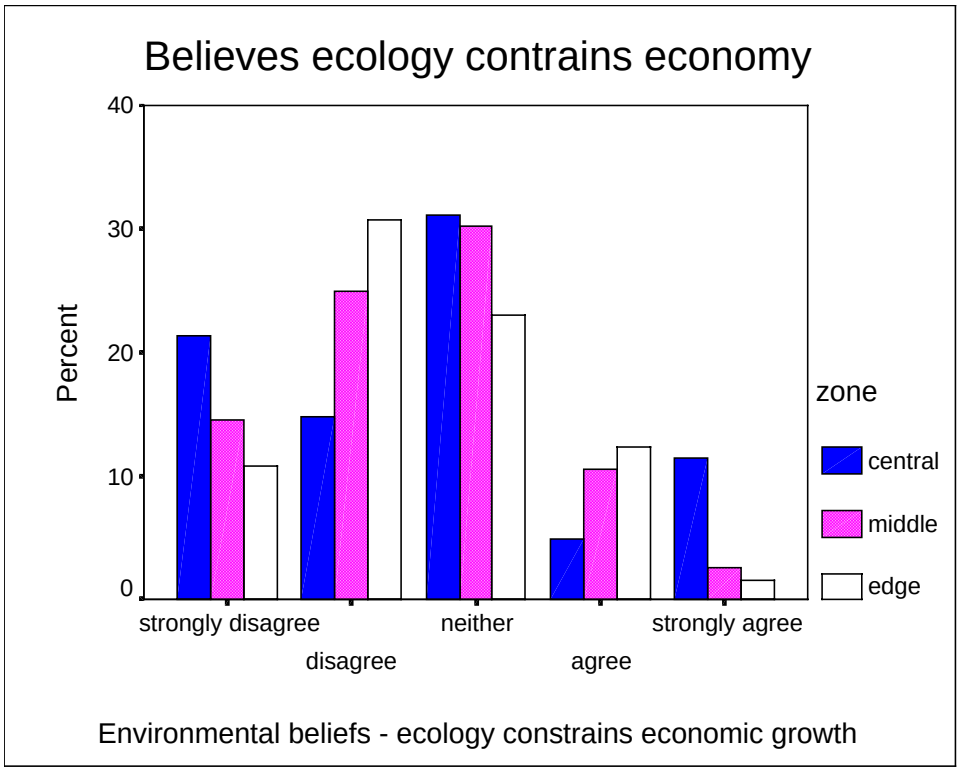

Second perception of working from home
Percent
6
5
4
3
2
1
0
zone
central
middle
edge
not possible
not catered for
isolating
makes you lazy
lack of information
dependent
convenience
independence
relaxing
efficient
support/good
reduces congestion
cheap
exercise/healthy
relaxing
enjoyable
people contact
reduces/no pollution
energy conservating
Perceptions of working from home_2


First perception of rail use
Percent
30
20
10
0
zone
central
middle
edge
noisy
don't need
high built costs
high cost
lacks paths
don't support
too slow
inconvenient
convenience
freedom
reliable
speedy
efficient
support
plenty of paths
build monorail
reduces congestion
cheap
reduces/no pollution
energy conservating
acceptable
Perceptions of rail use 1

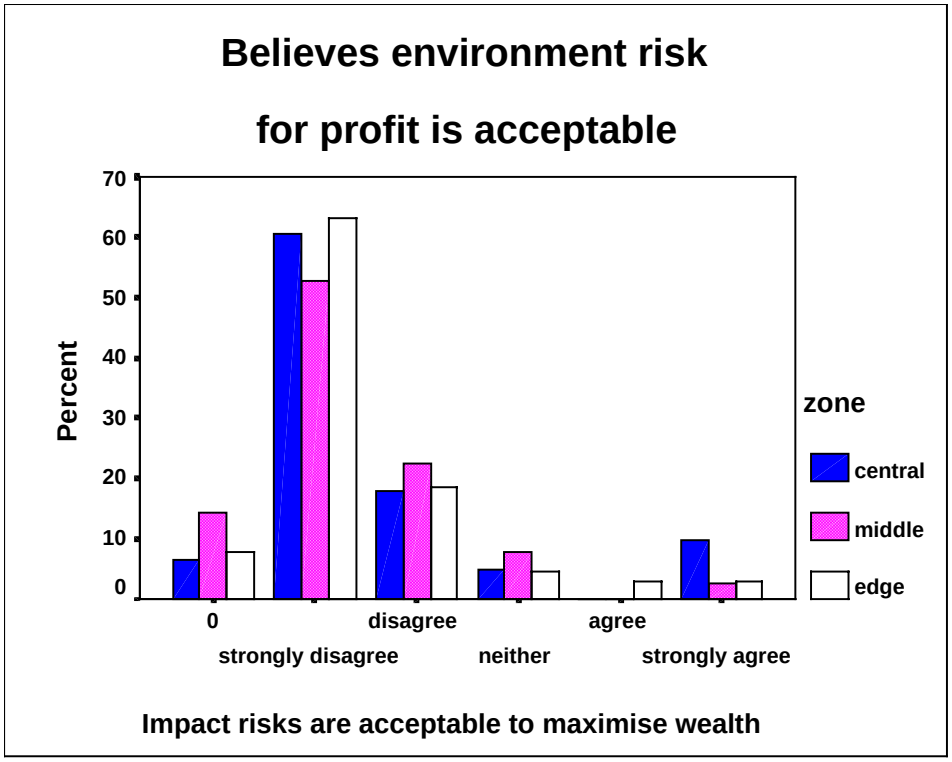

Second perception of rail use
Percent
5
4
3
2
1
0
zone
central
middle
edge
noisy
don't need
high built costs
lack of information
obstructs traffic
lacks paths
don't support
dangerous
safe
convenience
reliable
speedy
support
plenty of paths
easier parking
reduces congestion
use cane tracks
cheap
relaxing
reduces/no pollution
energy conservating
Perceptions of rail use 2

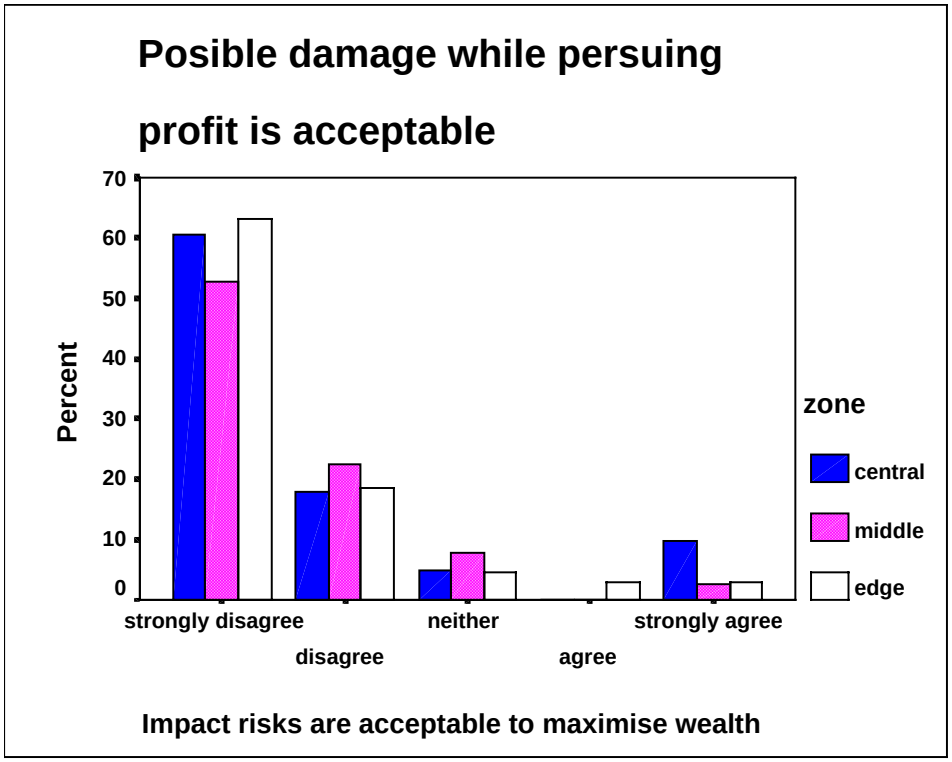


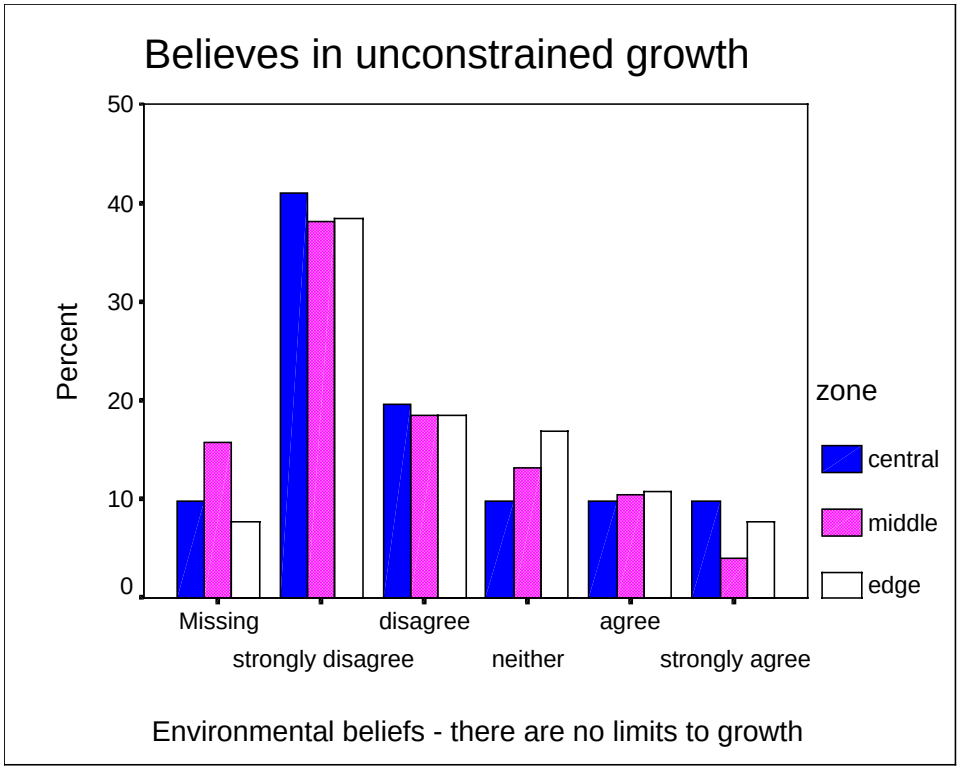
Environmental beliefs - supports the linear industrial model



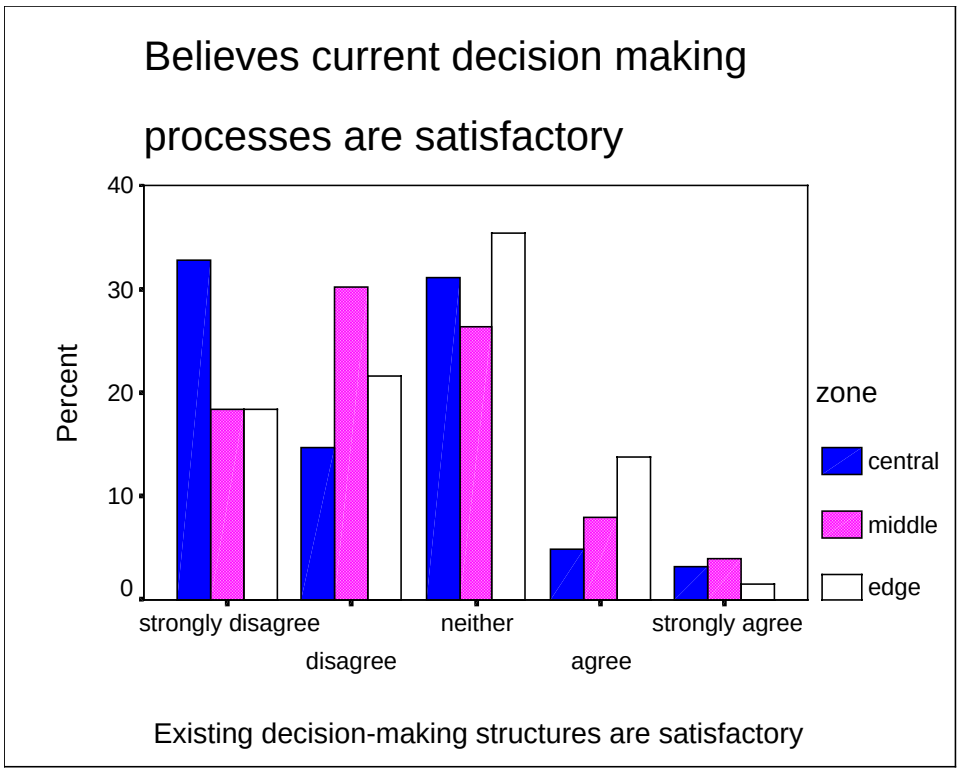
Environmental beliefs - ecology constrains economic growth


Believes environment risk
for profit is acceptable
Percent
70
60
50
40
30
20
10
0
zone
central
middle
edge
0
strongly disagree
disagree
neither
agree
strongly agree
Impact risks are acceptable to maximise wealth

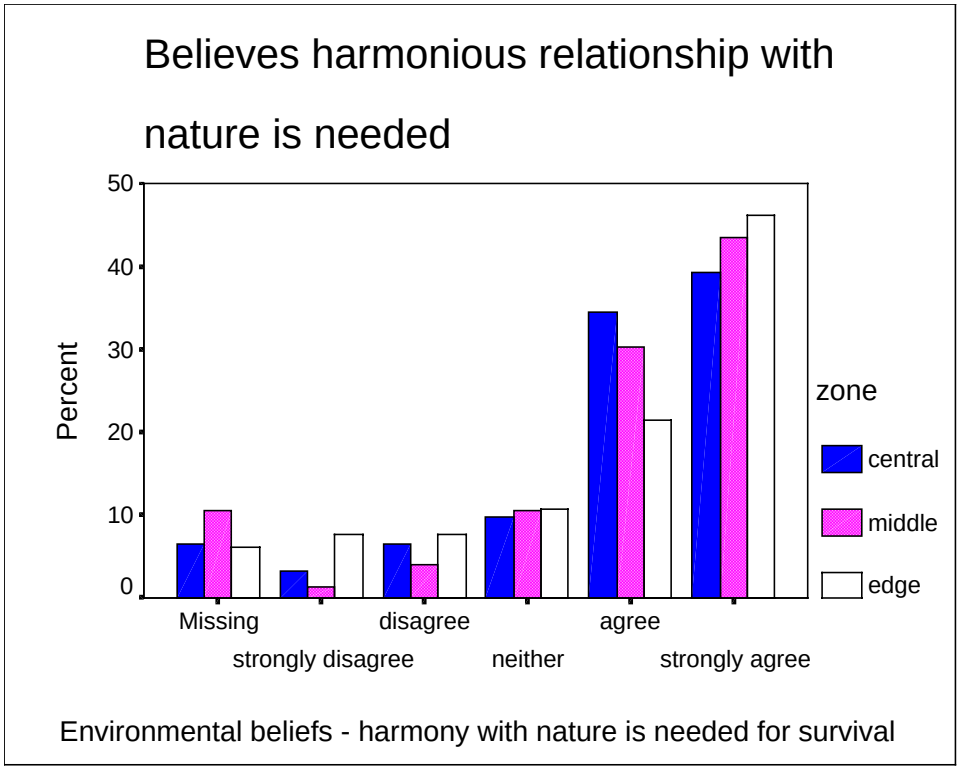

Posible damage while persuing
profit is acceptable
Percent
70
60
50
40
30
20
10
0
zone
central
middle
edge
strongly disagree
disagree
neither
agree
strongly agree
Impact risks are acceptable to maximise wealth



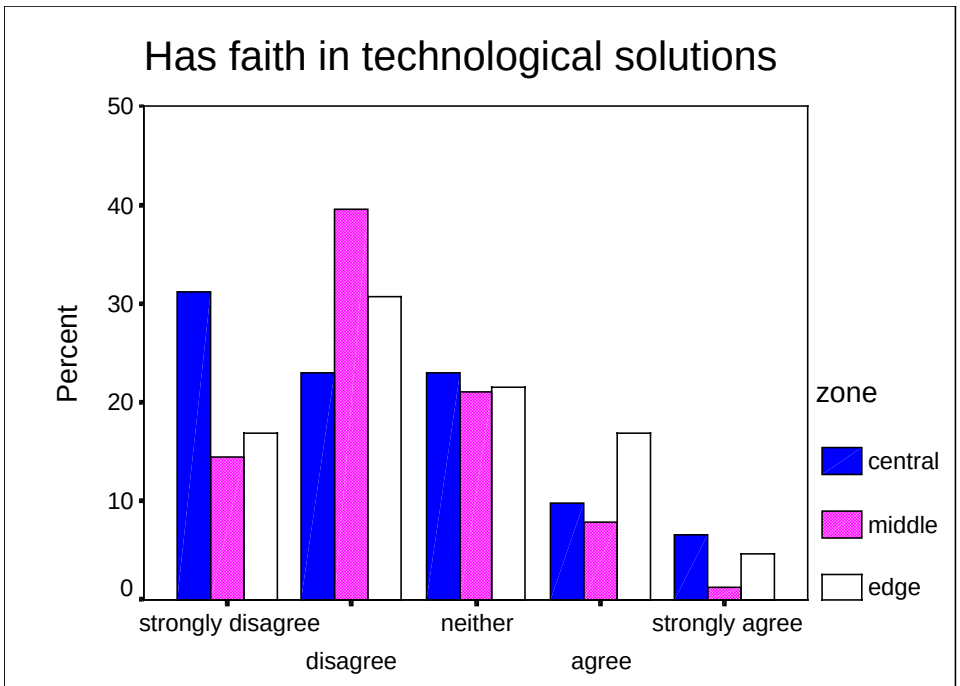
Environmental beliefs - there are no limits to growth



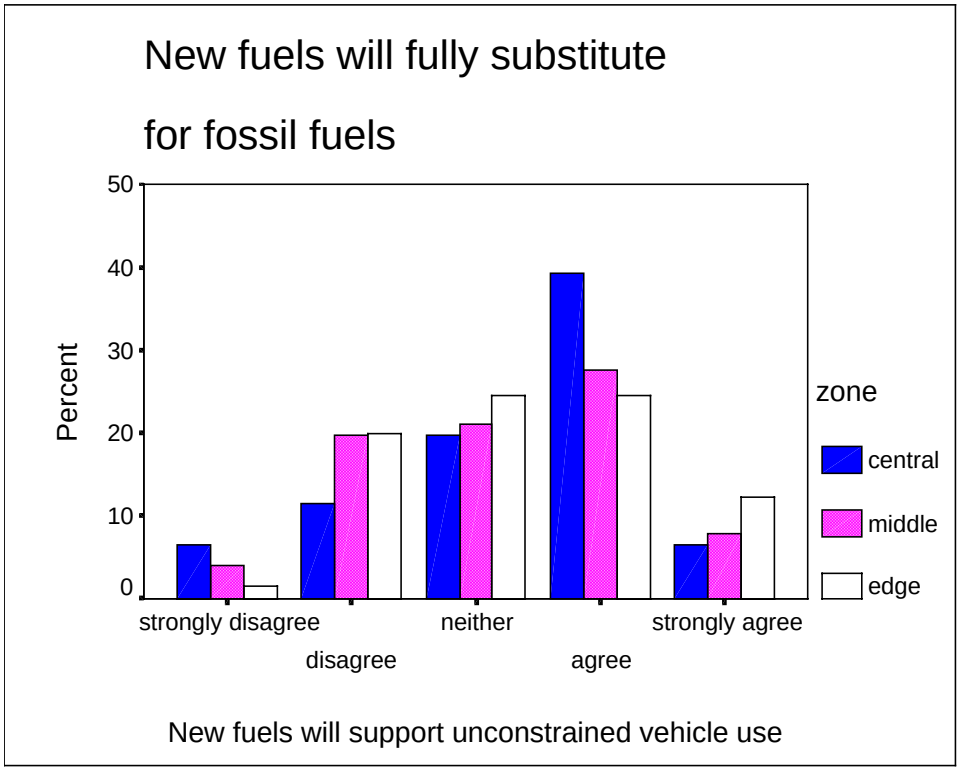
Existing decision-making structures are satisfactory

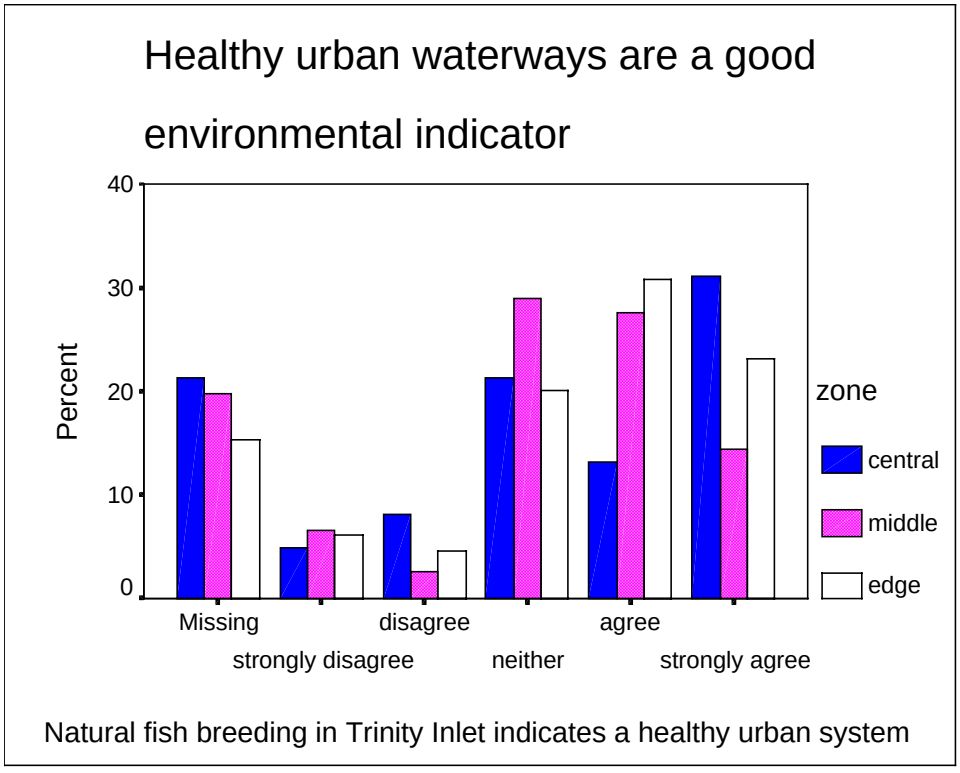


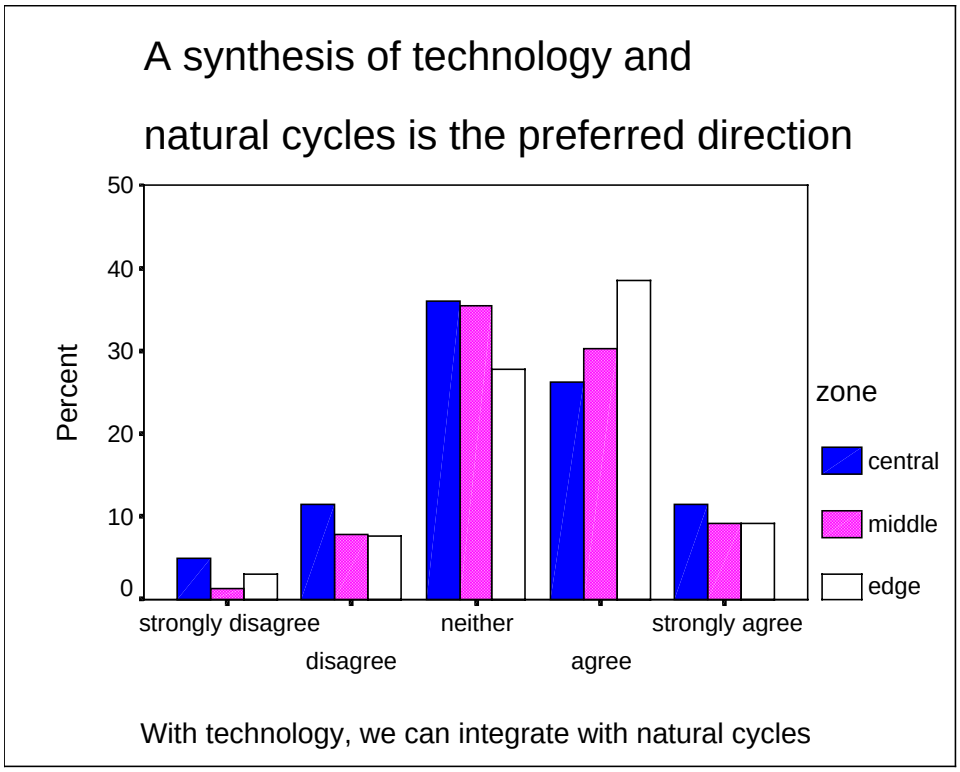
Environmental beliefs - harmony with nature is needed for survival

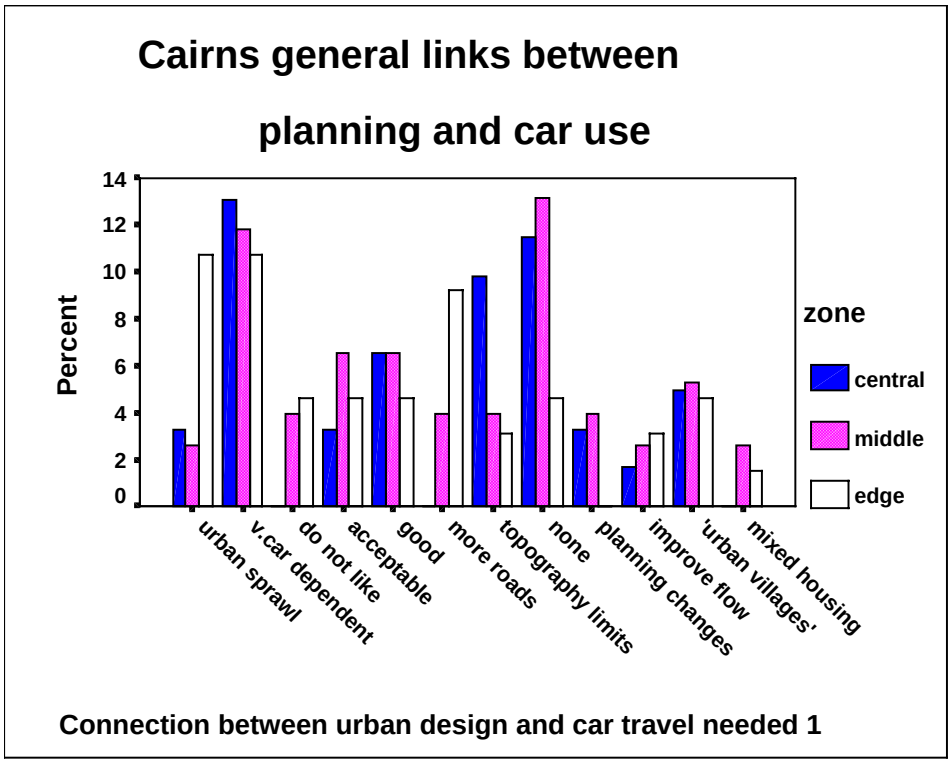


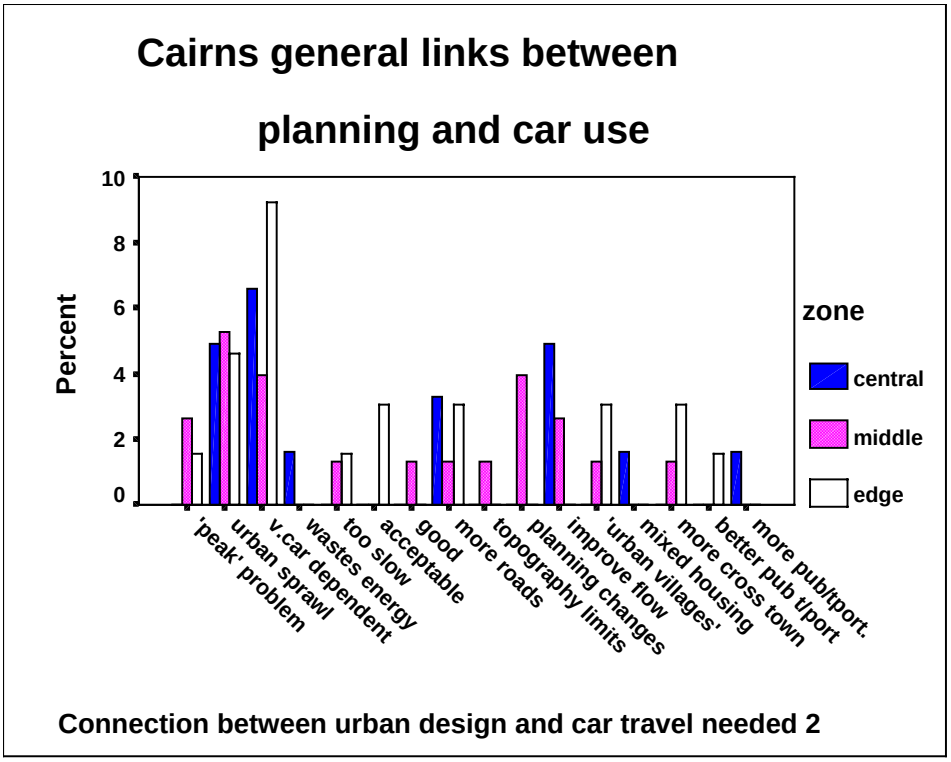
Technology will provide for our continued wellbeing


New fuels will fully substitute for fossil fuels
Percent
50
40
30
20
10
0
strongly disagree
disagree
neither
agree
strongly agree
zone
central
middle
edge
New fuels will support unconstrained vehicle use

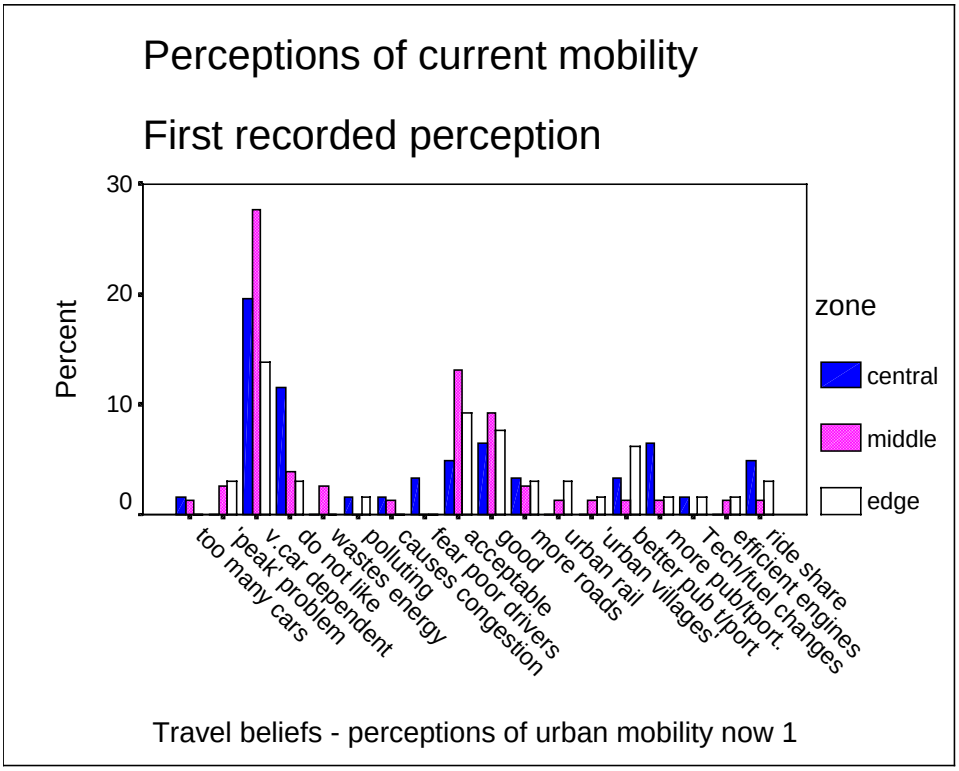

Healthy urban waterways are a good environmental indicator
Percent
40
30
20
10
0
Missing
strongly disagree
disagree
neither
agree
strongly agree
zone
central
middle
edge
Natural fish breeding in Trinity Inlet indicates a healthy urban system


A synthesis of technology and
natural cycles is the preferred direction
Percent
50
40
30
20
10
0
strongly disagree
disagree
neither
agree
strongly agree
zone
central
middle
edge
With technology, we can integrate with natural cycles

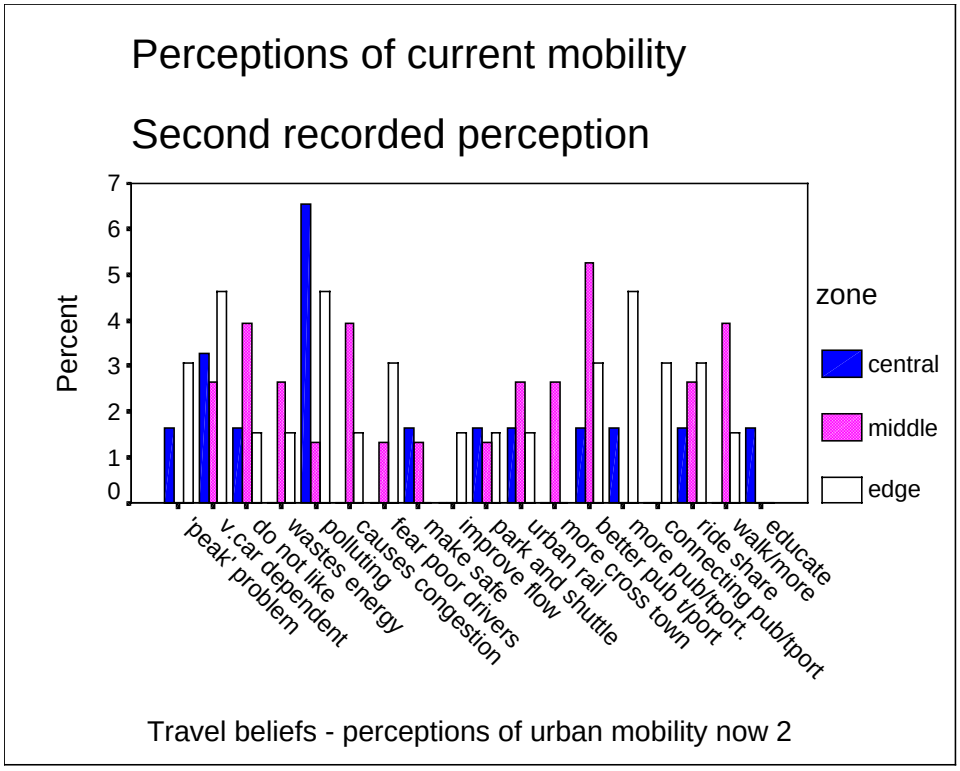

Cairns general links between
planning and car use
Percent
14
12
10
8
6
4
2
0
urban sprawl
v.car dependent
do not like
acceptable
good
more roads
topography limits
none
planning changes
improve flow
'urban villages'
mixed housing
zone
central
middle
edge
Connection between urban design and car travel needed 1



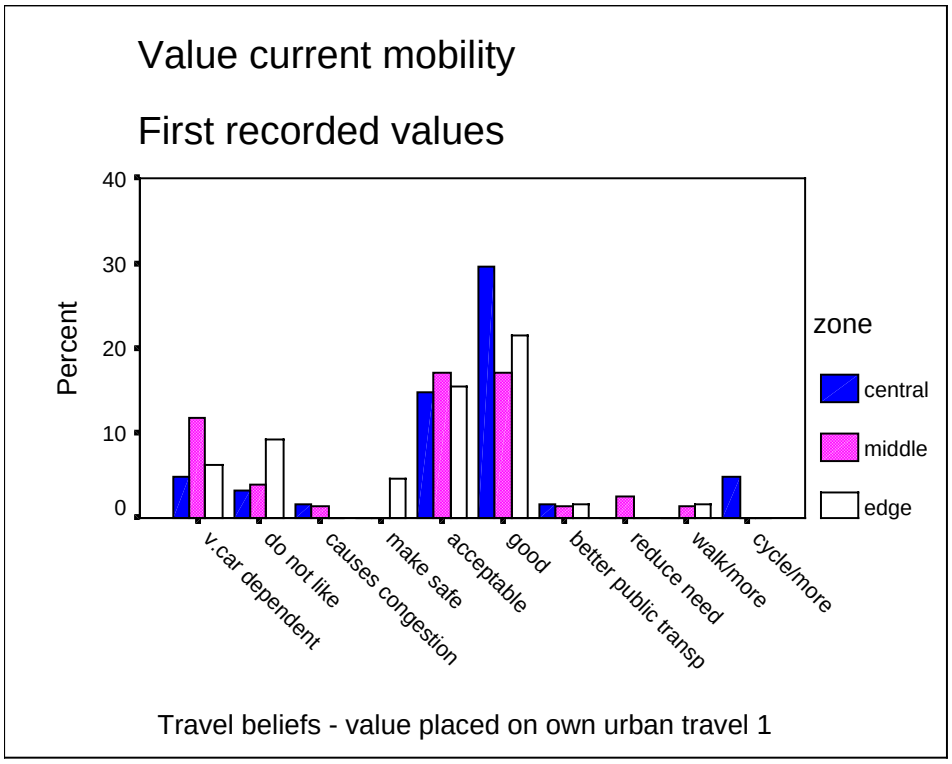
Connection between urban design and car travel needed 2



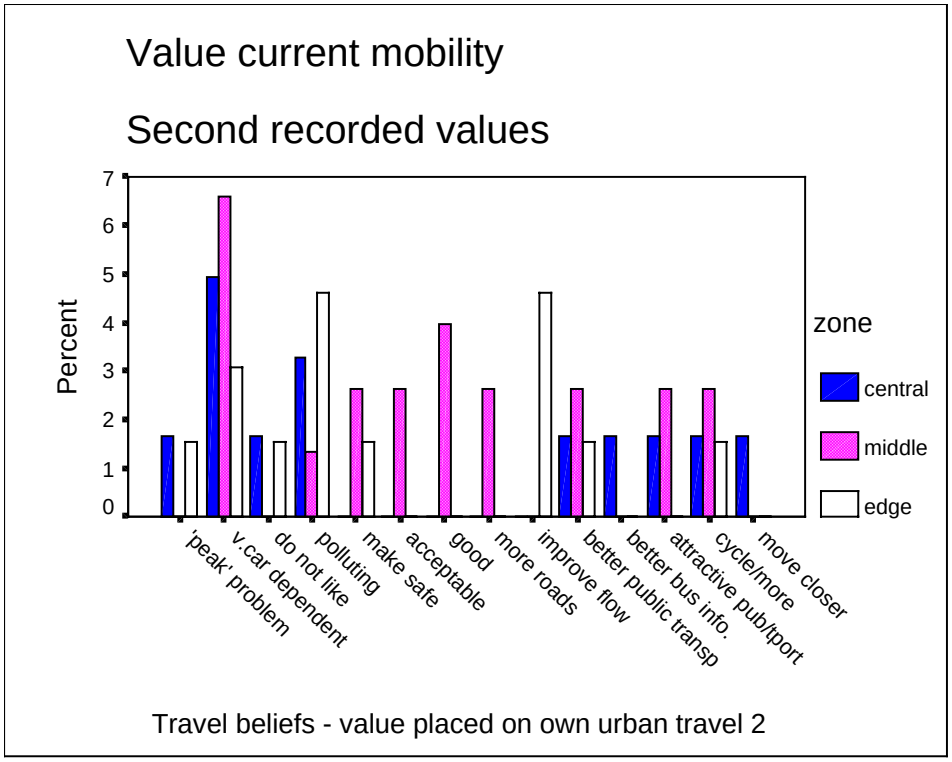
Travel beliefs - perceptions of urban mobility now 1



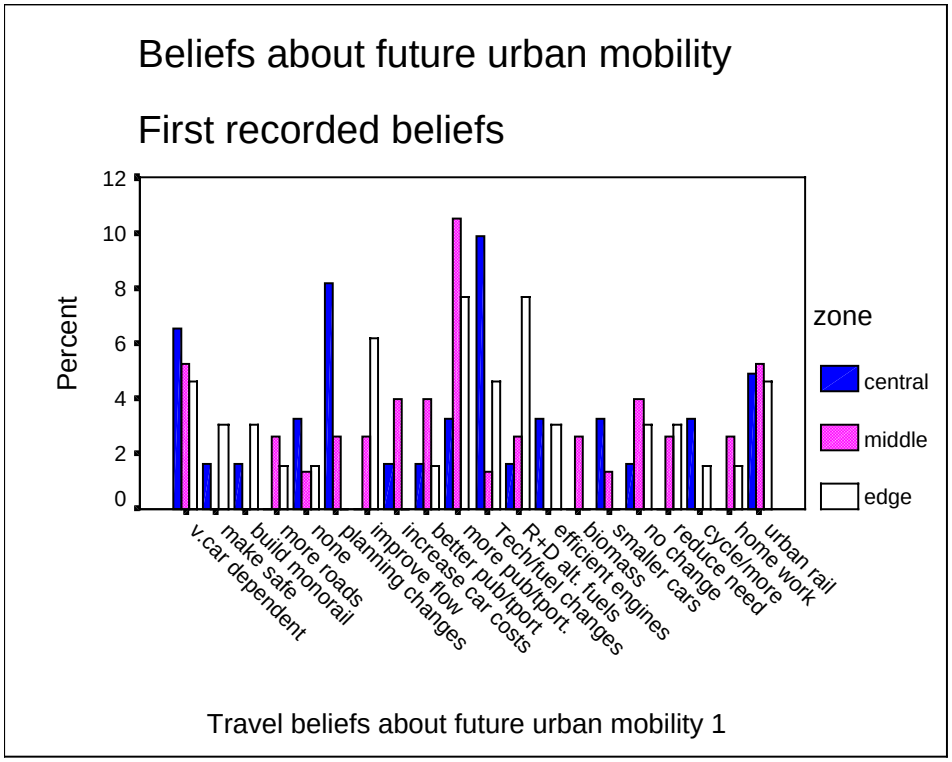
Travel beliefs - perceptions of urban mobility now 2



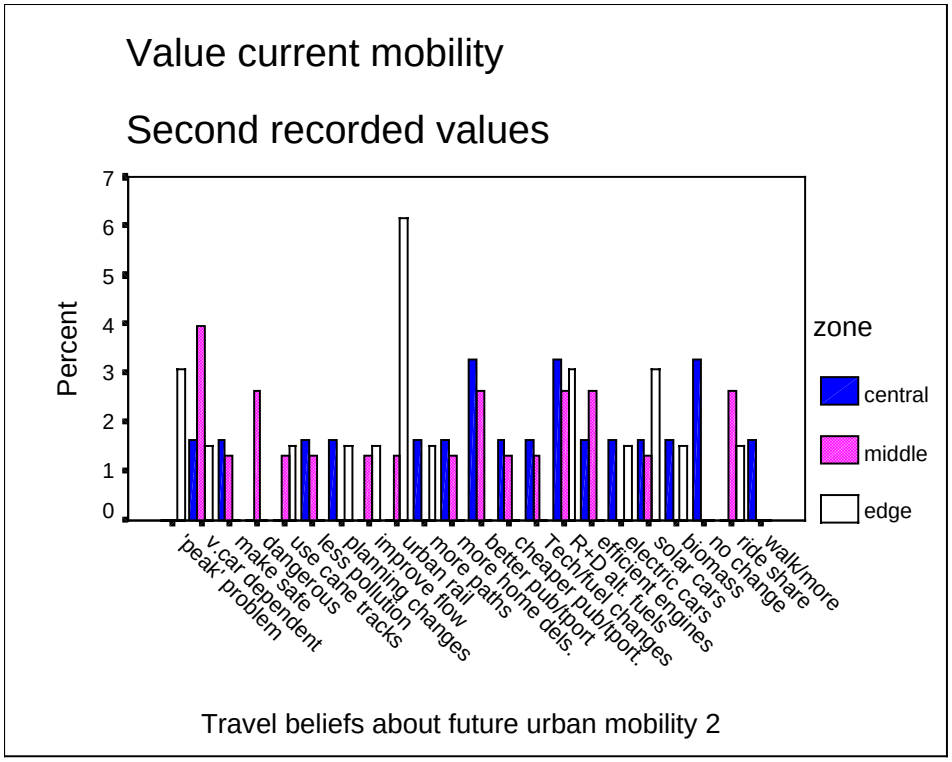
Travel beliefs - value placed on own urban travel 1



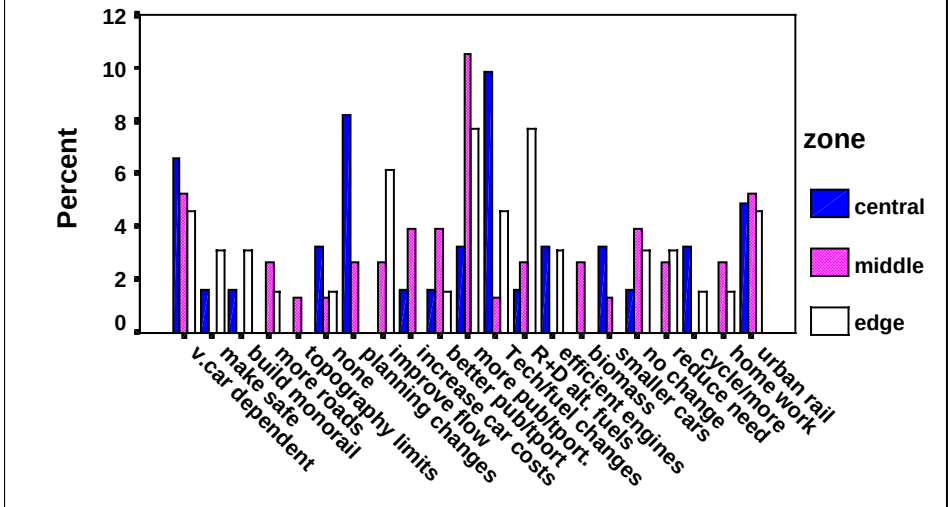
Travel beliefs - value placed on own urban travel 2



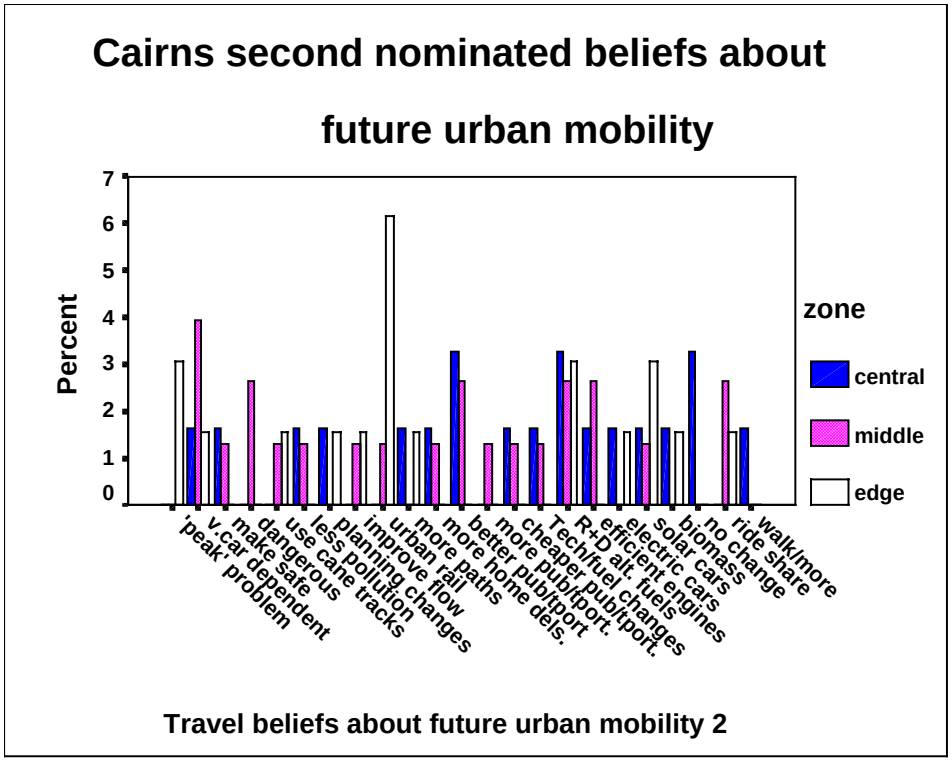
Travel beliefs about future urban mobility 1



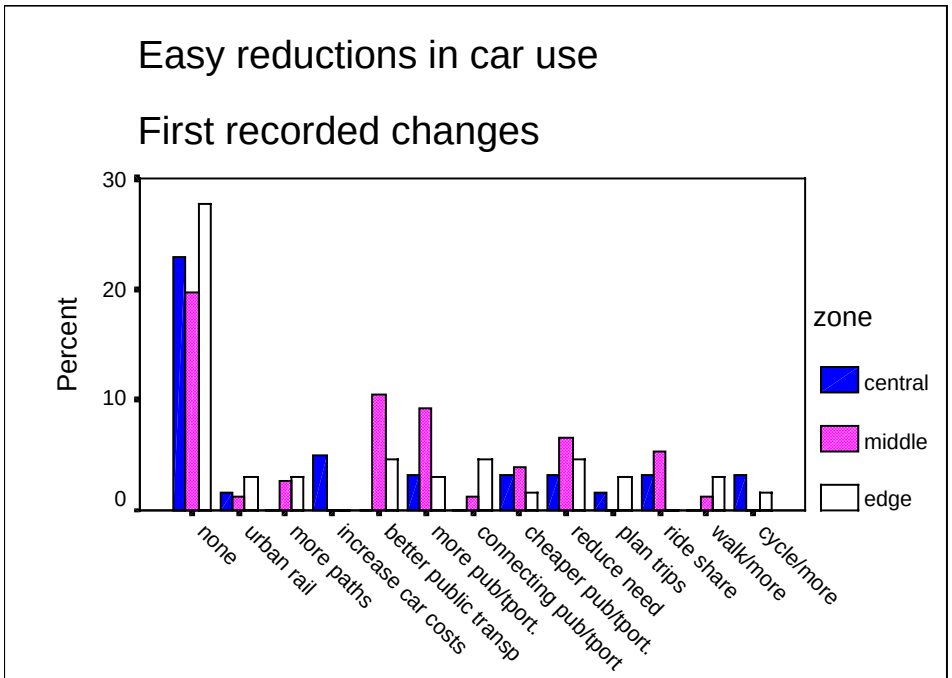
Travel beliefs about future urban mobility 2



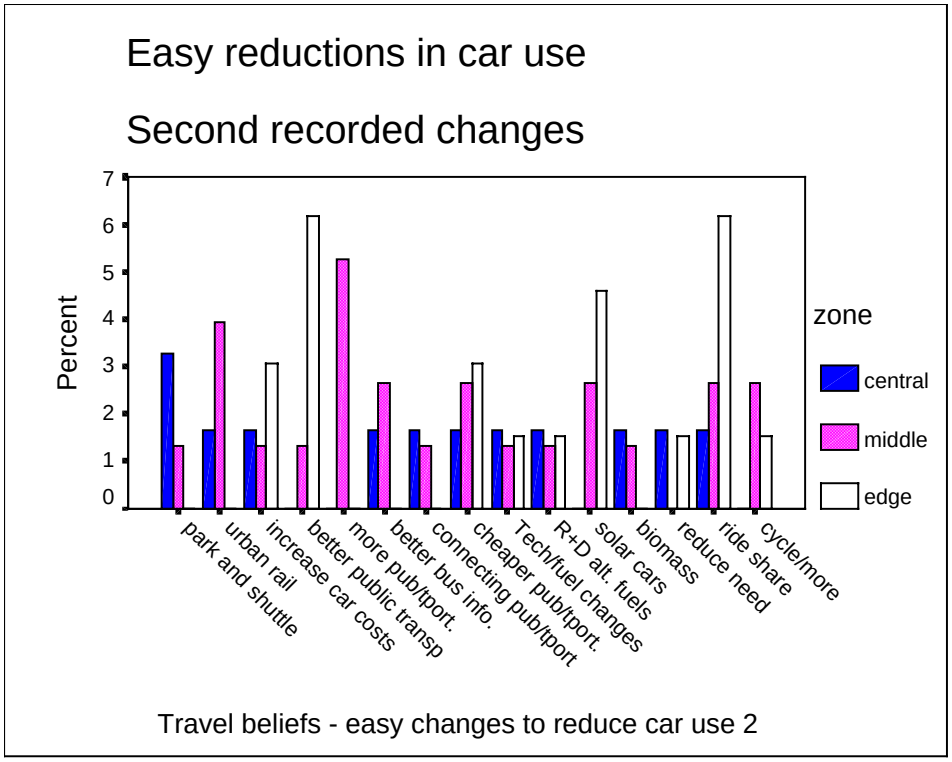
Travel beliefs about future urban mobility 1



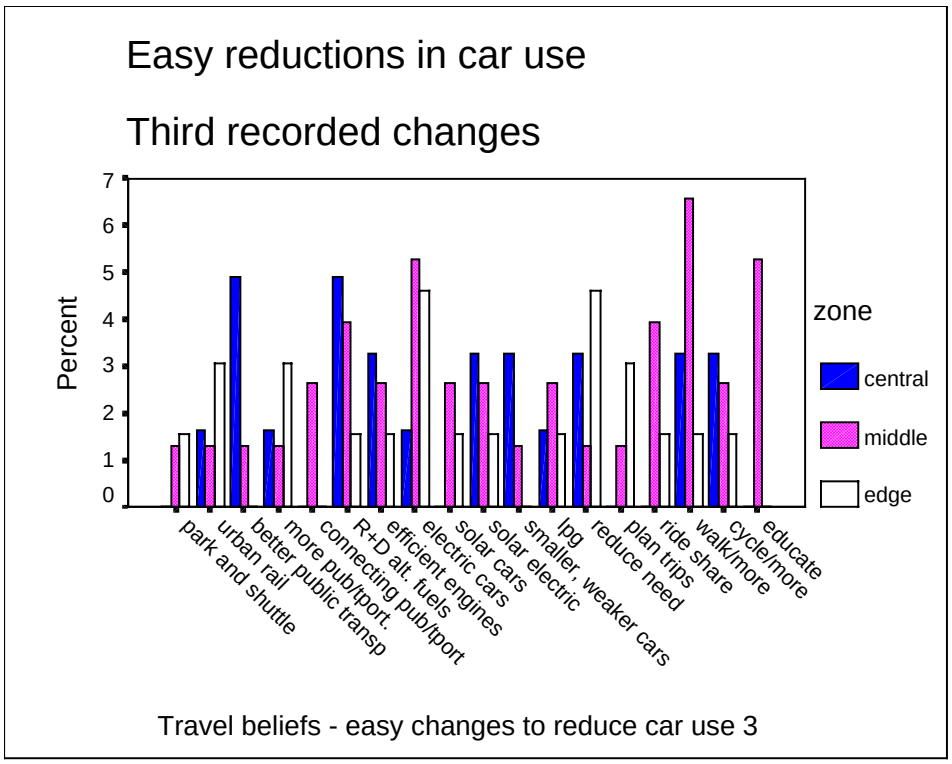
Travel beliefs about future urban mobility 2



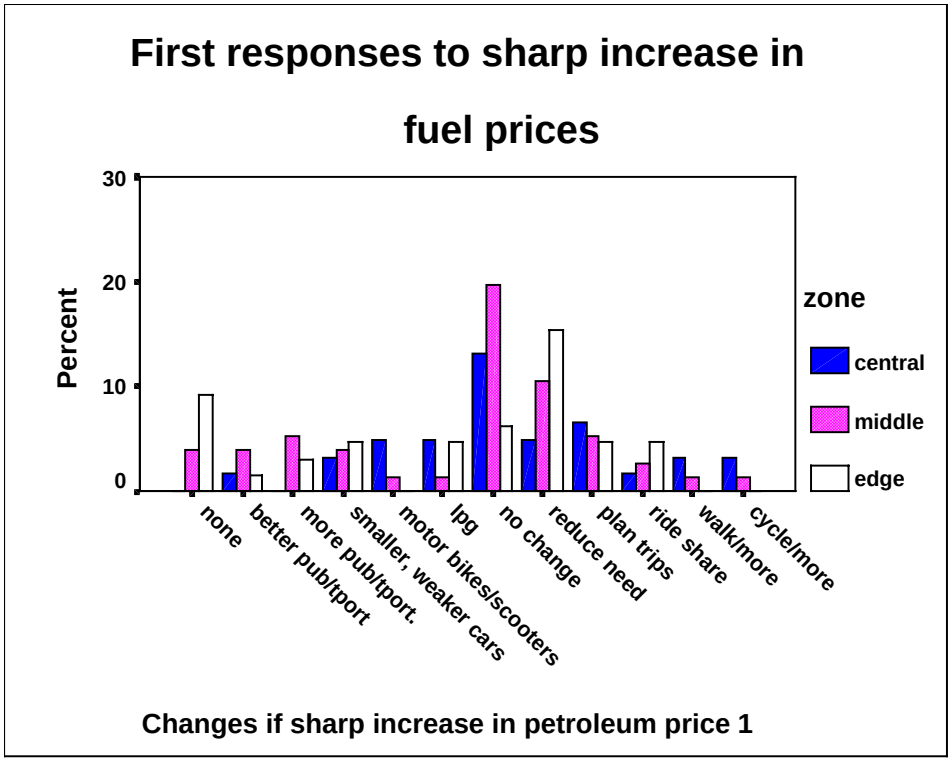
Travel beliefs - easy changes to reduce car use 1

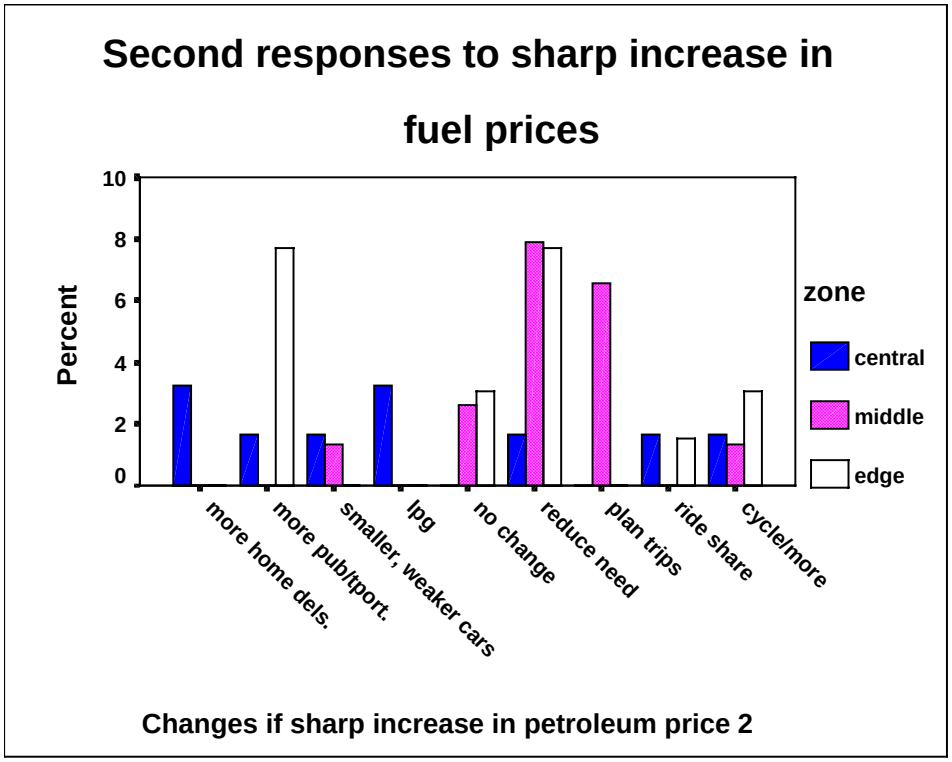


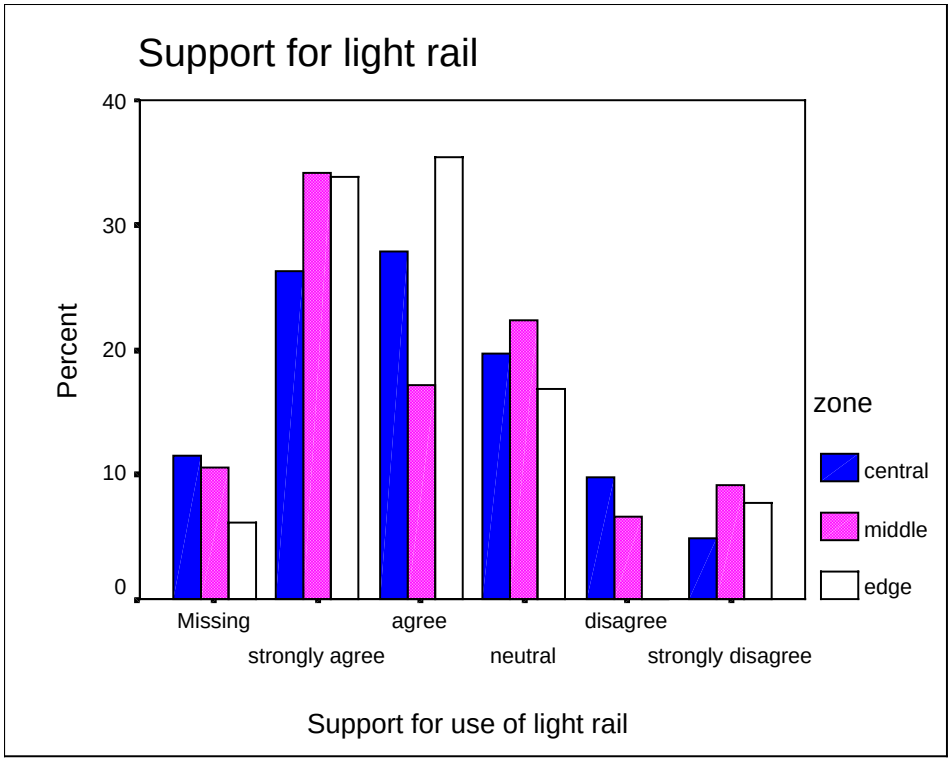
Travel beliefs - easy changes to reduce car use 2

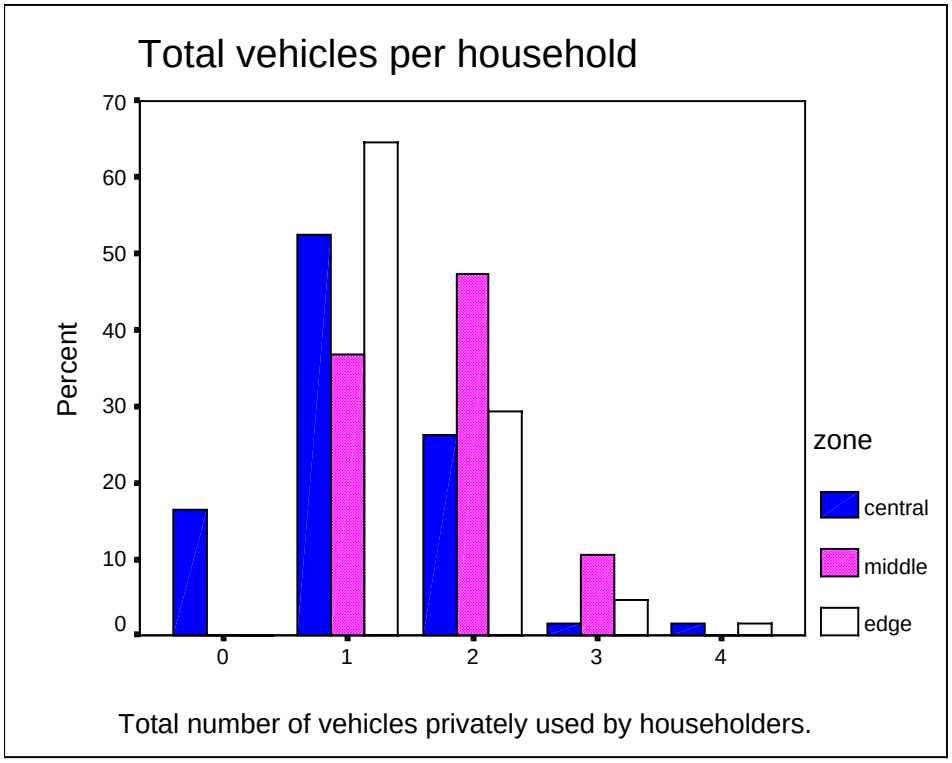


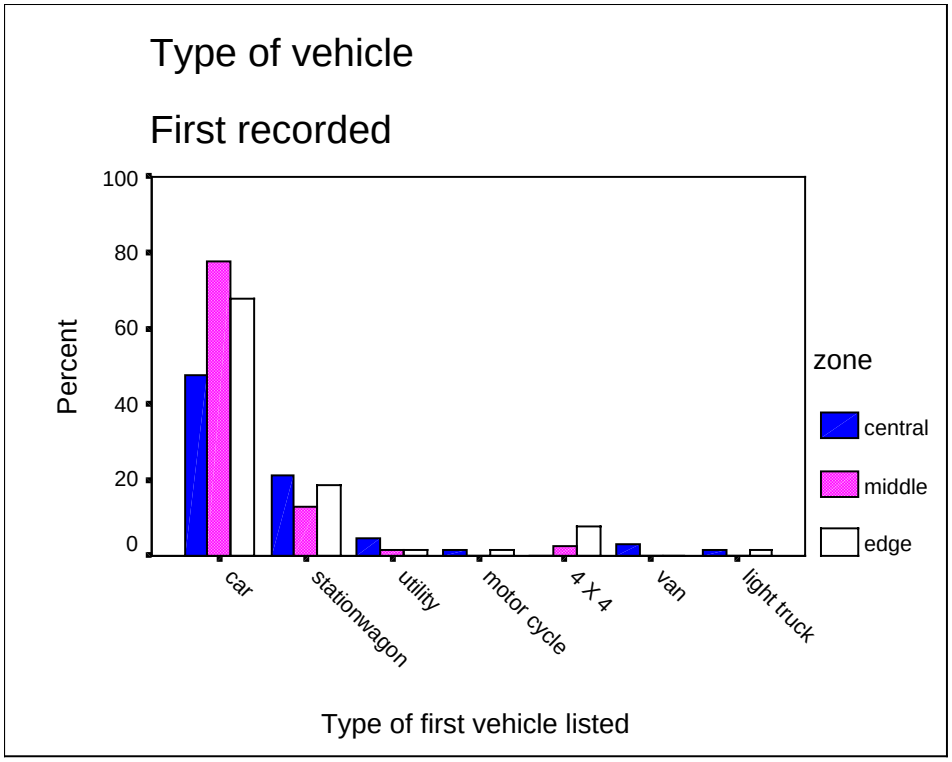
Travel beliefs - easy changes to reduce car use 3

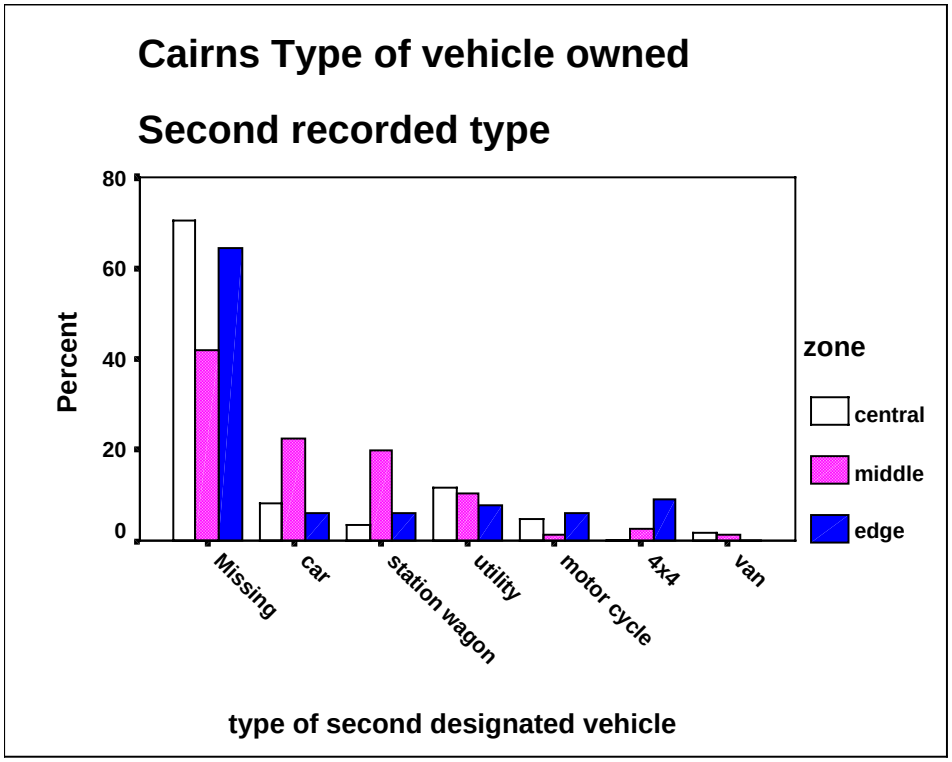

First responses to sharp increase in fuel prices
Percent
30
20
10
0
zone
central
middle
edge
none
better pub/tport
more pub/tport.
smaller, weaker cars
motor bikes/scooters
lpg
no change
reduce need
plan trips
ride share
walk/more
cycle/more
Changes if sharp increase in petroleum price 1

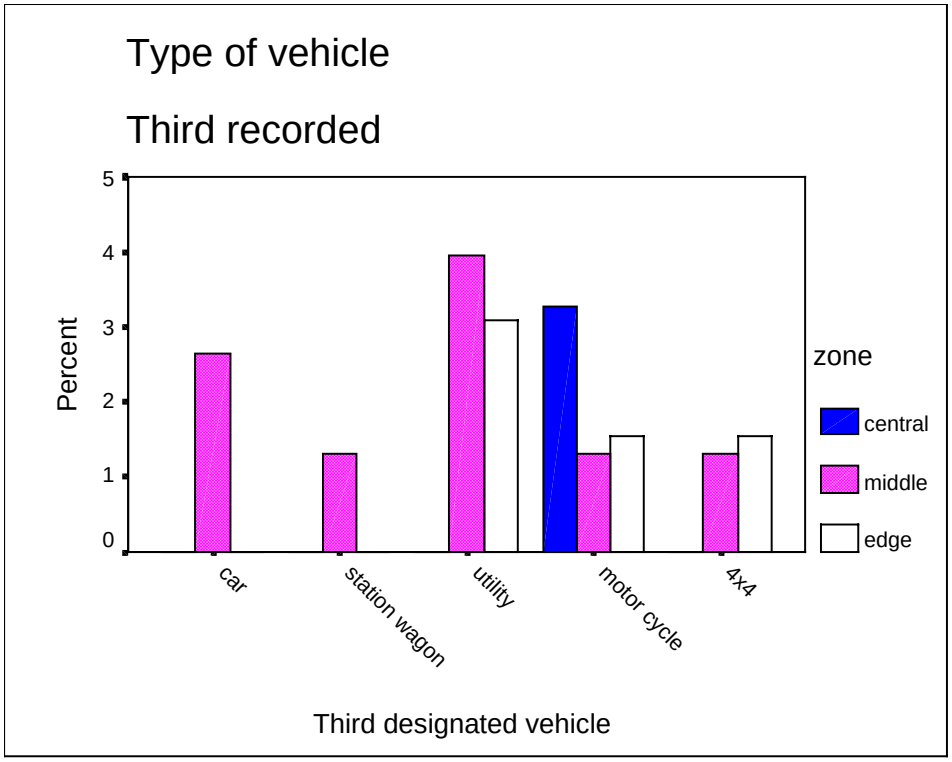

Second responses to sharp increase in fuel prices
Percent
10
8
6
4
2
0
zone
central
middle
edge
more home dels.
more pub/tport.
smaller, weaker cars
lpg
no change
reduce need
plan trips
ride share
cycle/more
Changes if sharp increase in petroleum price 2

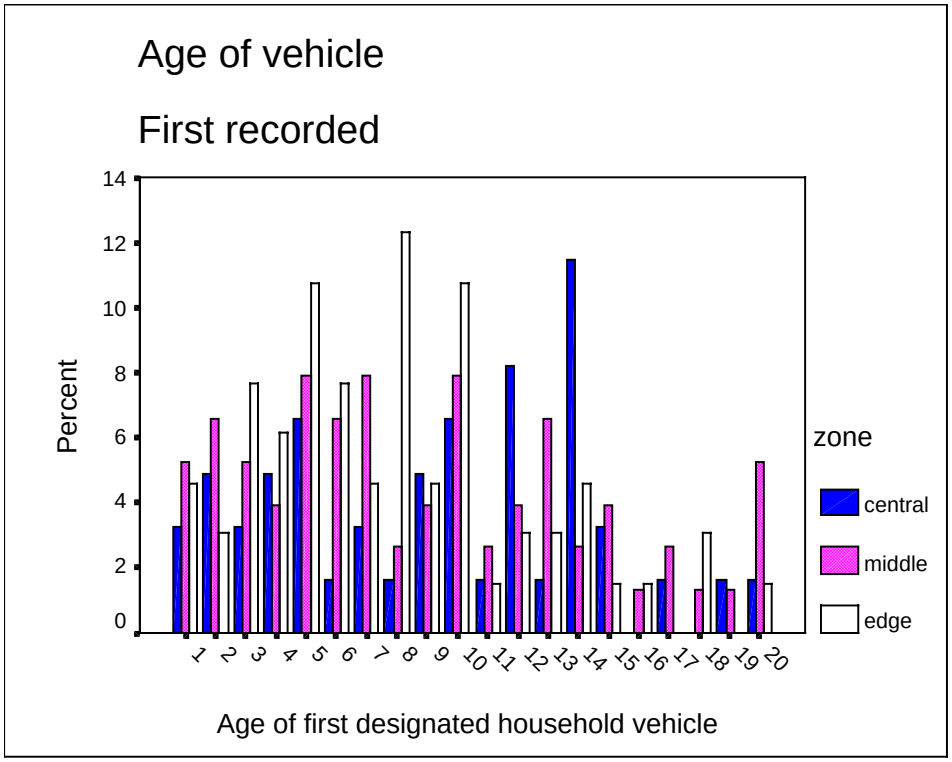

Support for light rail
Percent
40
30
20
10
0
zone
central
middle
edge
Missing
strongly agree
agree
neutral
disagree
strongly disagree
Support for use of light rail

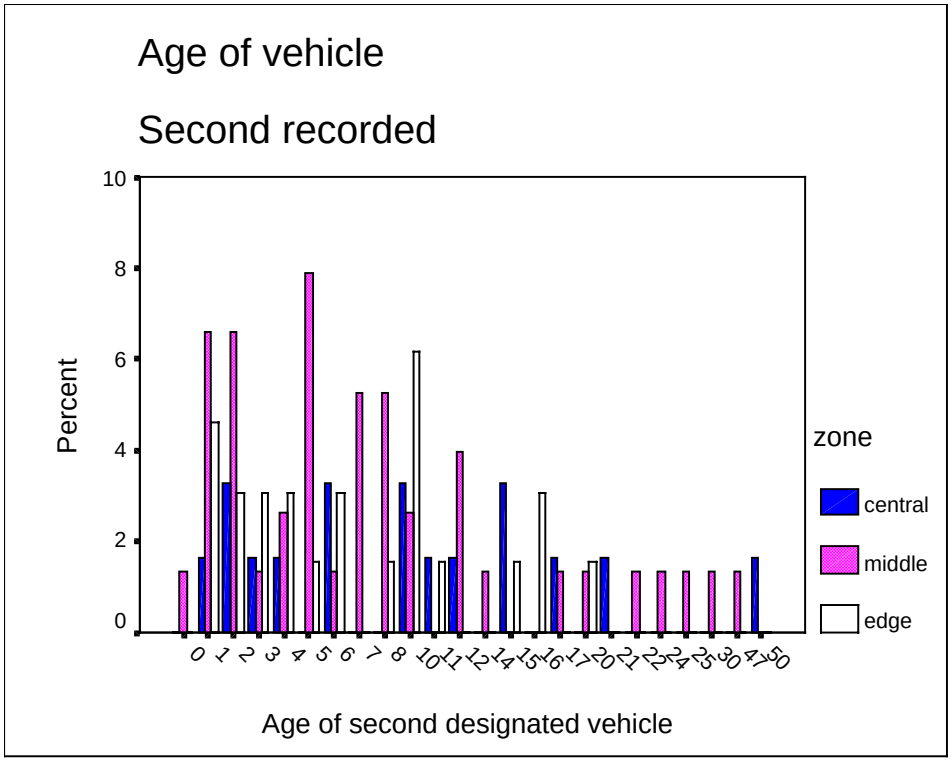

Total vehicles per household
Percent
70
60
50
40
30
20
10
0
zone
central
middle
edge
0
1
2
3
4
Total number of vehicles privately used by householders.

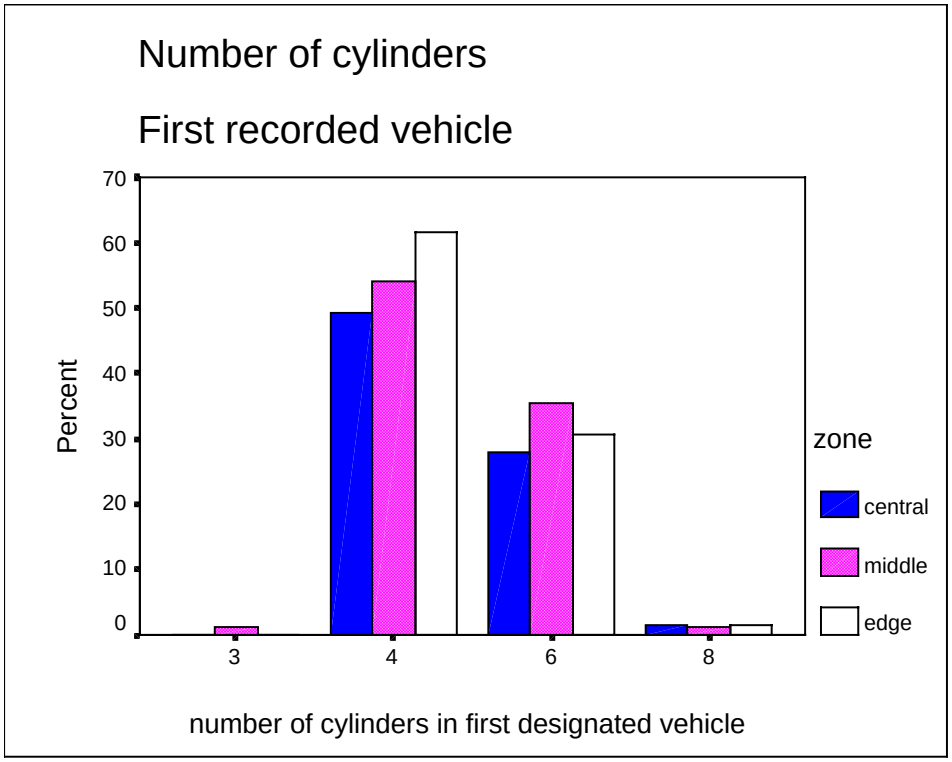

Type of vehicle
First recorded
Percent
100
80
60
40
20
0
car
stationwagon
utility
motor cycle
4 X 4
van
light truck
zone
central
middle
edge
Type of first vehicle listed

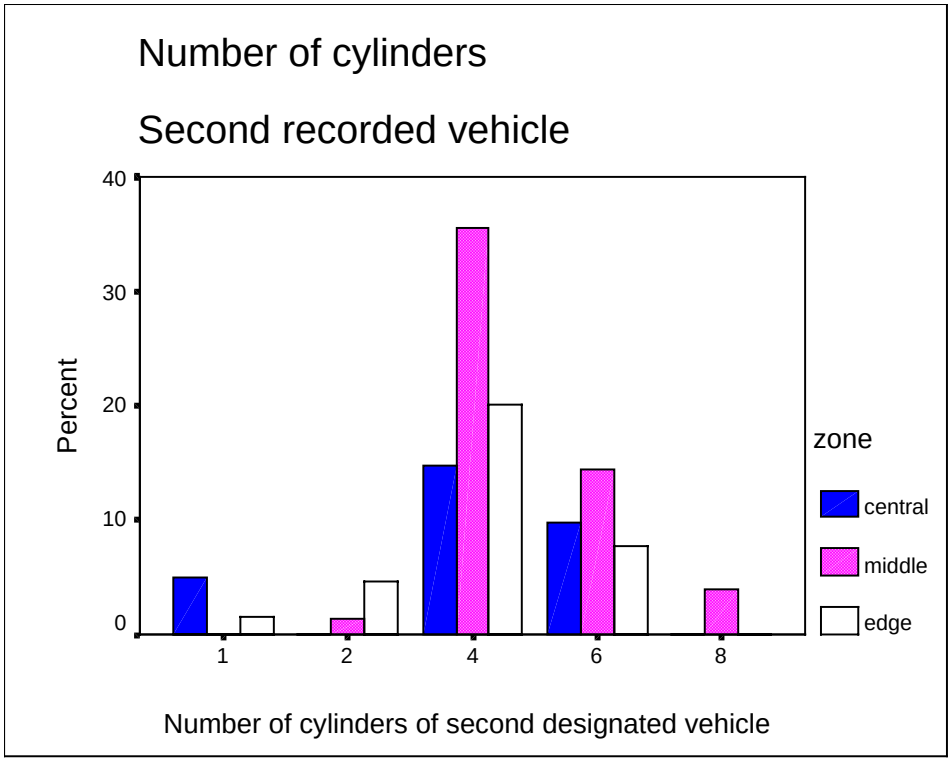

Cairns Type of vehicle owned
Second recorded type
Percent
80
60
40
20
0
Missing
car
station wagon
utility
motor cycle
4x4
van
zone
central
middle
edge
type of second designated vehicle

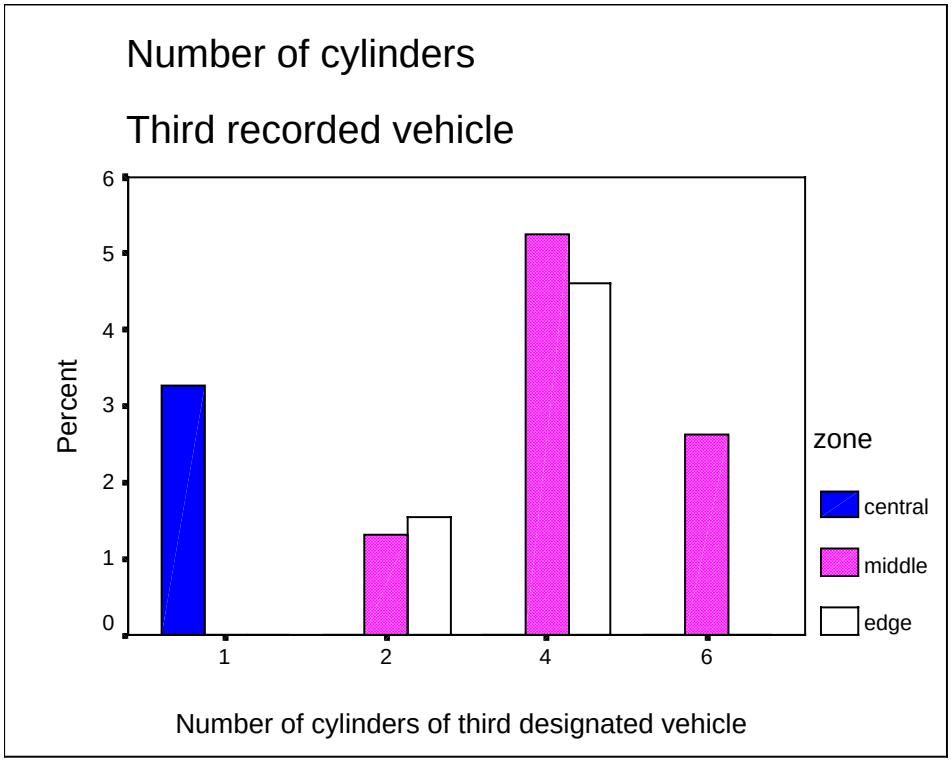

Type of vehicle
Third recorded
Percent
5
4
3
2
1
0
car
station wagon
utility
motor cycle
4x4
zone
central
middle
edge
Third designated vehicle

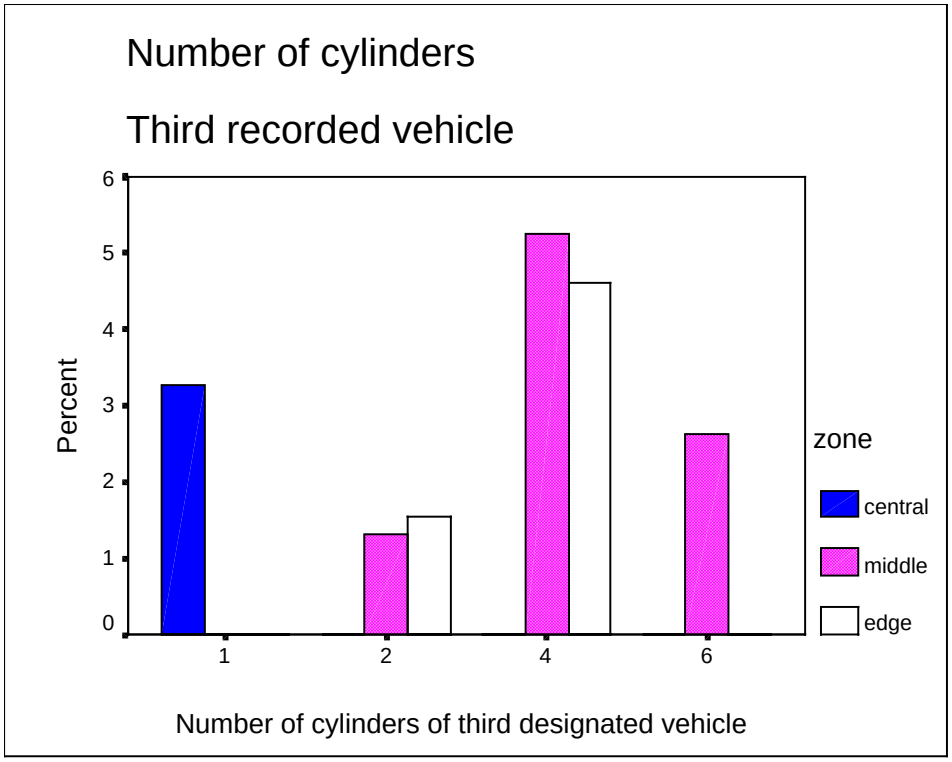

Age of vehicle
First recorded
Percent
14
12
10
8
6
4
2
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
zone
central
middle
edge
Age of first designated household vehicle

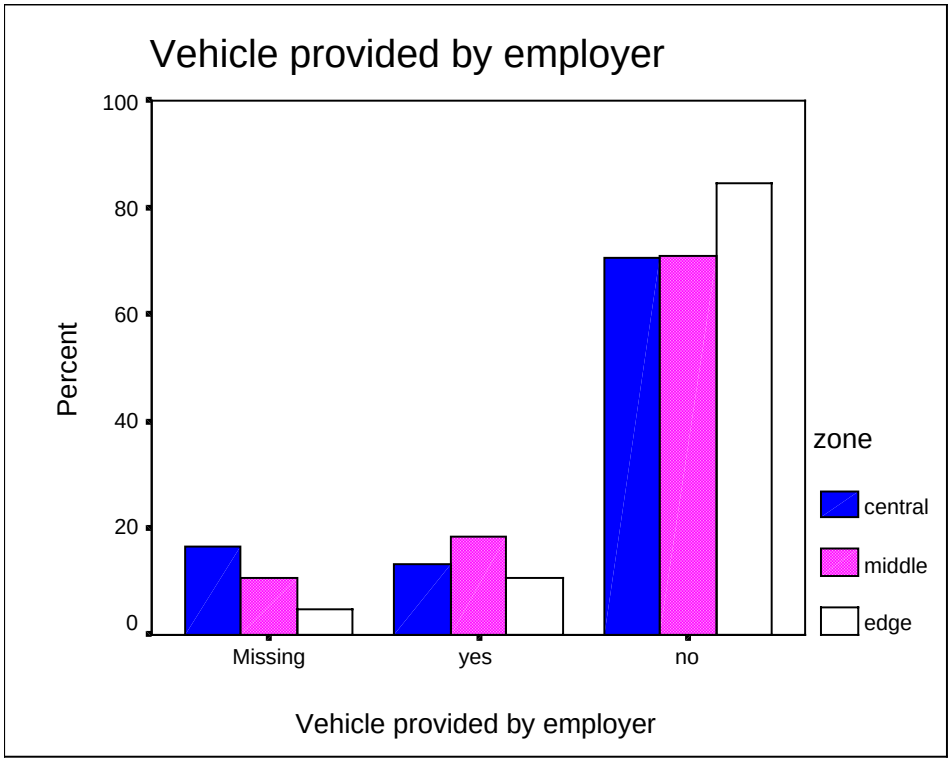

Age of vehicle
Second recorded
Percent
10
8
6
4
2
0
0 1 2 3 4 5 6 7 8 10 11 12 14 15 16 17 20 21 25 24 25 30 47 50
zone
central
middle
edge
Age of second designated vehicle

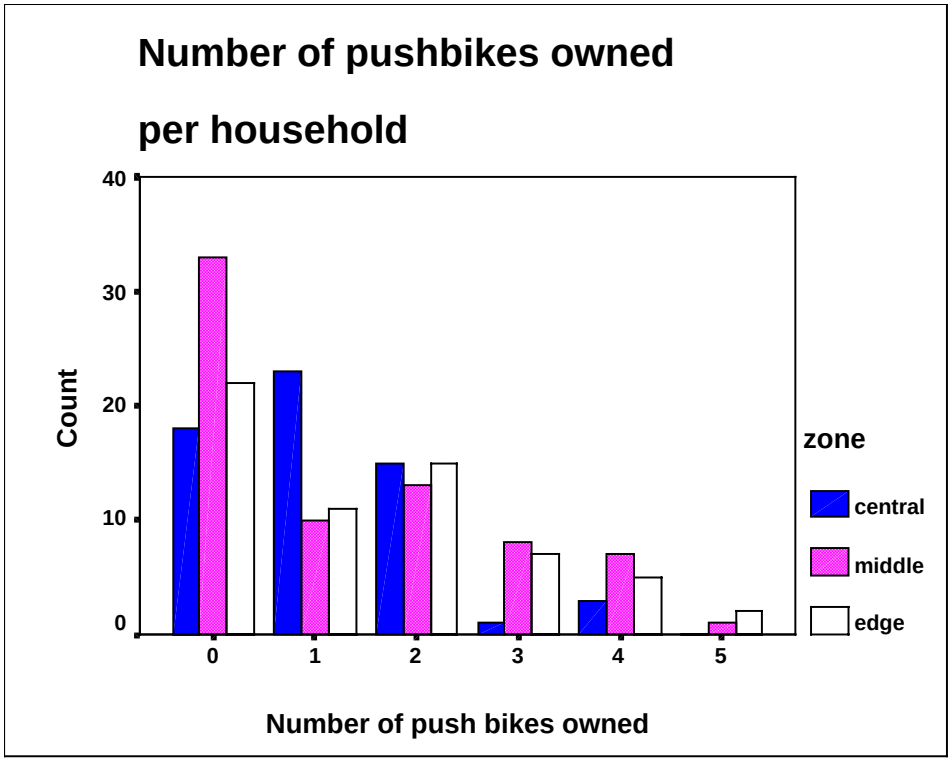

Number of cylinders
First recorded vehicle
Percent
70
60
50
40
30
20
10
0
3
4
6
8
zone
central
middle
edge
number of cylinders in first designated vehicle

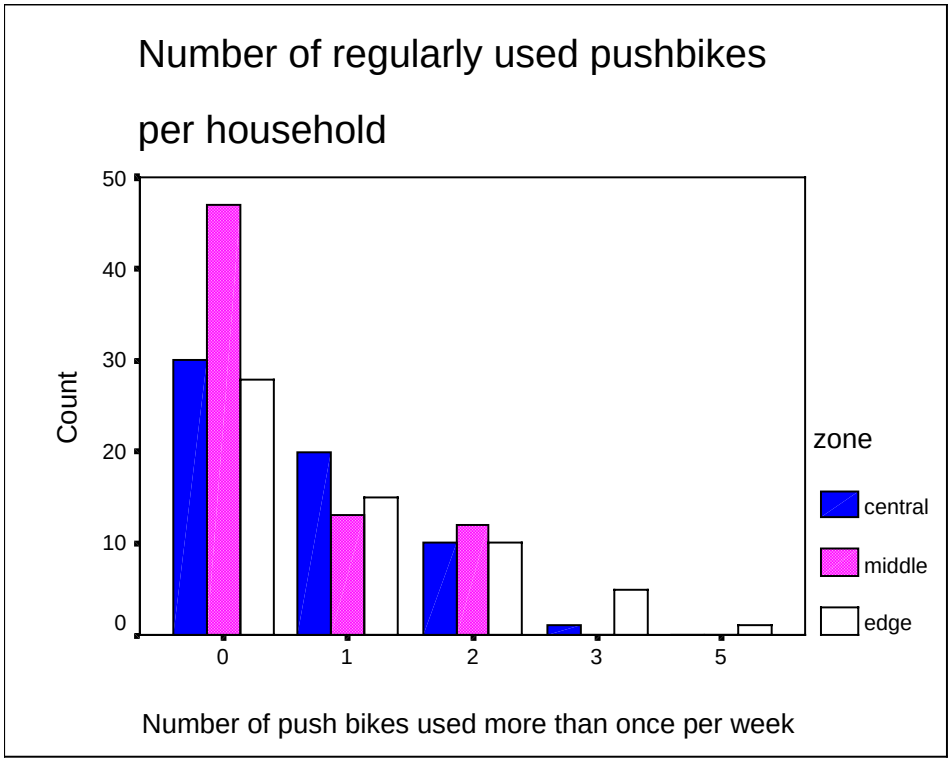

Number of cylinders
Second recorded vehicle
Percent
40
30
20
10
0
1
2
4
6
8
zone
central
middle
edge
Number of cylinders of second designated vehicle

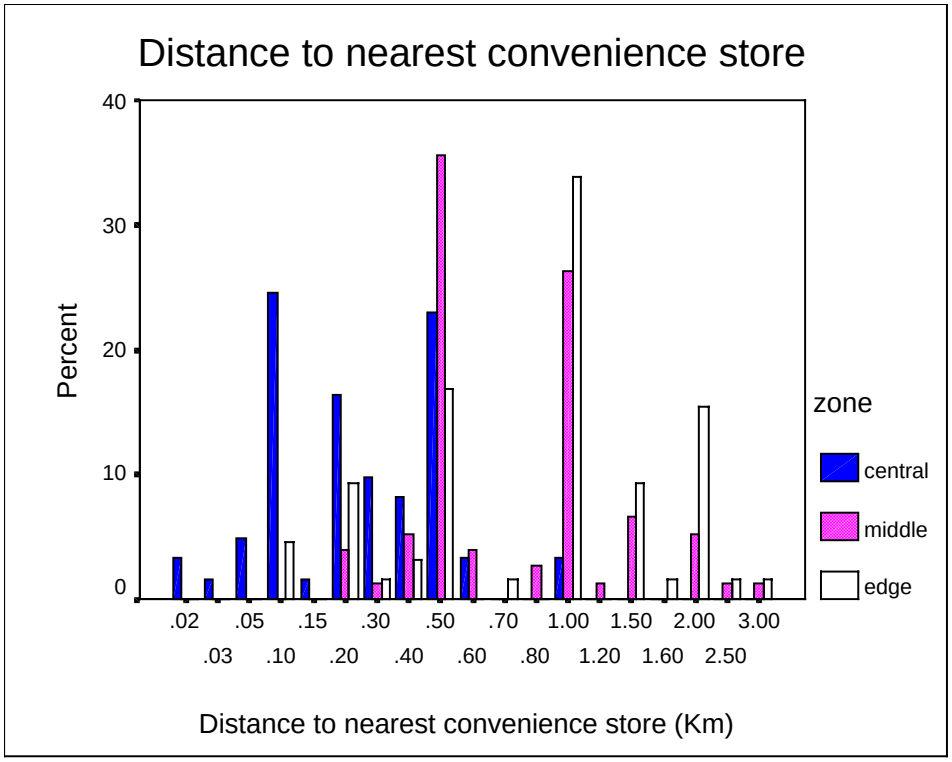

Number of cylinders
Third recorded vehicle
Percent
6
5
4
3
2
1
0
1
2
4
6
zone
central
middle
edge
Number of cylinders of third designated vehicle


Number of cylinders
Third recorded vehicle
Percent
6
5
4
3
2
1
0
1
2
4
6
zone
central
middle
edge
Number of cylinders of third designated vehicle


Vehicle provided by employer
Percent
100
80
60
40
20
0
Missing
yes
no
zone
central
middle
edge
Vehicle provided by employer

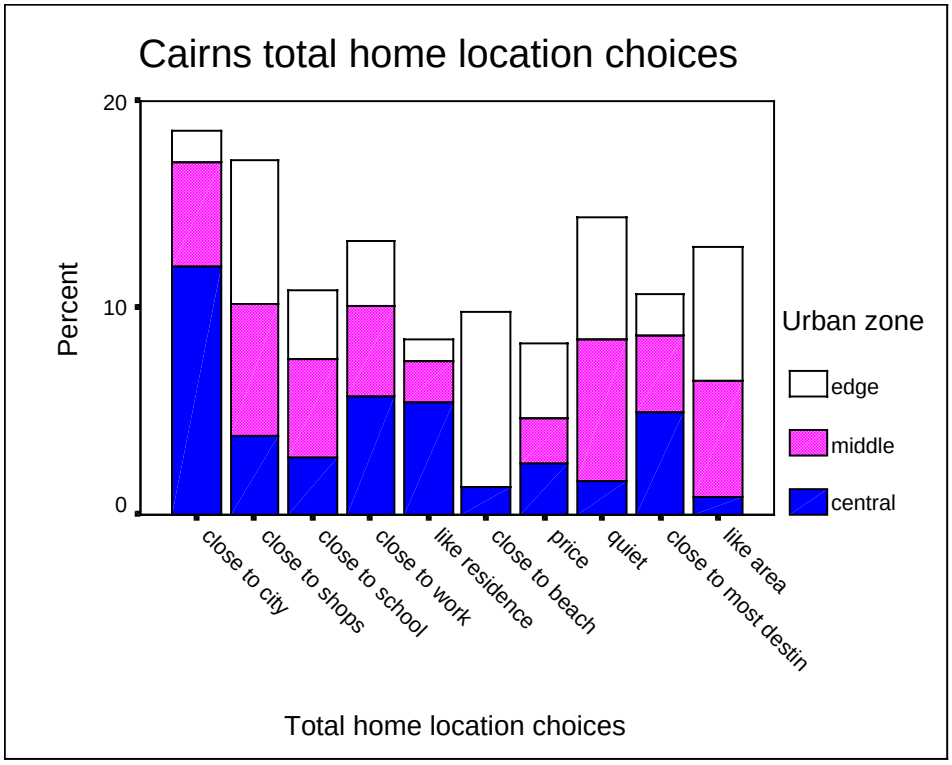

Number of pushbikes owned
per household
Count
40
30
20
10
0
0
1
2
3
4
5
zone
central
middle
edge
Number of push bikes owned

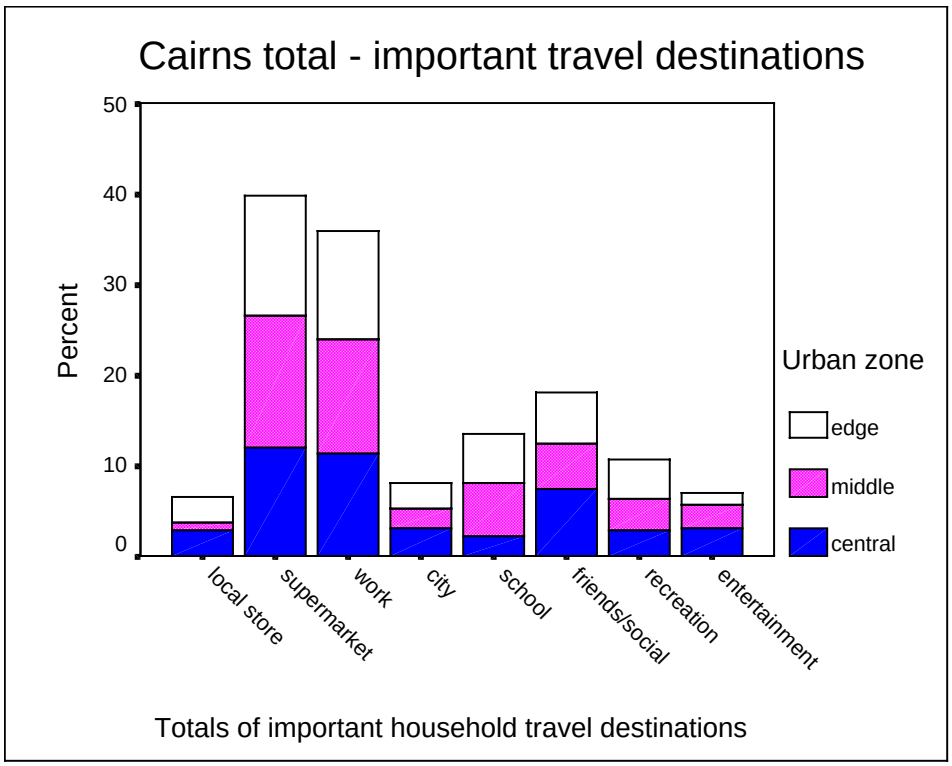

Number of regularly used pushbikes
per household
Count
50
40
30
20
10
0
0
1
2
3
5
zone
central
middle
edge
Number of push bikes used more than once per week

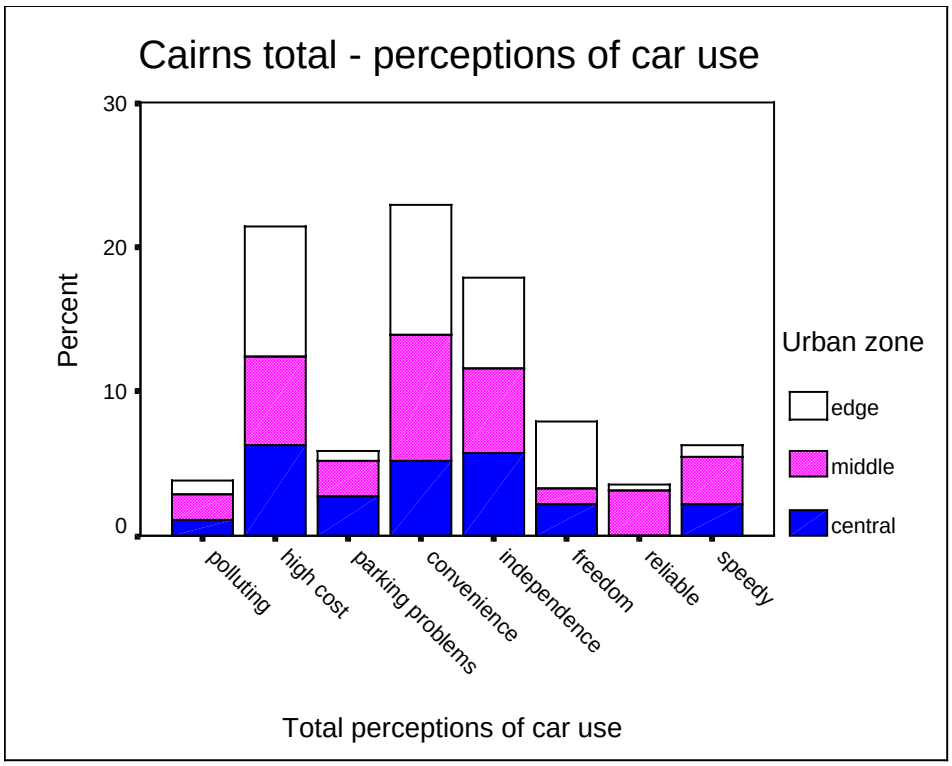

Distance to nearest convenience store
Percent
40
30
20
10
0
.02
.03
.05
.10
.15
.20
.30
.40
.50
.60
.70
.80
1.00
1.20
1.50
1.60
2.00
2.50
3.00
zone
central
middle
edge
Distance to nearest convenience store (Km)

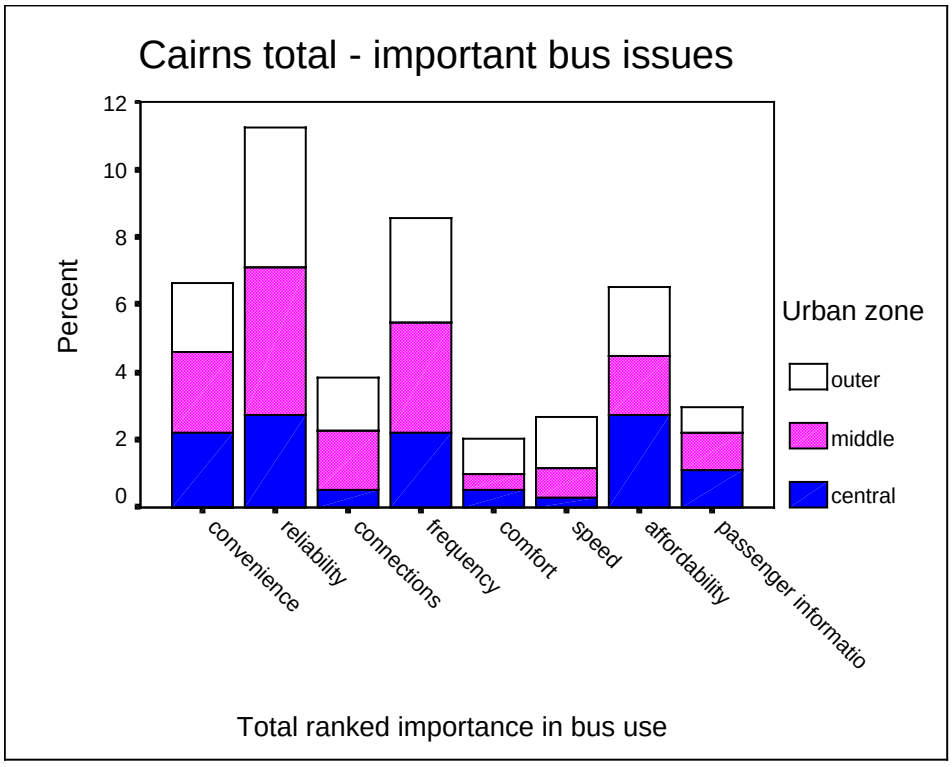
Appendix 8

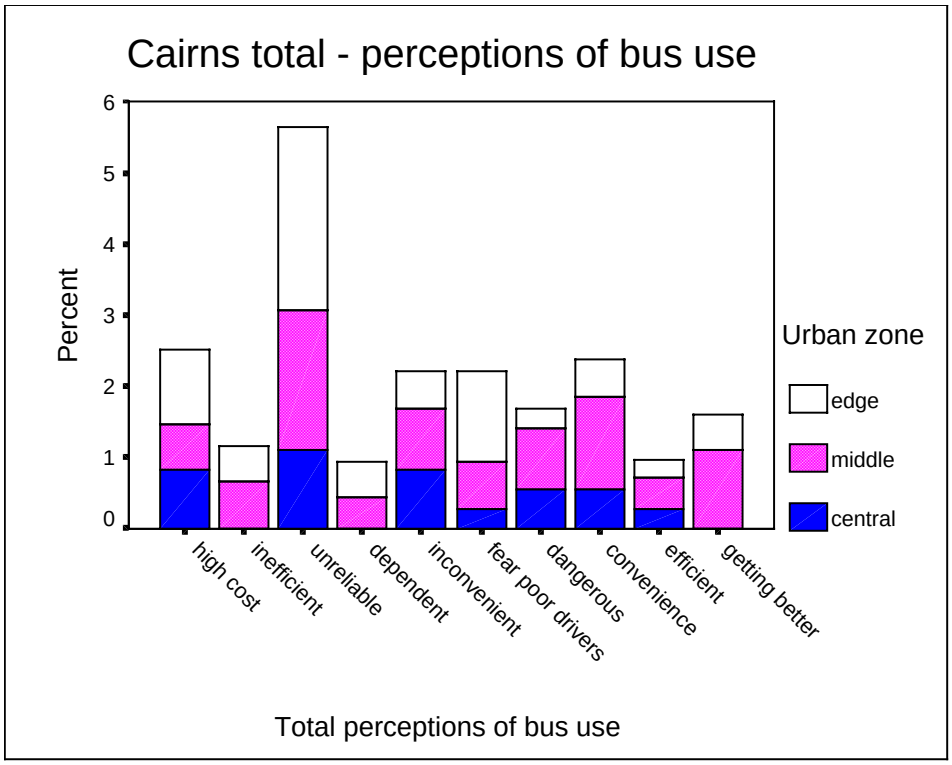
Cairns totals and multiple response charts

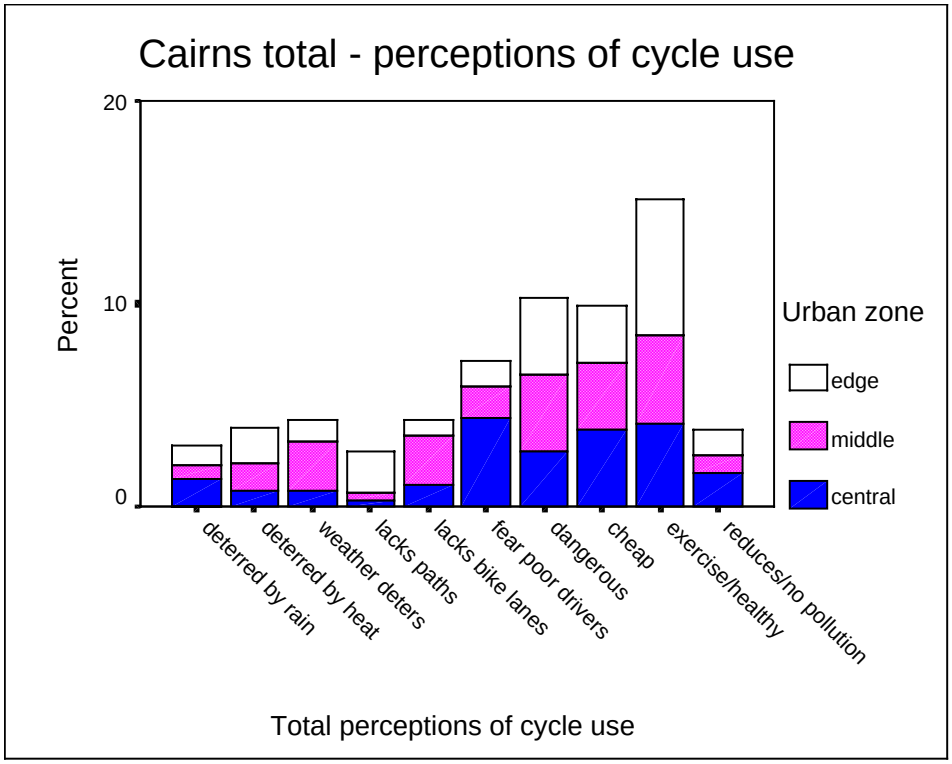


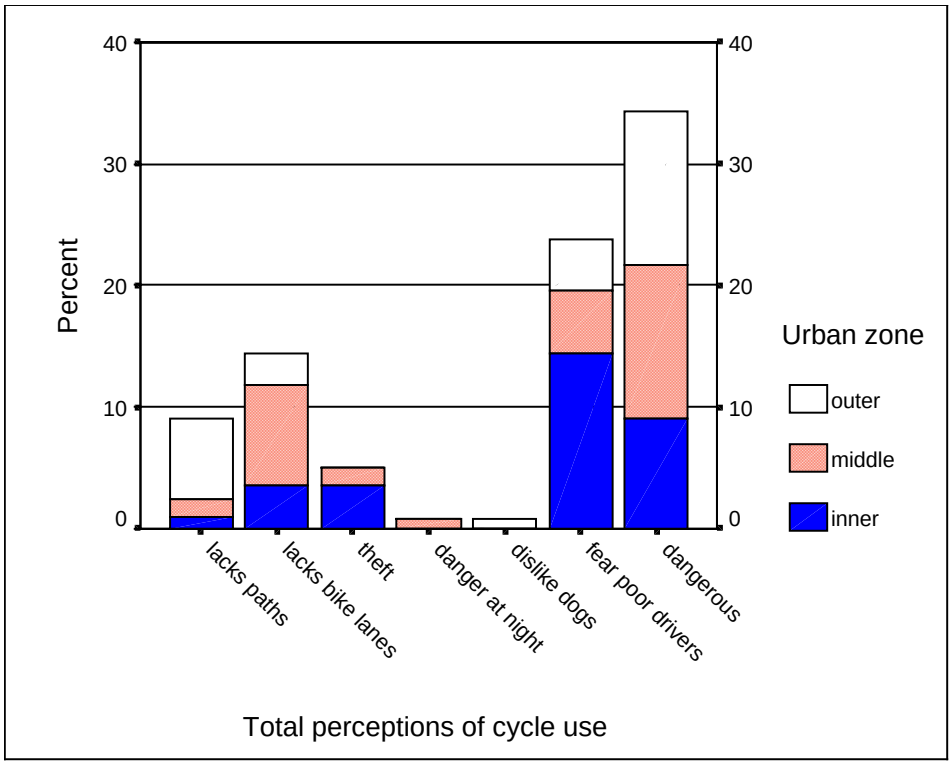


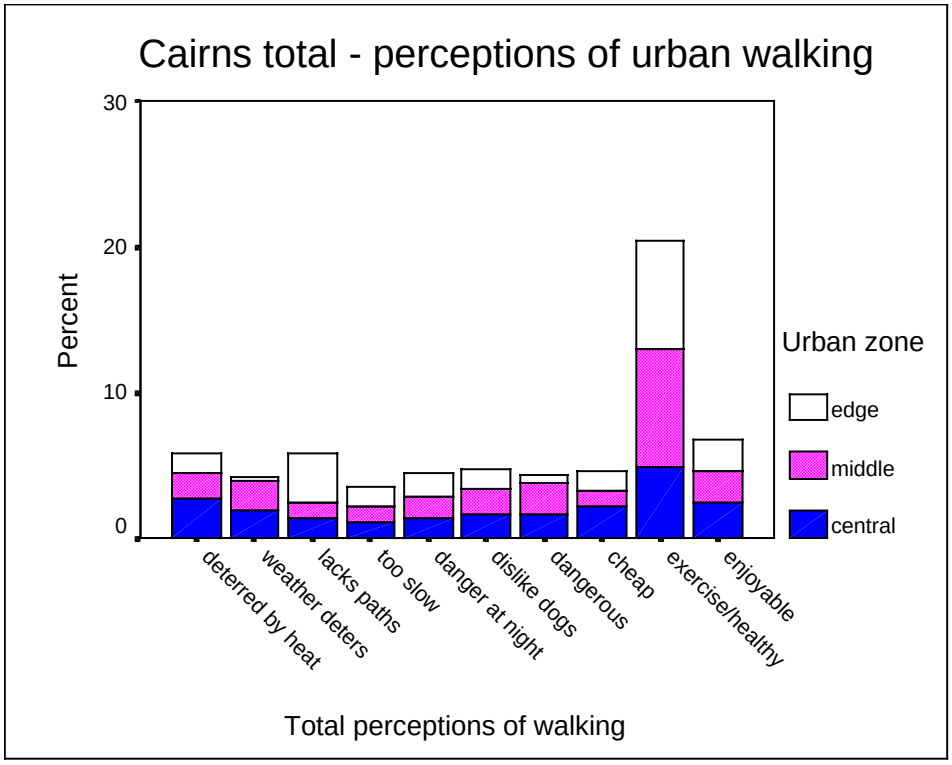

Cairns total - perceptions of car use
Percent
30
20
10
0
Urban zone
edge
middle
central
polluting
high cost
parking problems
convenience
independence
freedom
reliable
speedy
Total perceptions of car use

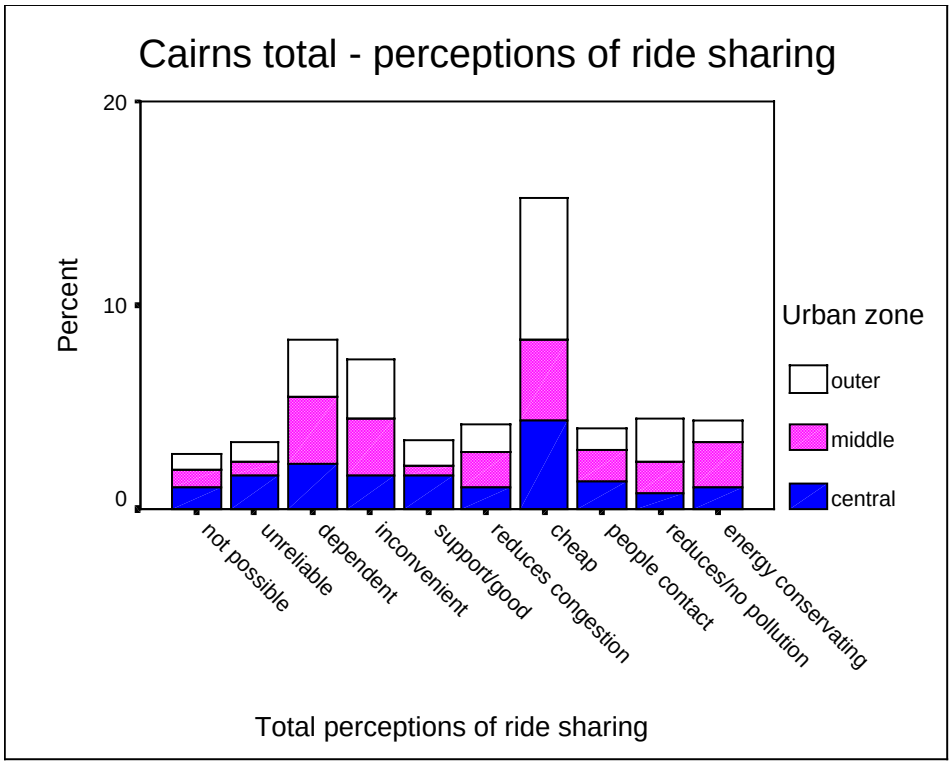

Cairns total - important bus issues
Percent
12
10
8
6
4
2
0
Urban zone
outer
middle
central
convenience
reliability
connections
frequency
comfort
speed
affordability
passenger informatio
Total ranked importance in bus use


Cairns total - perceptions of bus use
Percent
6
5
4
3
2
1
0
Urban zone
edge
middle
central
high cost
inefficient
unreliable
dependent
inconvenient
fear poor drivers
dangerous
convenience
efficient
getting better
Total perceptions of bus use

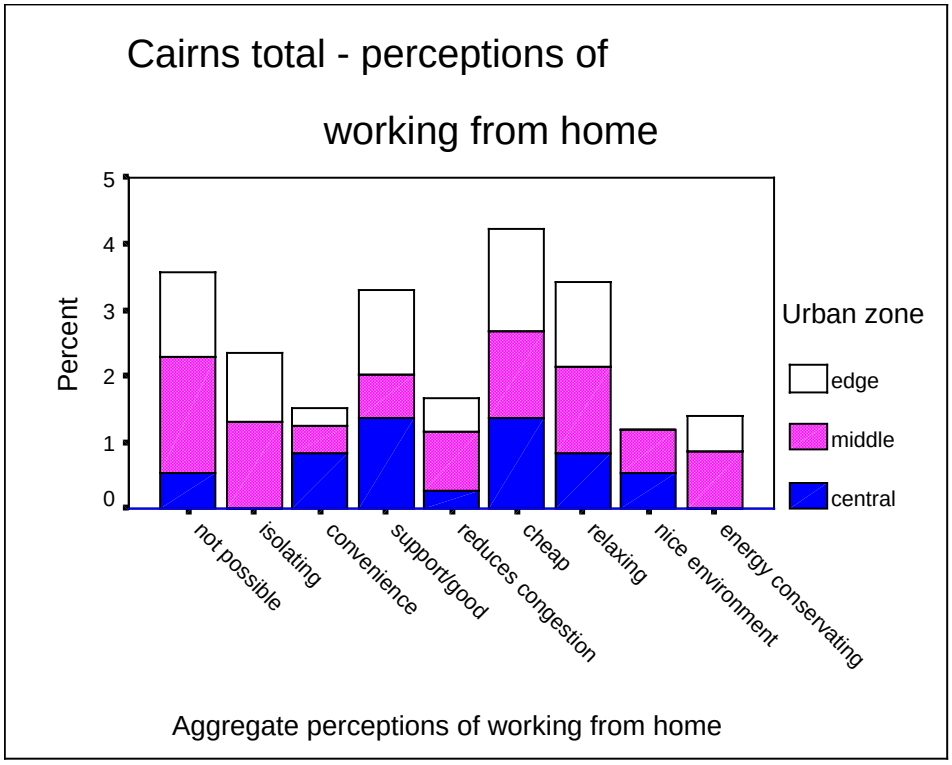

Cairns total - perceptions of cycle use
Percent
20
10
0
Urban zone
edge
middle
central
deterred by rain
deterred by heat
weather deters
lacks paths
lacks bike lanes
fear poor drivers
dangerous
cheap
exercise/healthy
reduces/no pollution
Total perceptions of cycle use


40
30
20
10
0
Percent
Urban zone
outer
middle
inner
lacks paths
lacks bike lanes
theft
danger at night
dislike dogs
fear poor drivers
dangerous
Total perceptions of cycle use

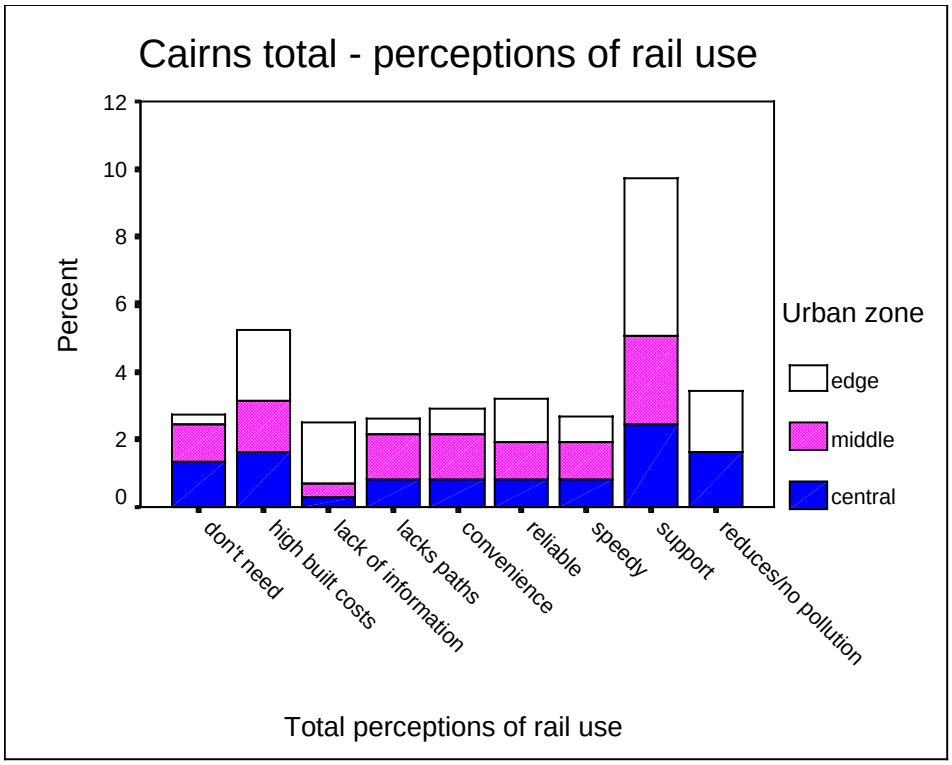

Cairns total - perceptions of urban walking
30
20
10
0
Percent
Urban zone
edge
middle
central
deterred by heat
weather deters
lacks paths
too slow
danger at night
dislike dogs
dangerous
cheap
exercise/healthy
enjoyable
Total perceptions of walking

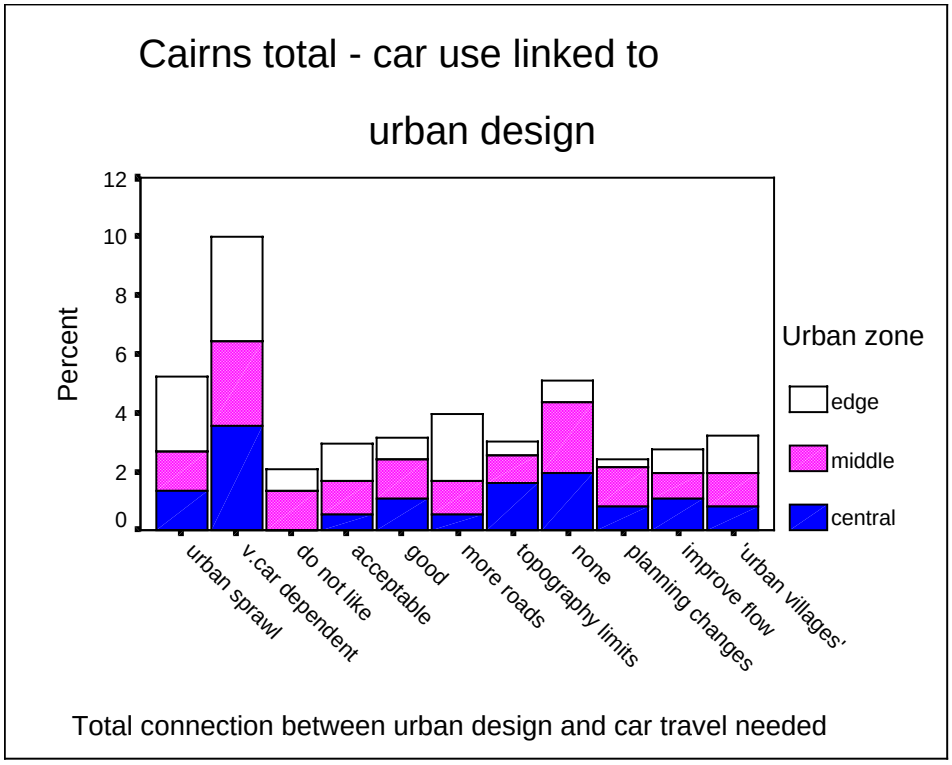


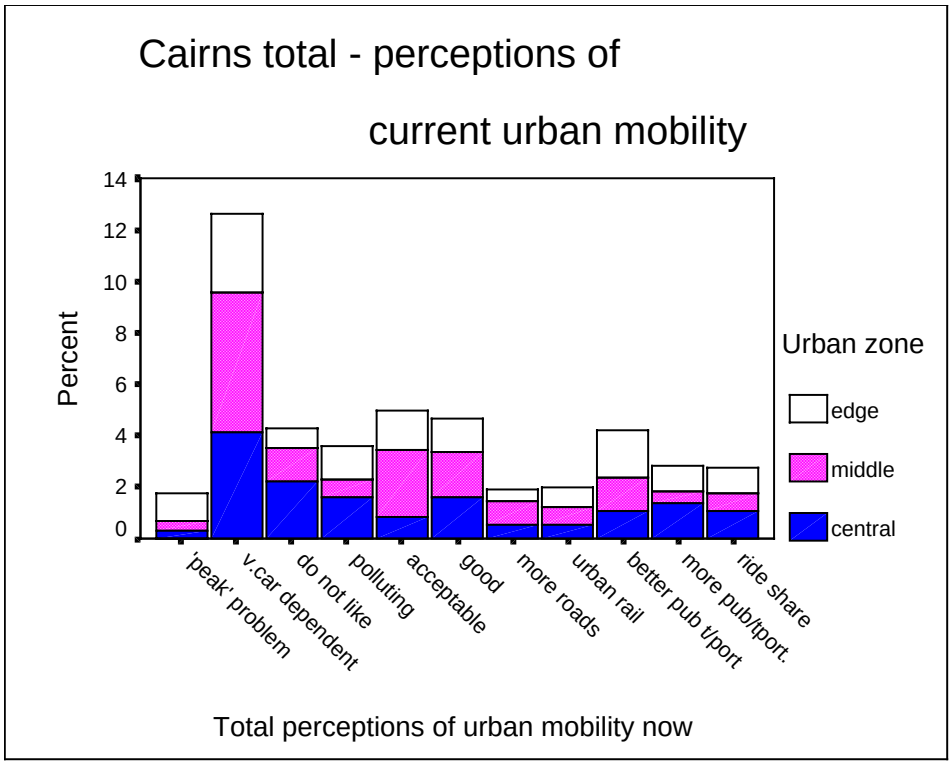
Total perceptions of ride sharing

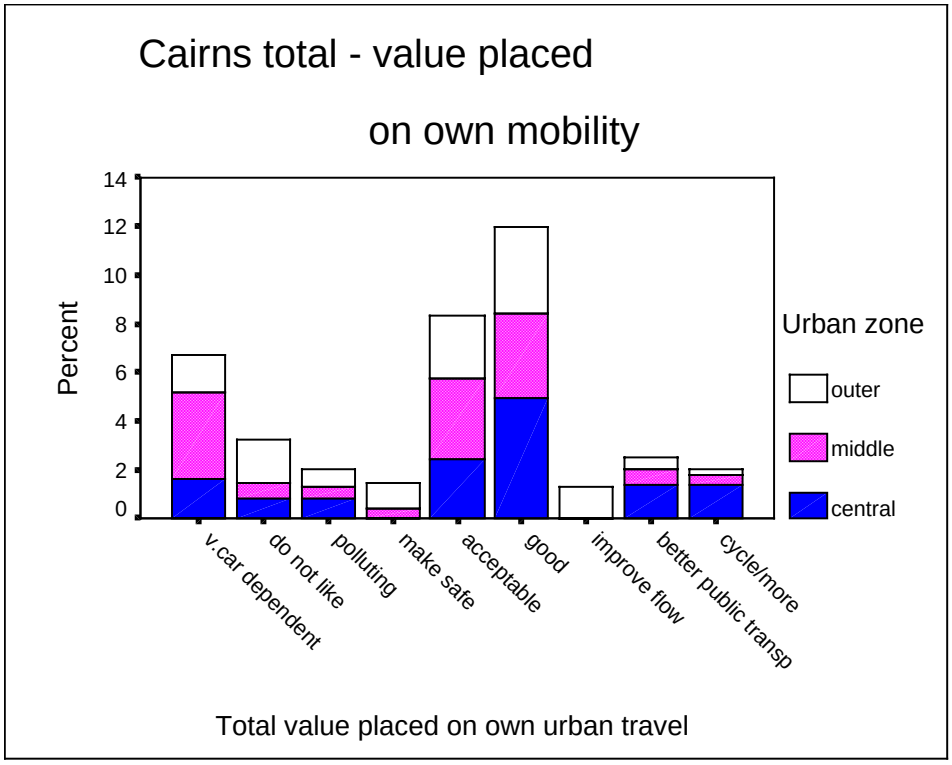


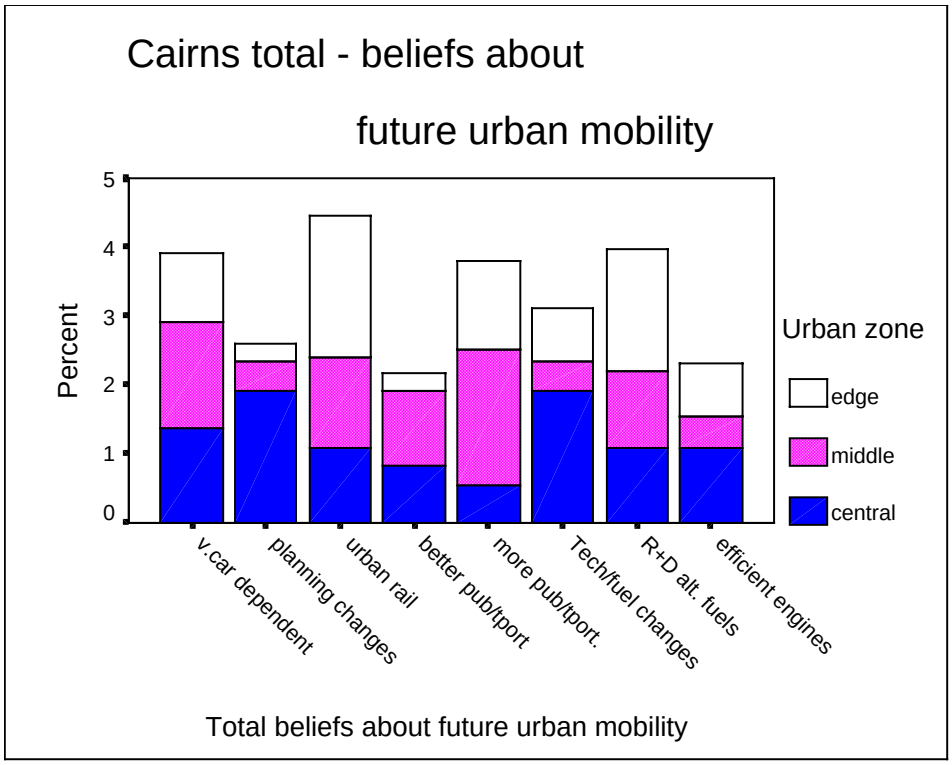
Aggregate perceptions of working from home


Cairns total - perceptions of rail use
Percent
12
10
8
6
4
2
0
Urban zone
edge
middle
central
don't need
high built costs
lack of information
lacks paths
convenience
reliable
speedy
support
reduces/no pollution
Total perceptions of rail use

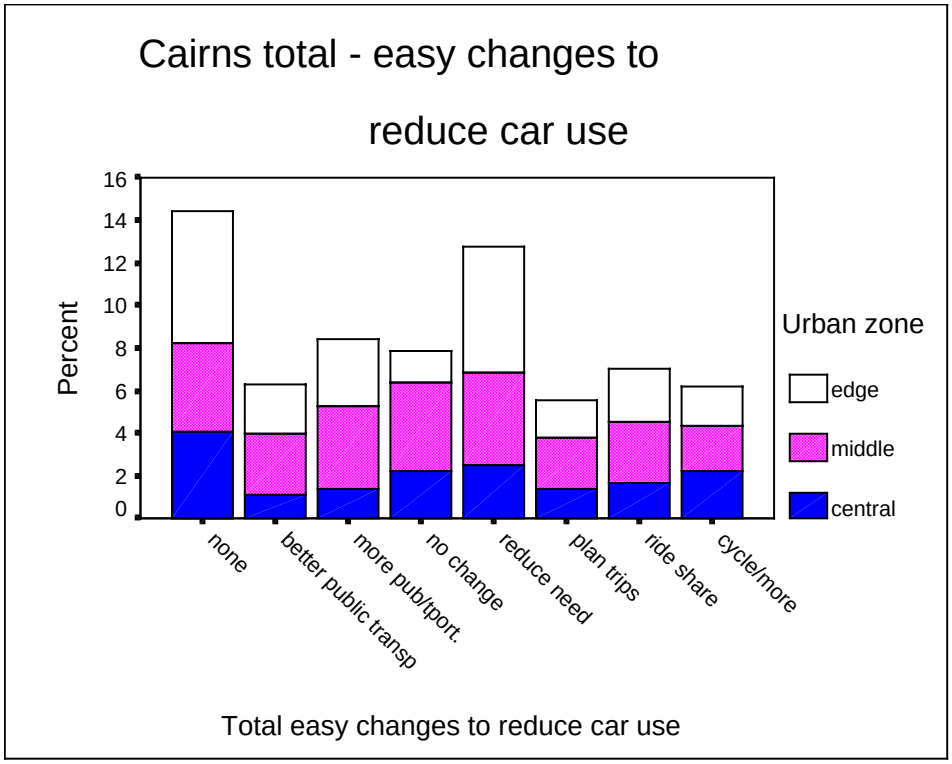

Cairns total - car use linked to urban design
Percent
12
10
8
6
4
2
0
Urban zone
edge
middle
central
urban sprawl
v.car dependent
do not like
acceptable
good
more roads
topography limits
none
planning changes
improve flow
'urban villages'
Total connection between urban design and car travel needed


Cairns total - perceptions of
current urban mobility
Percent
14
12
10
8
6
4
2
0
Urban zone
edge
middle
central
'peak' problem
v.car dependent
do not like
polluting
acceptable
good
more roads
urban rail
better pub t/port
more pub/tport.
ride share
Total perceptions of urban mobility now


Cairns total - value placed
on own mobility
Percent
14
12
10
8
6
4
2
0
Urban zone
outer
middle
central
v.car dependent
do not like
polluting
make safe
acceptable
good
improve flow
better public transp
cycle/more
Total value placed on own urban travel

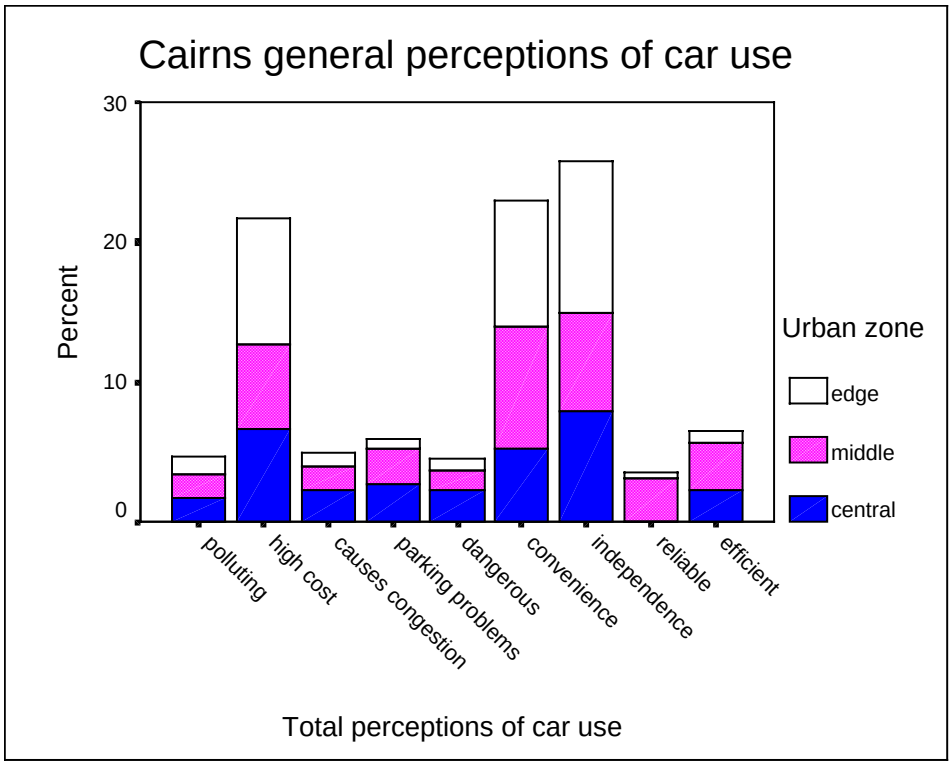


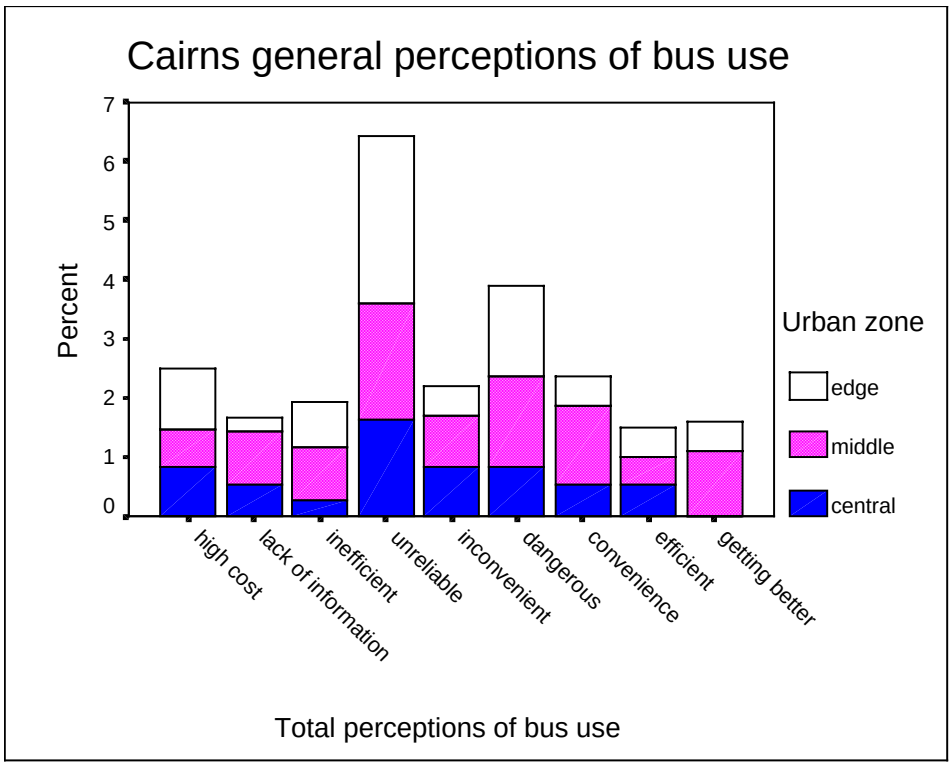
Total beliefs about future urban mobility

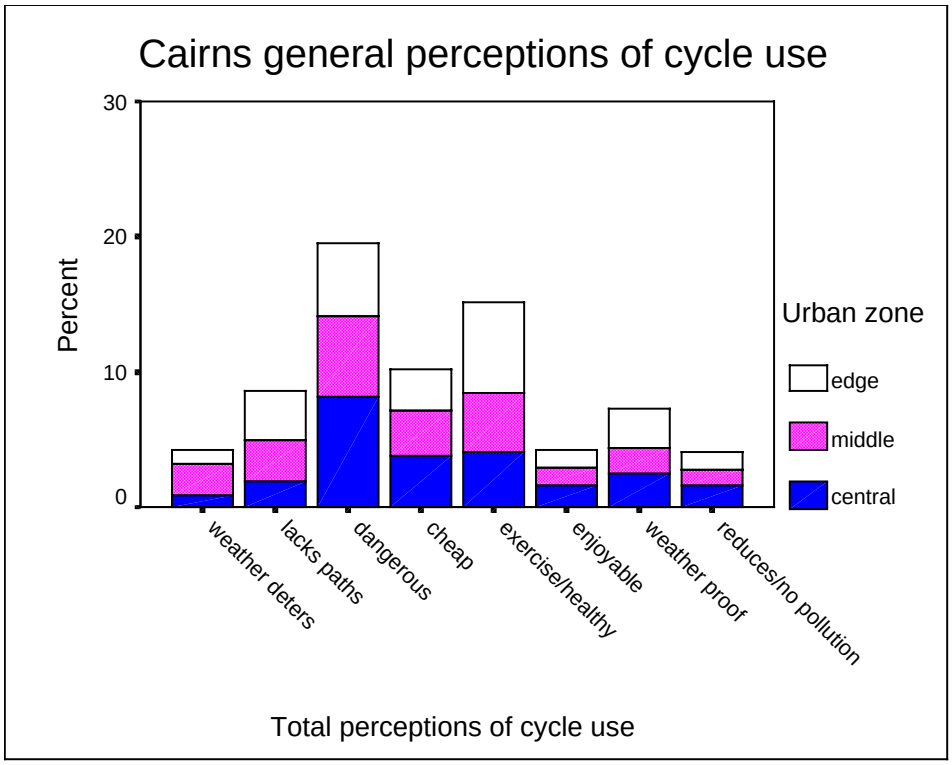


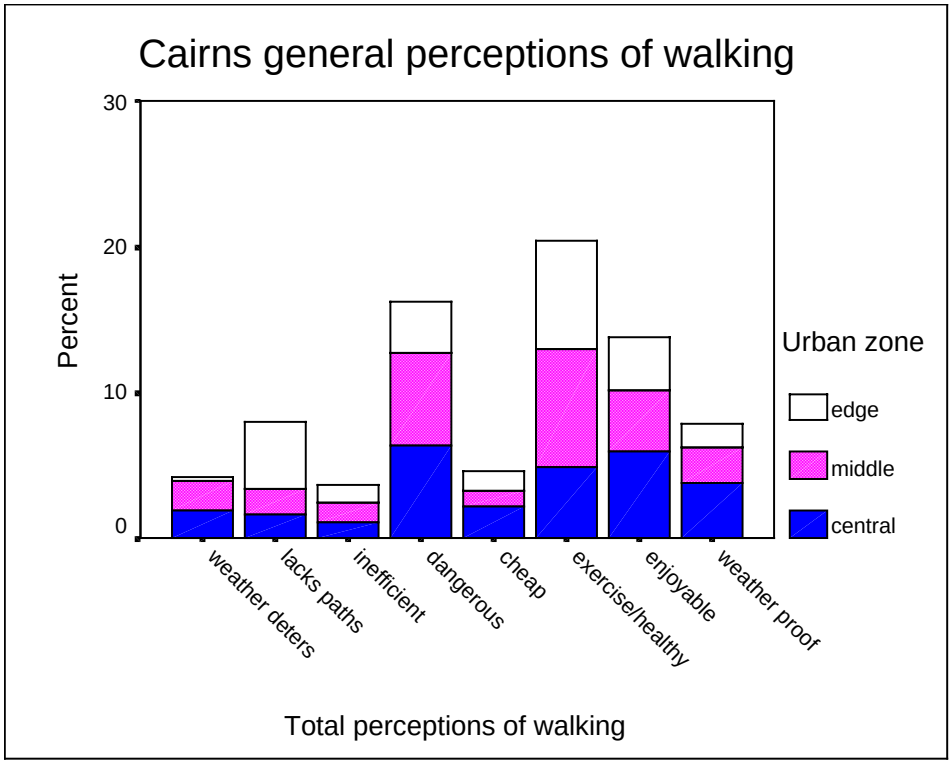
Total easy changes to reduce car use

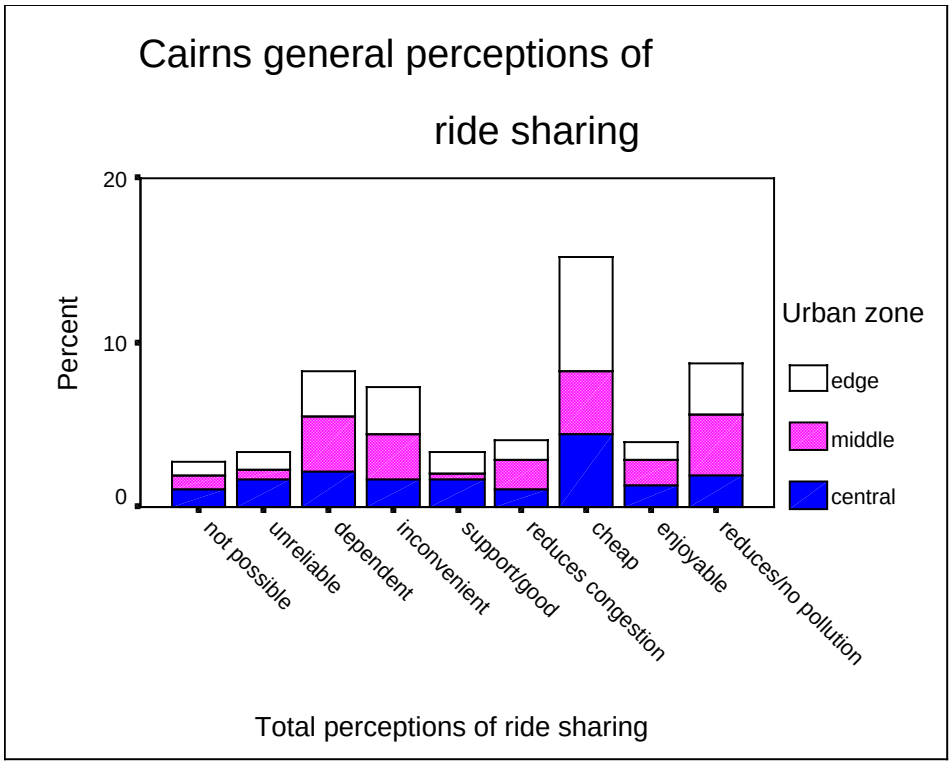
General aggregate charts

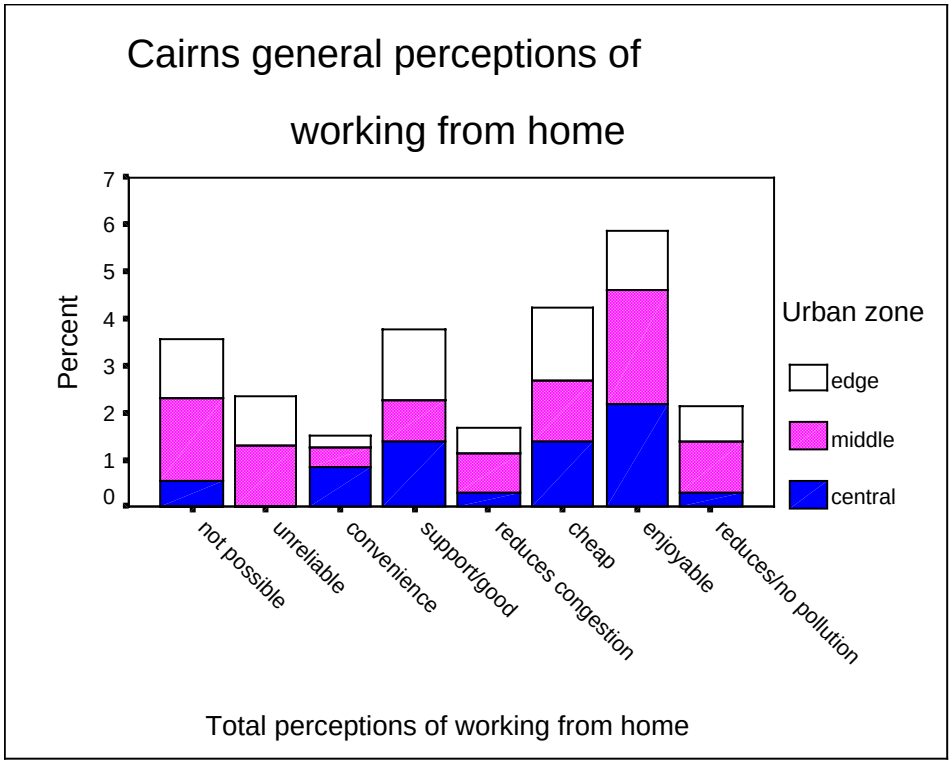

Cairns general perceptions of car use
Percent
30
20
10
0
Urban zone
edge
middle
central
polluting
high cost
causes congestion
parking problems
dangerous
convenience
independence
reliable
efficient
Total perceptions of car use

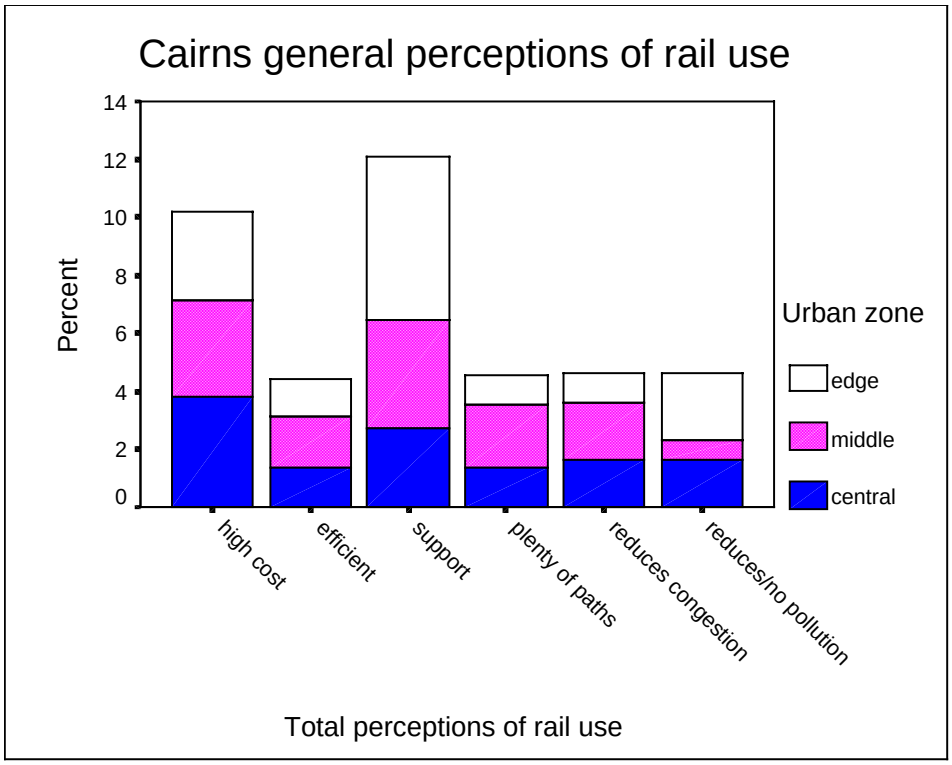

Cairns general perceptions of bus use
Percent
7
6
5
4
3
2
1
0
Urban zone
edge
middle
central
high cost
lack of information
inefficient
unreliable
inconvenient
dangerous
convenience
efficient
getting better
Total perceptions of bus use


Cairns general perceptions of cycle use
Percent
30
20
10
0
Urban zone
edge
middle
central
weather deters
lacks paths
dangerous
cheap
exercise/healthy
enjoyable
weather proof
reduces/no pollution
Total perceptions of cycle use

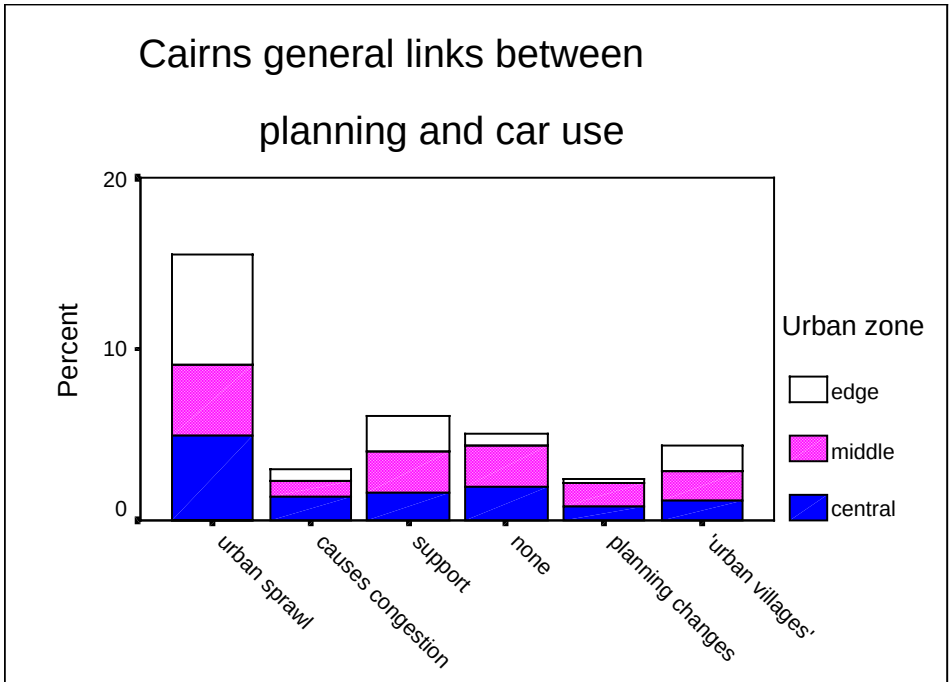

Cairns general perceptions of walking
Percent
30
20
10
0
Urban zone
edge
middle
central
weather deters
lacks paths
inefficient
dangerous
cheap
exercise/healthy
enjoyable
weather proof
Total perceptions of walking


Cairns general perceptions of
ride sharing
Percent
20
10
0
Urban zone
edge
middle
central
not possible
unreliable
dependent
inconvenient
support/good
reduces congestion
cheap
enjoyable
reduces/no pollution
Total perceptions of ride sharing

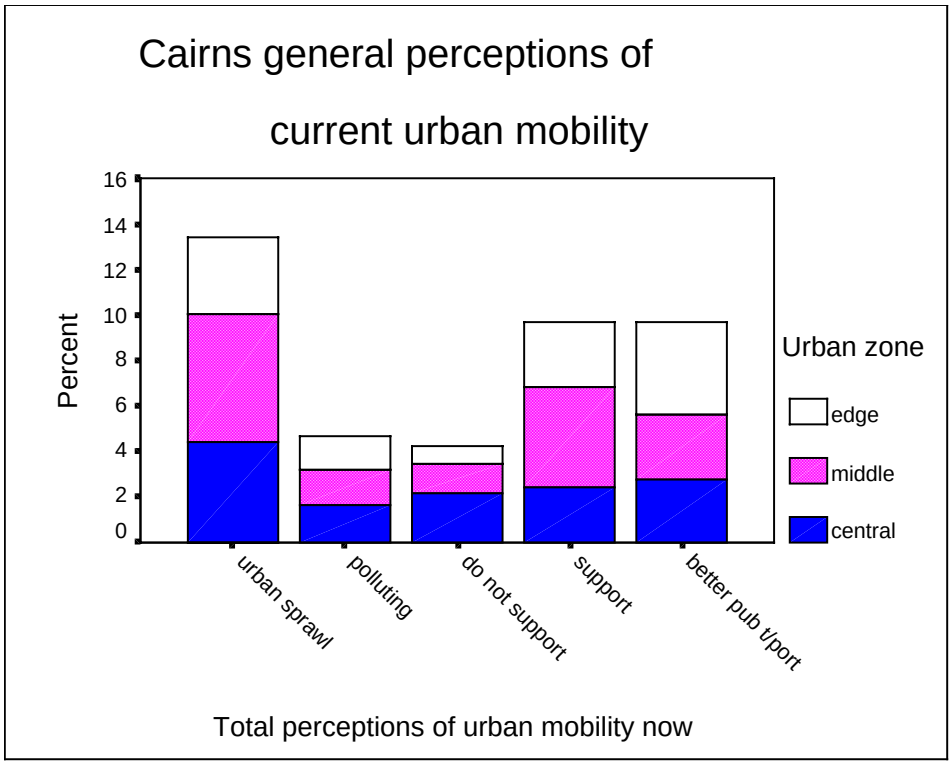

Cairns general perceptions of
working from home
Percent
7
6
5
4
3
2
1
0
Urban zone
edge
middle
central
not possible
unreliable
convenience
support/good
reduces congestion
cheap
enjoyable
reduces/no pollution
Total perceptions of working from home

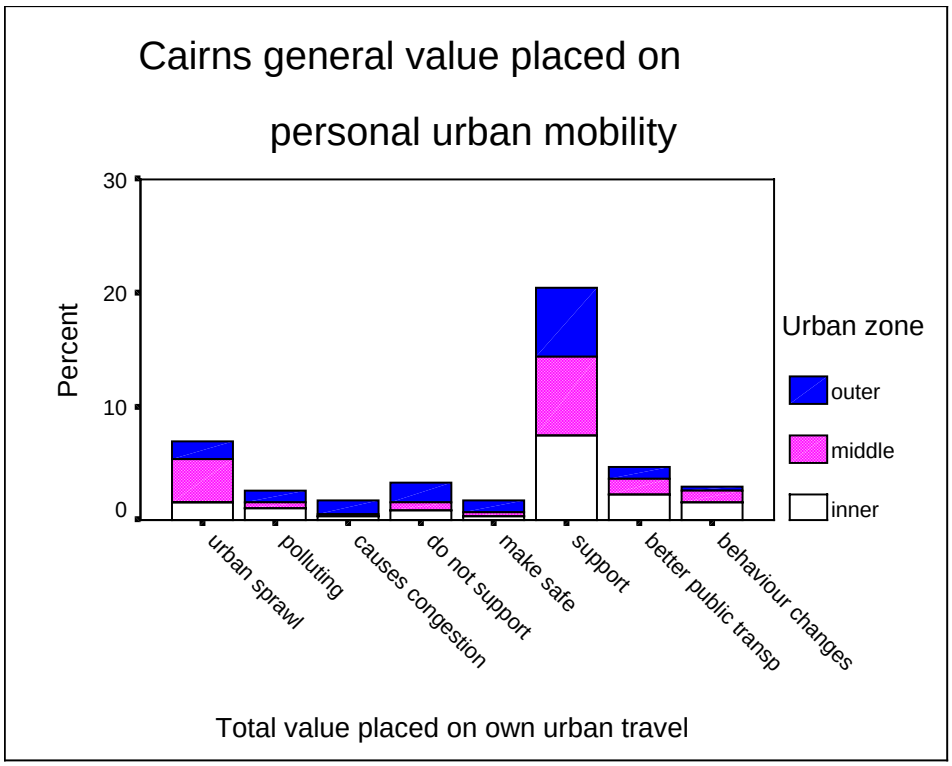


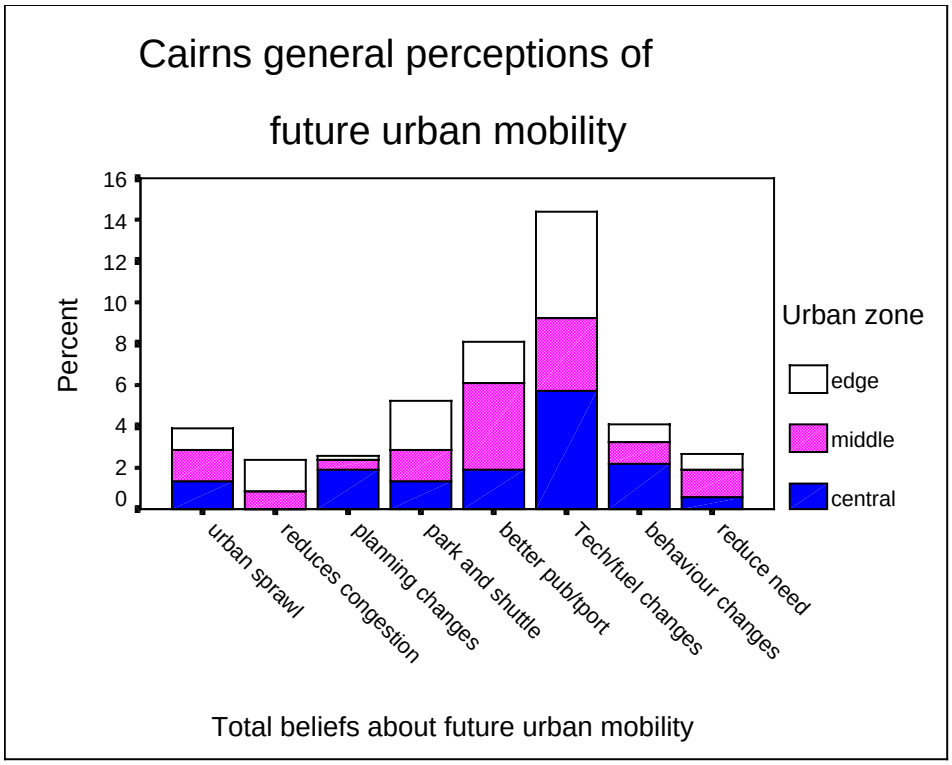
Total perceptions of rail use

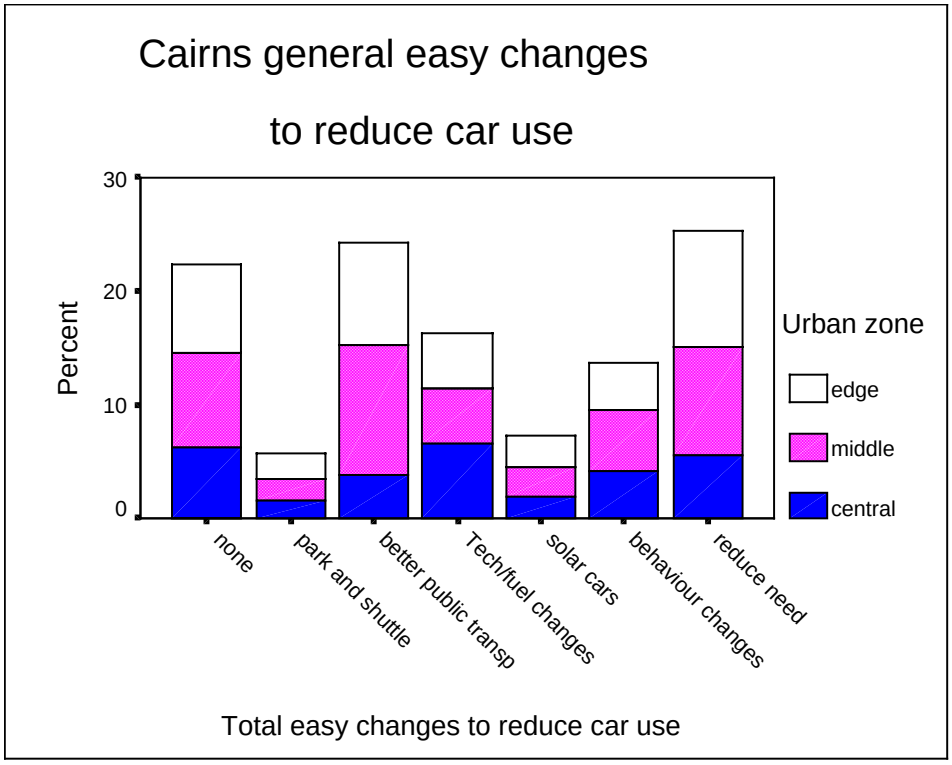


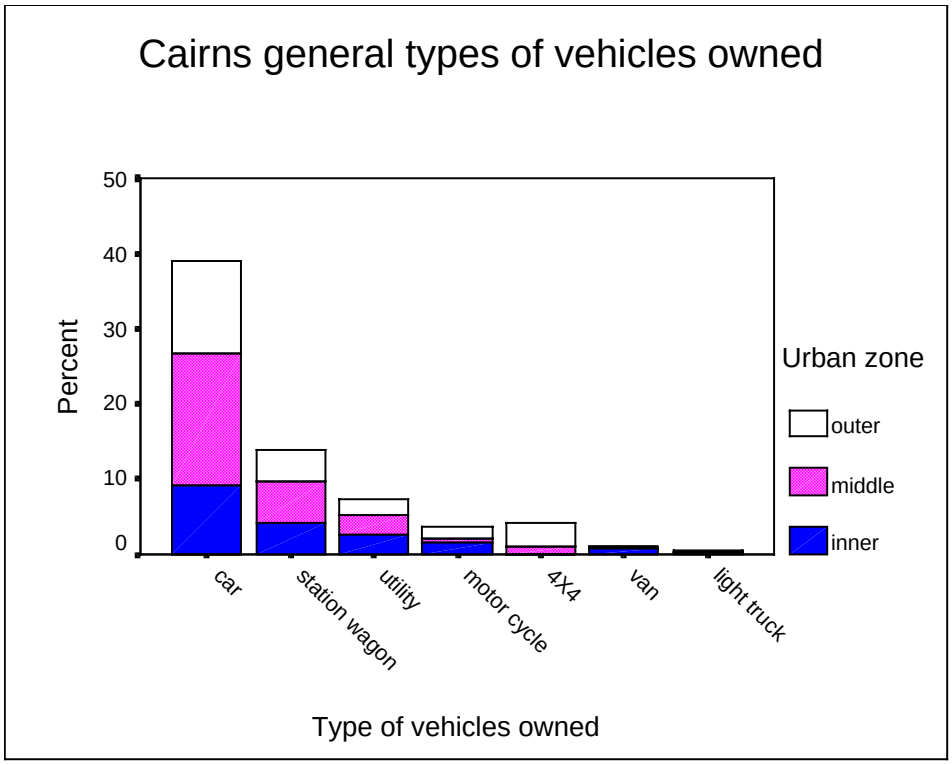
Total connection between urban design and car travel needed

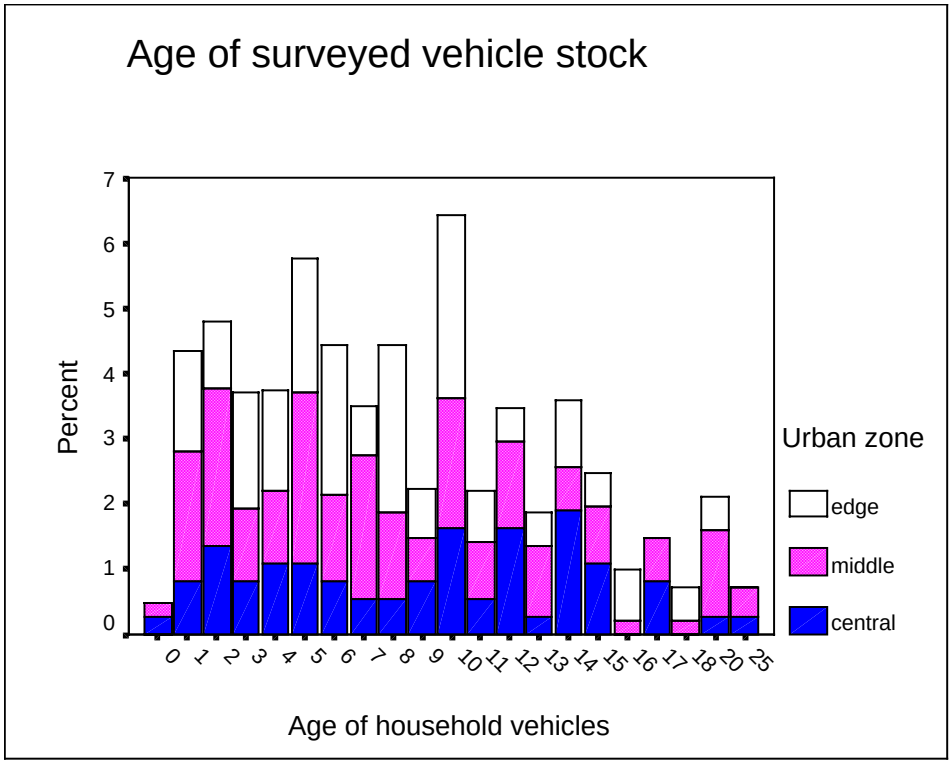

Cairns general perceptions of
current urban mobility
Percent
16
14
12
10
8
6
4
2
0
urban sprawl
polluting
do not support
support
better pub t/port
Urban zone
edge
middle
central
Total perceptions of urban mobility now

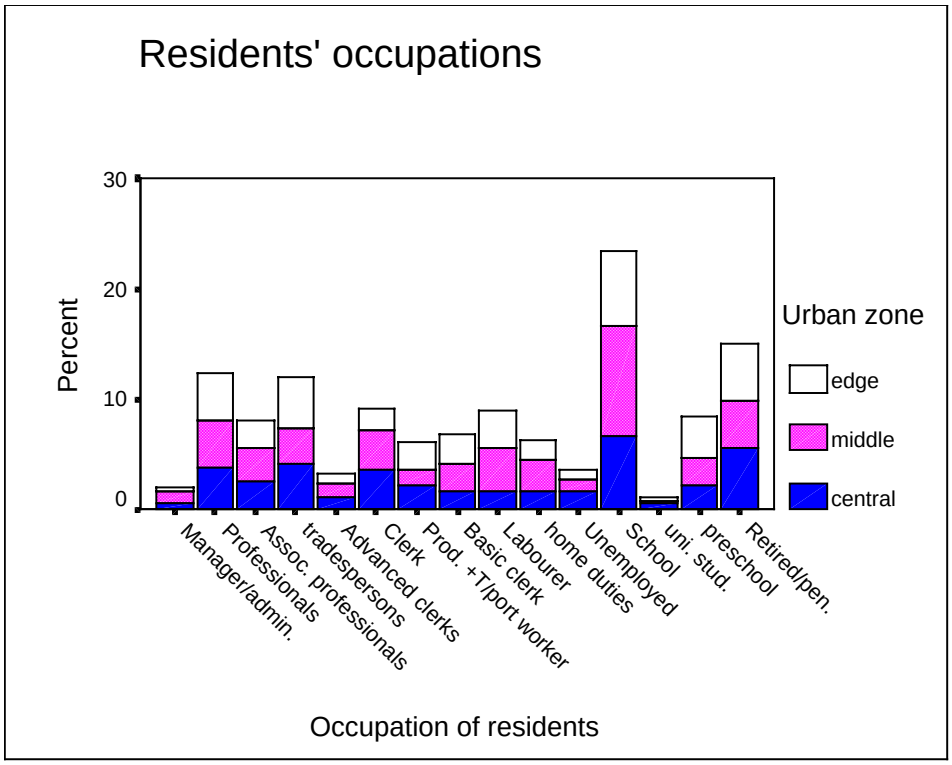

Cairns general value placed on
personal urban mobility
Percent
30
20
10
0
urban sprawl
polluting
causes congestion
do not support
make safe
support
better public transp
behaviour changes
Urban zone
outer
middle
inner
Total value placed on own urban travel


Cairns general perceptions of
future urban mobility
Percent
16
14
12
10
8
6
4
2
0
Urban zone
edge
middle
central
urban sprawl
reduces congestion
planning changes
park and shuttle
better pub/tport
Tech/fuel changes
behaviour changes
reduce need
Total beliefs about future urban mobility


Cairns general easy changes
to reduce car use
Percent
30
20
10
0
Urban zone
edge
middle
central
none
park and shuttle
better public transp
Tech/fuel changes
solar cars
behaviour changes
reduce need
Total easy changes to reduce car use


Cairns general types of vehicles owned
Percent
50
40
30
20
10
0
car
station wagon
utility
motor cycle
4X4
van
light truck
Urban zone
outer
middle
inner
Type of vehicles owned


Age of surveyed vehicle stock
Percent
7
6
5
4
3
2
1
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 20 25
Urban zone
edge
middle
central
Age of household vehicles


Residents' occupations
Percent
30
20
10
0
Urban zone
edge
middle
central
Manager/admin.
Professionals
Assoc. professionals
tradespersons
Advanced clerks
Clerk
Prod. +T/port worker
Basic clerk
Labourer
home duties
Unemployed
School
uni. stud.
preschool
Retired/pen.
Occupation of residents

Appendix 9
Cairns public transport analysis

This Appendix provides detail of bus issues in Cairns. It was initially compiled to provide data in March 1999 for planning consultant Garry Glazebrooke, engaged by Queensland Transport. Questions are followed by data summary and analysis.

B4. How often do you personally use buses?

1. Never	2. Virtually never	3. 2-3 times/month	4. More than once per week	5. Nearly every day

Table 1 Frequency of household bus use (%)

Zone /response [# of households]	1. Never	2. Virtually never	3. 2-3 times/ month	4. More than once per week	5. Nearly every day
Central [59]	71*	20	3	3	2
Middle [74]	62	27	4	4	3
Edge [65]	51	31	12	6	0
Total [198]	61	26	7	5	2
Kewarra Beach [25]	48	36	8	8	0
Yorkeys Knob [15]	47	27	20	7	0
Edmonton [25]	56	28	12	4	0

* Percentages rounded, thus rows may not total to 100%.
Because outer urban residents tended to use buses the most, there is a focus on data from that zone.

B5. If you or other household members use the bus service more than once per month, please rate the following features of the bus service in Cairns, as you know it.

Rating

1 = very poor, 2 = poor, 3 = neither poor nor good, 4 = good, 5 = very good

	very poor				very good	
Convenience - stops for pick up and drop-off are close to your needs	1	2	3	4	5	Rank
Reliability	1	2	3	4	5	
Connections	1	2	3	4	5	
Frequency	1	2	3	4	5	
Comfort	1	2	3	4	5	
Speed	1	2	3	4	5	
Affordability	1	2	3	4	5	
passenger information	1	2	3	4	5	
other *[please specify] .....*	1	2	3	4	5	

Table 2 a. Overall perceptions of bus service standards (%).

Feature	# of respondents	ranking Poor				excellent
		1	**2**	**3**	**4**	**5**
Convenience*	67	3	6	25	39	27
Reliability	74	15	12	28	37	8
Connections	70	10	13	40	31	6
Frequency	75	8	16	21	47	8
Comfort	70	6	14	26	60	0
Speed	71	11	16	39	31	3
Affordability	72	8	17	36	32	7
Passenger information	71	28	20	30	18	4

*stops for pick up and drop-off are close to your needs.
Note that non-bus users were discouraged from responding to this block of questions, although many did respond.

Table 2 b. Outer urban perceptions of bus service standards (%)

Feature	# of respondent	Ranking Poor				excellent
		1	**2**	**3**	**4**	**5**
Convenience*	29	0	3	17	48	31
Reliability	31	10	7	29	42	13
Connections	28	7	7	36	39	11
Frequency	31	7	7	16	58	13
Comfort	27	4	15	30	52	0
Speed	29	7	14	38	41	0
Affordability	29	7	17	35	35	7
Passenger information	29	14	21	24	31	10

*stops for pick up and drop-off are close to your needs.

The 32 extra comments (written in ‘other, please specify’) were often related to what were seen as poor drivers.

B6. Please rank three of the above in order of importance to you

(1 = most important)

Table 3.a What matters most about buses (%)

	# of respondents	Reliability	Convenience
Central	16	37	37
Middle	25	28	20
Edge	22	45	31
Total	63	37	29

About 10% of respondents ranked frequency as the thirdmost important bus issue, while connectivity received some slight interest as a third ranked concern.

B7. What are some of the strengths and weaknesses of the bus service in Cairns?

.....

.....

From a total of 26 possible coded responses, two of the three prominent comments were discouraging:

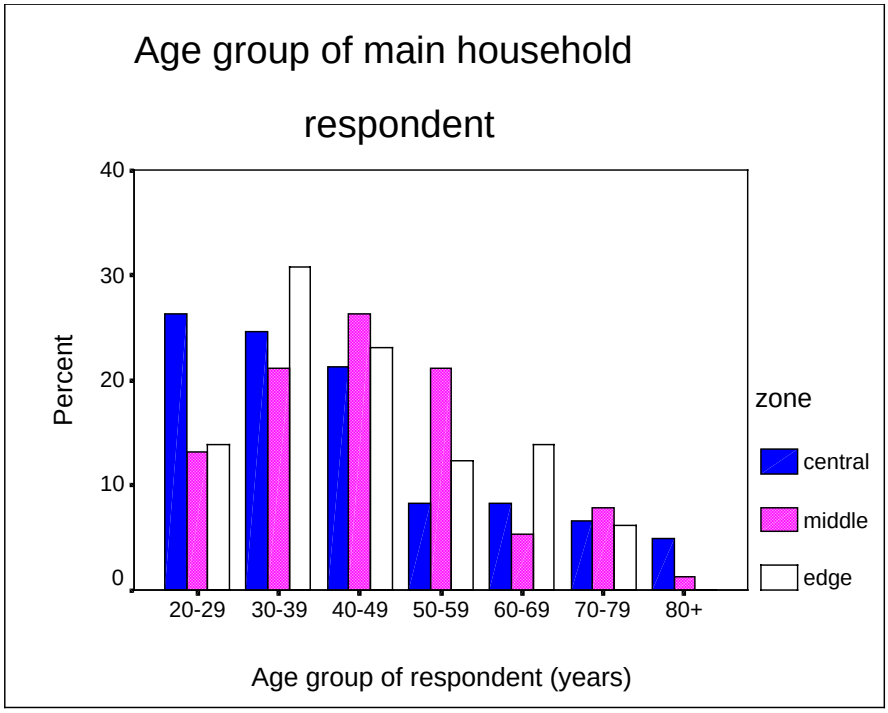
Table 3.b Perceptions of the Cairns bus service

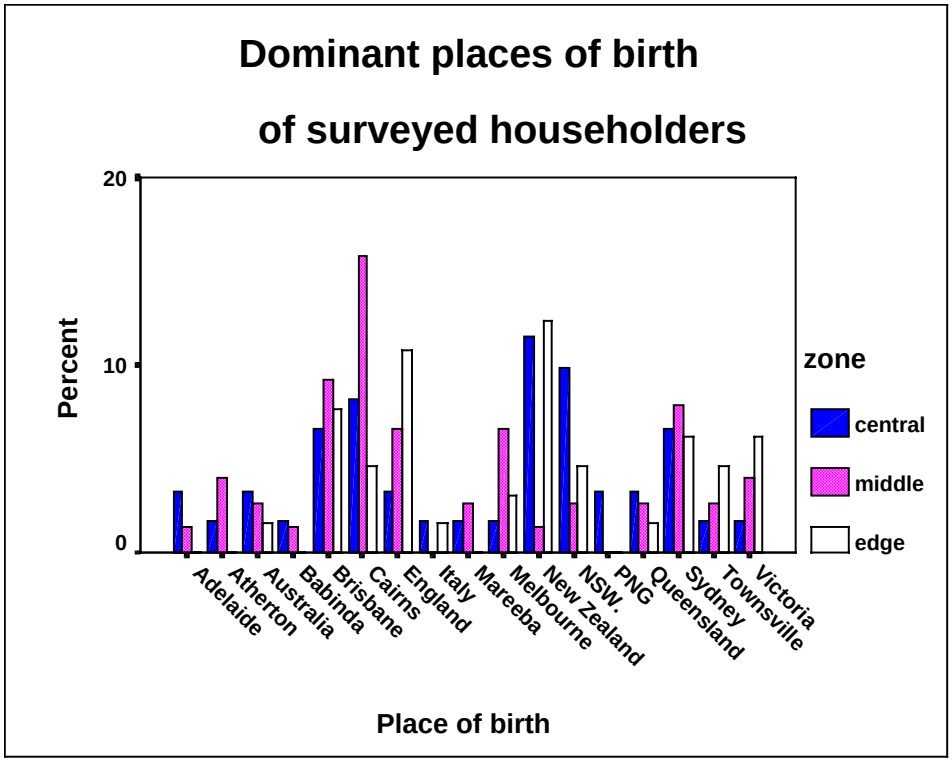
	# of respondents	Unreliable (%)	Convenient (%)	Fear poor drivers (%)
Edge suburbs	26	23	20	19
Total	75	20	13	11

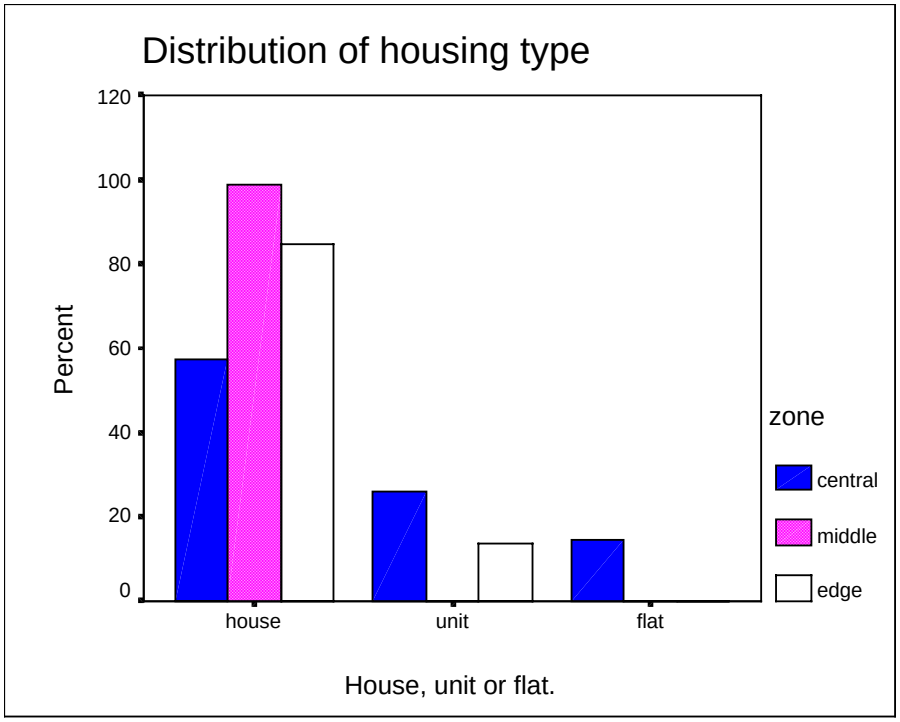
More details of bus use are given in Appendix 7, and section 3.7.

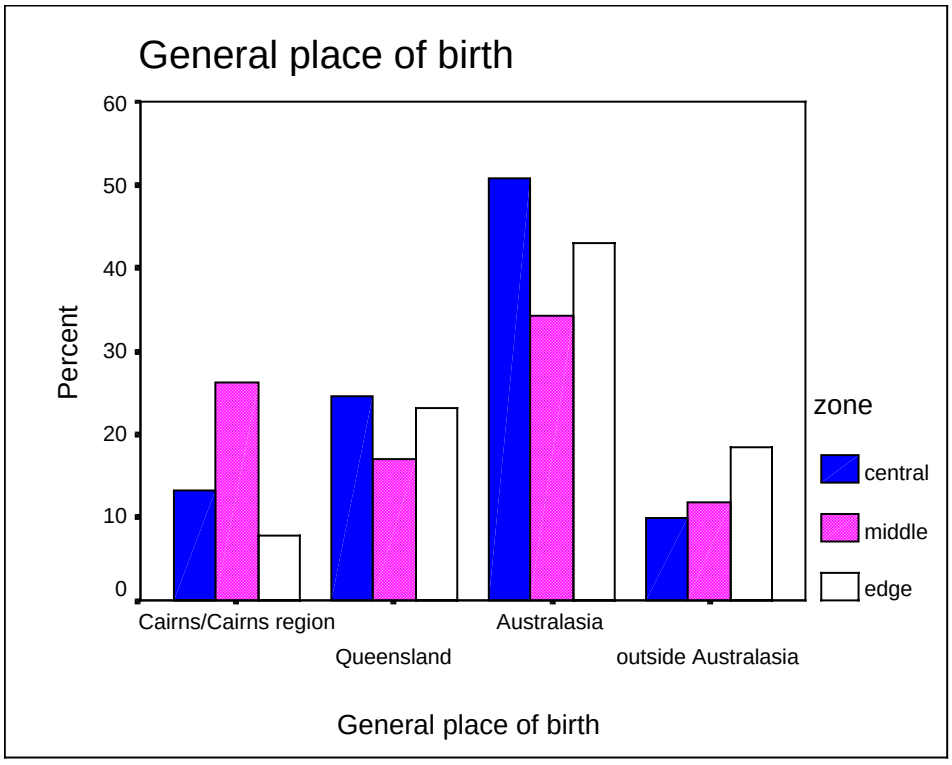
Appendix 10

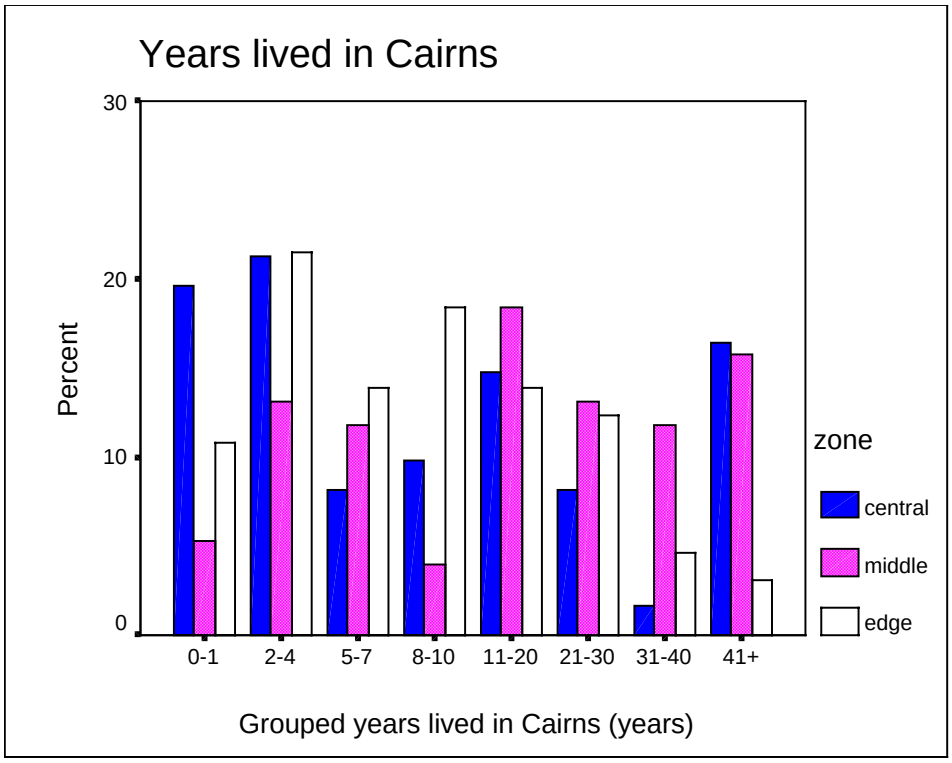
Cairns demographic charts

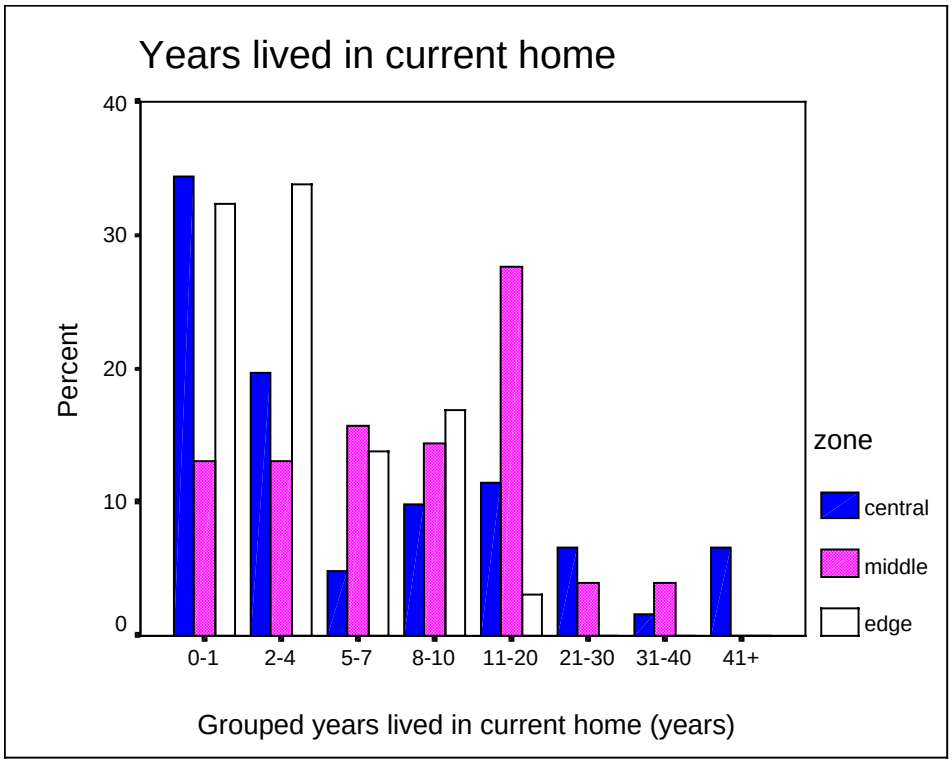


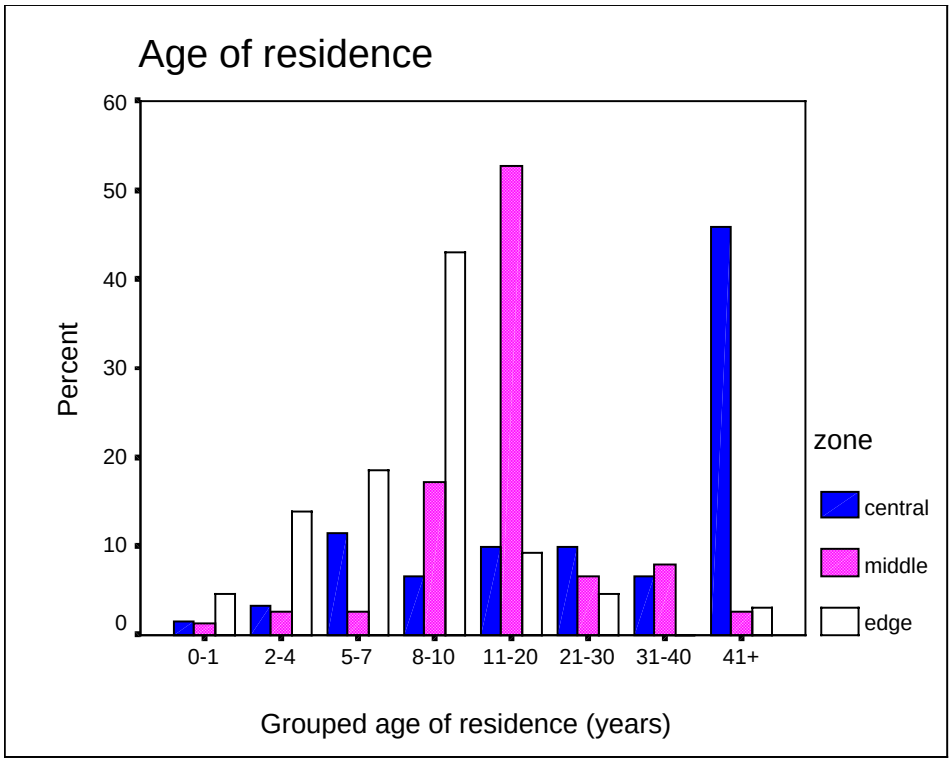


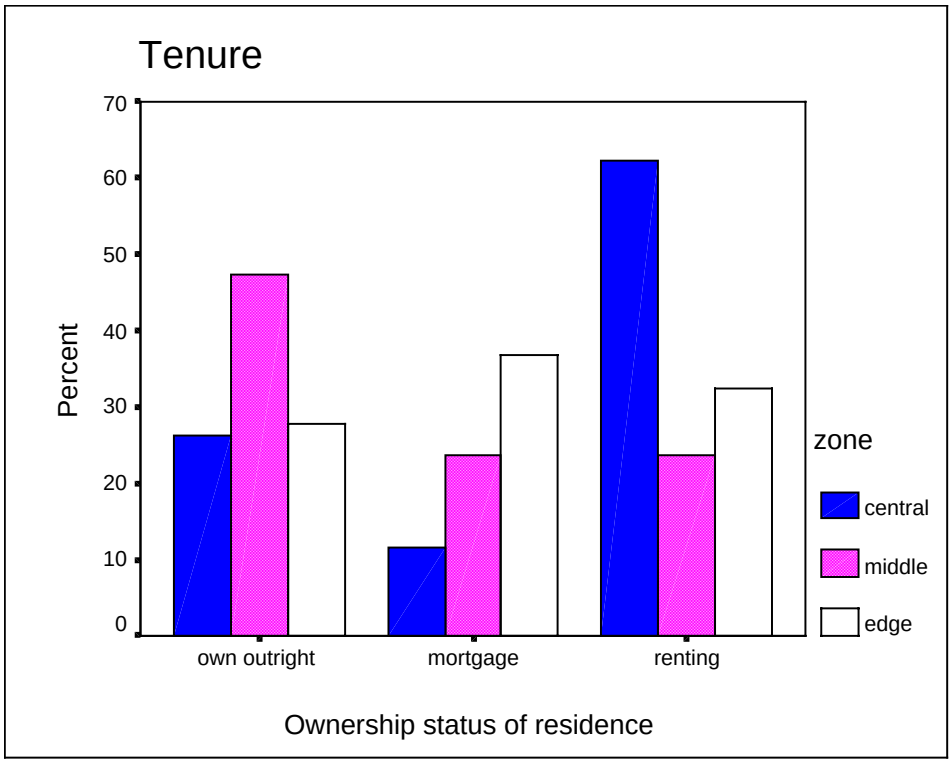

Distribution of housing type
120
100
80
60
40
20
0
Percent
house
unit
flat
House, unit or flat.
zone
central
middle
edge

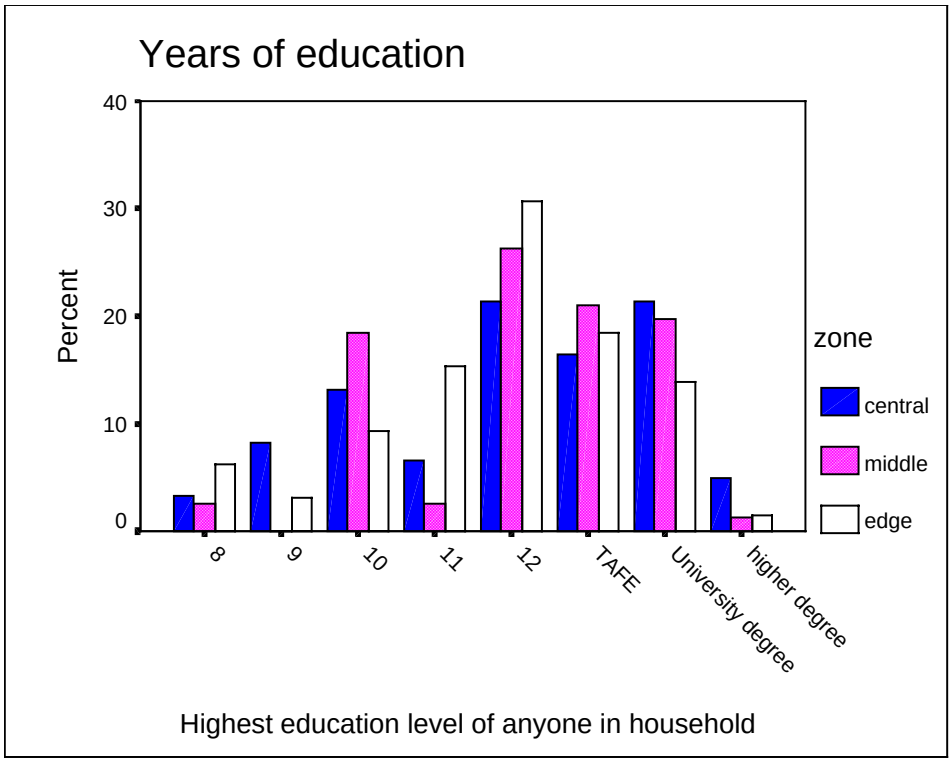

General place of birth
60
50
40
30
20
10
0
Percent
Cairns/Cairns region
Queensland
Australasia
outside Australasia
General place of birth
zone
central
middle
edge

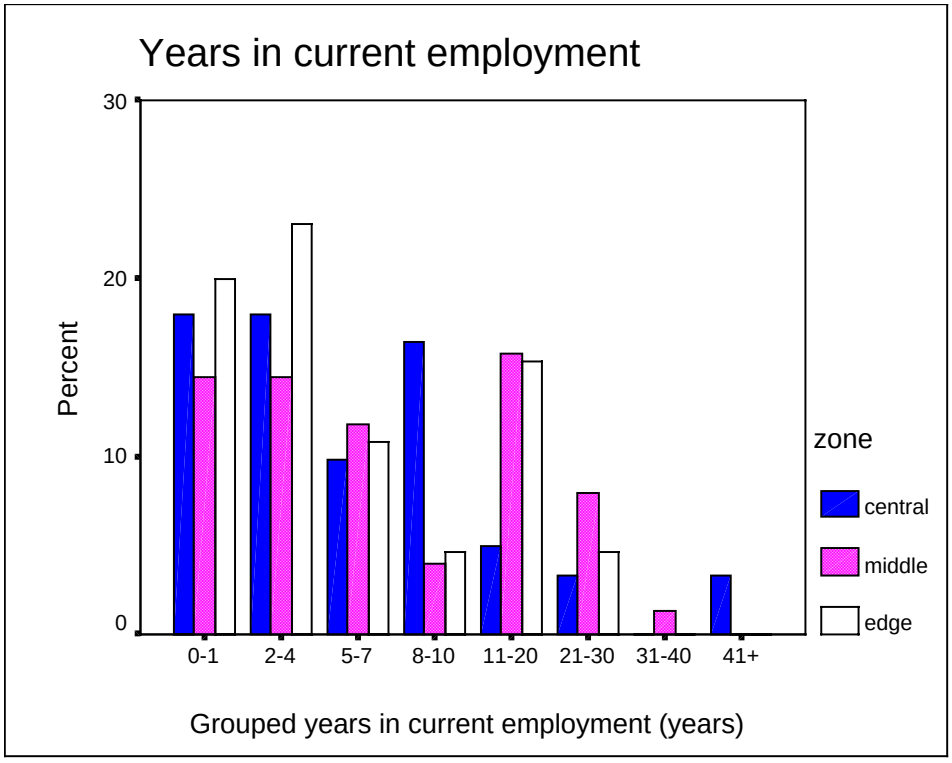

Years lived in Cairns
Percent
30
20
10
0
0-1
2-4
5-7
8-10
11-20
21-30
31-40
41+
zone
central
middle
edge
Grouped years lived in Cairns (years)

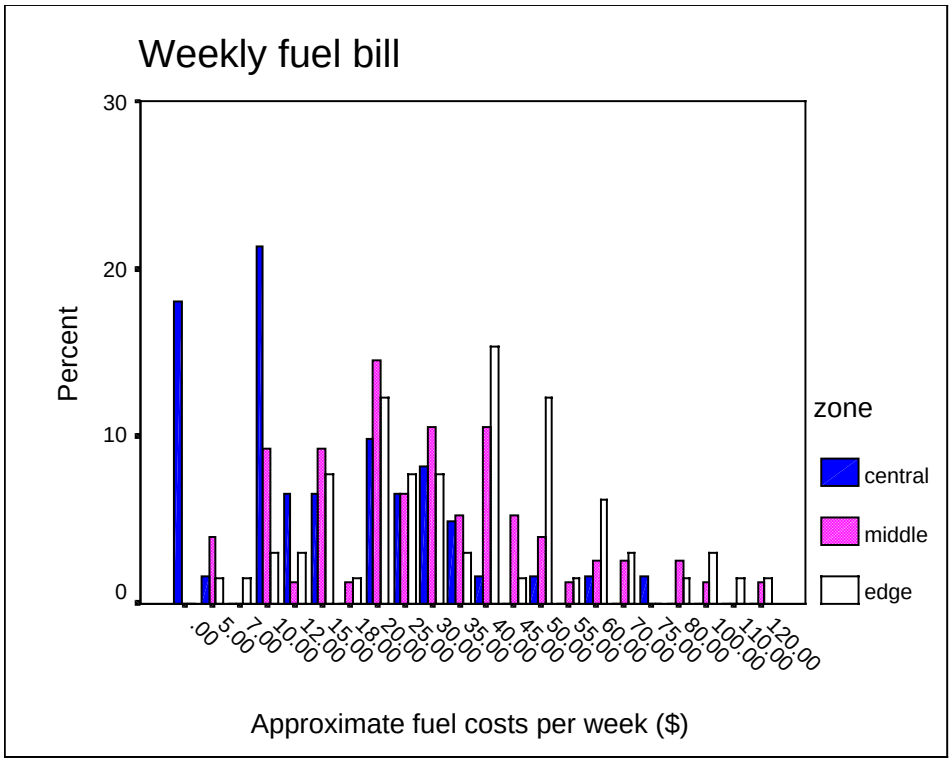

Years lived in current home
Percent
40
30
20
10
0
0-1
2-4
5-7
8-10
11-20
21-30
31-40
41+
zone
central
middle
edge
Grouped years lived in current home (years)

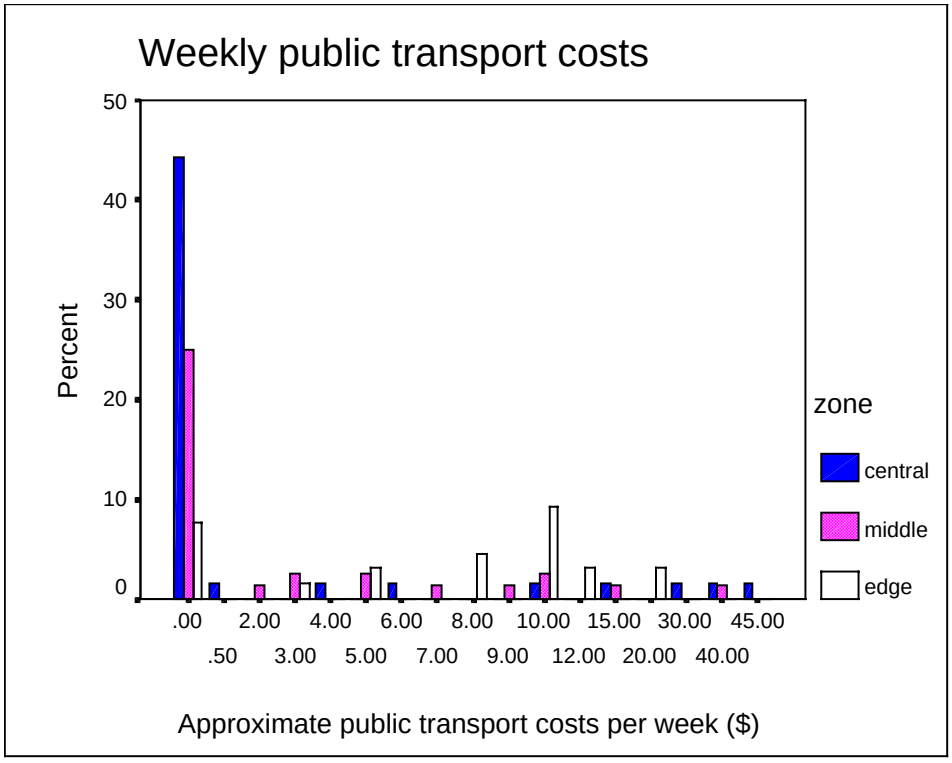

Age of residence
Percent
60
50
40
30
20
10
0
0-1
2-4
5-7
8-10
11-20
21-30
31-40
41+
Grouped age of residence (years)
zone
central
middle
edge

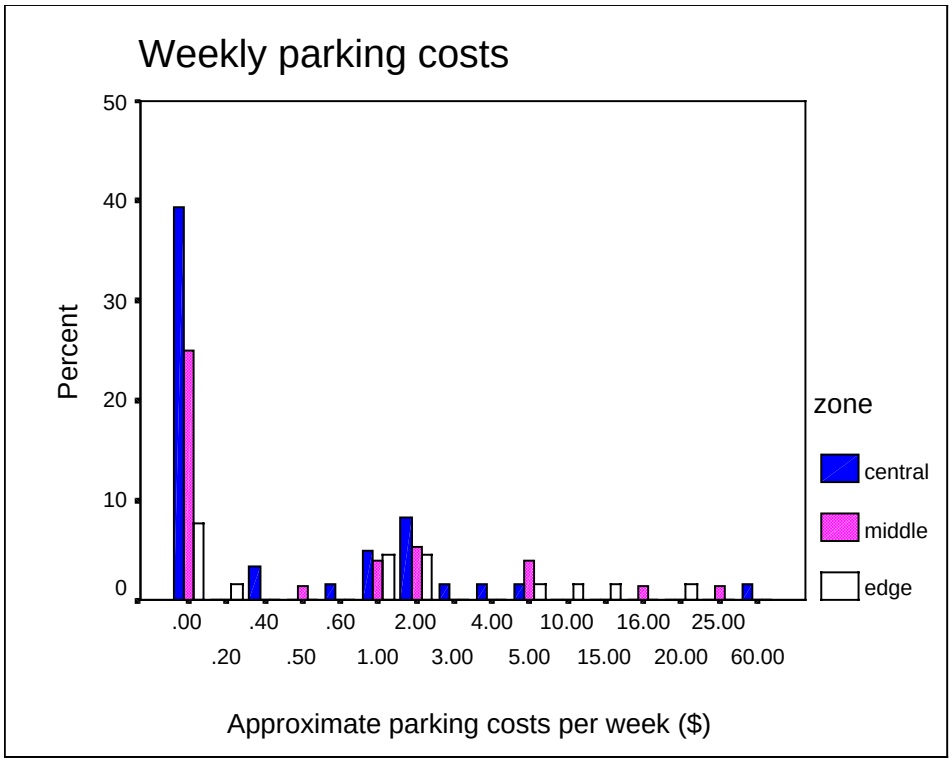

Tenure
Percent
70
60
50
40
30
20
10
0
own outright
mortgage
renting
Ownership status of residence
zone
central
middle
edge

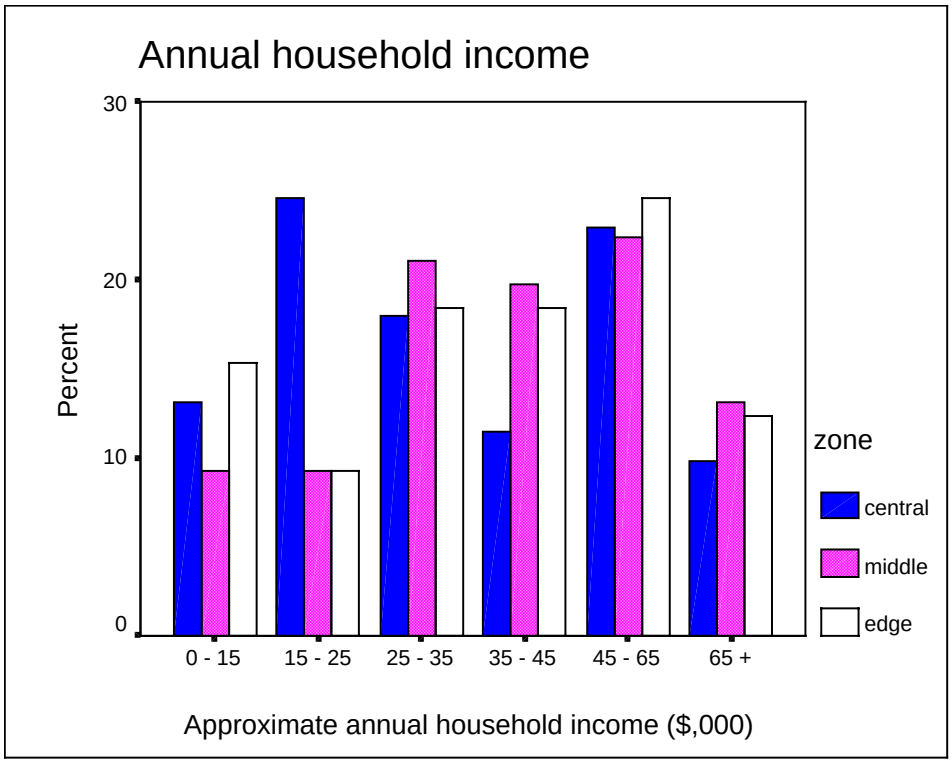

Years of education
Percent
40
30
20
10
0
8
9
10
11
12
TAFE
University degree
higher degree
zone
central
middle
edge
Highest education level of anyone in household


Years in current employment
Percent
30
20
10
0
0-1
2-4
5-7
8-10
11-20
21-30
31-40
41+
zone
central
middle
edge
Grouped years in current employment (years)


Weekly fuel bill
Percent
30
20
10
0
.00
5.00
7.00
10.00
12.00
15.00
18.00
20.00
25.00
30.00
35.00
40.00
45.00
50.00
55.00
60.00
70.00
75.00
80.00
100.00
110.00
120.00
zone
central
middle
edge
Approximate fuel costs per week ($)


Weekly public transport costs
Percent
50
40
30
20
10
0
.00
.50
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
10.00
12.00
15.00
20.00
30.00
40.00
45.00
zone
central
middle
edge
Approximate public transport costs per week ($)


Weekly parking costs
Percent
50
40
30
20
10
0
.00
.20
.40
.50
.60
1.00
2.00
3.00
4.00
5.00
10.00
15.00
16.00
20.00
25.00
60.00
zone
central
middle
edge
Approximate parking costs per week ($)


Annual household income
Percent
30
20
10
0
0 - 15
15 - 25
25 - 35
35 - 45
45 - 65
65 +
zone
central
middle
edge
Approximate annual household income ($,000)

Appendix 11

Summary Statistics for Townsville

Summary descriptive statistics for Townsville of all Collector district results (# or %)

CT, MT and ET represent zone totals, GT represents the aggregates

	Central suburbs				Middle suburbs				Edge suburbs				
Variable	C11	C12	C13	CT	M14	M15	M16	MT	E17	E18	E19	ET	GT
Demographic information													
Number of respondents/group	20	25	25	**70**	16	27	25	**68**	21	22	25	**68**	**206**
Number of residents/household	2.5	1.8	2.2	**2.2**	3.3	2.7	3.8	**3.2**	1.9	3.5	3.4	**3.0**	**2.8**
HH income ($, 000)	43	30	32	**34**	31	37	29	**33**	29	39	40	**37**	**35**
Age of respondent (yrs)	46	40	44	**43**	41	31	45	**38**	51	40	39	**43**	**41**
Born in Townsville area (%)	20	24	24	**23**	44	22	44	**35**	29	32	8	**32**	**24**
Years lived in Townsville	17	11	22	**17**	15	9	24	**16**	19	19	10	**16**	**16**
Years in current home	10	4	11	**8**	6	2	11	**6**	5	5	5	**5**	**6.5**
Male respondents (%)	50	72	40	**54**	38	52	24	**38**	43	50	52	**49**	**47**
Highest education	13	12	12	**12**	12	12	12	**12**	12	12	12	**12**	**12**
Current employment (yrs)	10	4	7	**7**	18	9	8	**10**	12	13	9	**11**	**9.5**
Housing information													
Approx. building age	44	29	67	**47**	13	27	35	**27**	23	6	12	**12**	**28**
House (%)	65	16	92	**57**	100	100	92	**97**	100	100	100	**100**	**84**
Unit (%)	25	48	0	**24**	0	0	0	**0**	0	0	0	**0**	**8**
Flat (%)	10	28	8	**16**	0	0	8	**3**	0	0	0	**0**	**6**
House ownership- own outright (%)	25	4	36	**21**	38	4	24	**19**	62	41	24	**41**	**27**
- Mortgage (%)	20	4	40	**21**	6	30	24	**22**	19	55	24	**32**	**25**
- Rent (%)	55	88	24	**56**	50	67	48	**56**	19	5	44	**24**	**45**

Variable	C11	C12	C13	CT	M14	M15	M16	MT	E17	E18	E19	ET	GT
Response rate to different sections of questionnaire													
Answer location choice section (%)	90	92	96	**93**	100	78	92	**88**	96	100	92	**96**	**92**
Answered section on ease of travel (%)	100	100	96	**99**	100	100	100	**100**	95	100	100	**99**	**99**
Answered Qs on neighbourhood (%)	100	100	96	**99**	100	100	100	**100**	100	100	92	**97**	**99**
Answer Q on bus use (%)	25	36	24	**29**	44	7	64	**37**	14	27	20	**21**	**29**
Answered Qs on envt'l beliefs (%)	95	100	96	**97**	100	100	95	**99**	100	95	100	**99**	**98**
Answered Q longevity of petrol (%)	75	72	68	**71**	66	69	68	**62**	43	59	48	**50**	**61**
Answered Q on travel beliefs (%)	80	80	88	**83**	69	78	88	**79**	71	100	68	**79**	**81**
Transport details													
Respondent owns a car (%)	80	72	72	**74**	88	93	72	**84**	95	100	100	**99**	**85**
Respondent drives a car (%)	95	76	68	**79**	81	96	72	**84**	95	100	100	**99**	**87**
No vehicles owned in household (%)	10	24	28	**21**	6	4	8	**6**	0	0	0	**0**	**9**
One vehicle owned (%)	55	48	44	**49**	44	41	48	**44**	71	23	32	**41**	**45**
Two vehicles owned (%)	35	20	16	**23**	44	44	32	**40**	19	59	40	**40**	**34**
Total vehicles/HH	1.3	1.0	1.2	**1.1**	1.4	1.6	1.5	**1.5**	1.4	2.0	2.0	**1.8**	**1.5**
Age of 1st. Vehicle	9	10	12	**11**	9	9	9	**9**	9	8	8	**8**	**9.3**
Average # of cylinders in 1st. Vehicle	5.1	4.2	4.9	**4.8**	5.0	5.0	4.9	**5.0**	4.6	5.1	5.0	**4.9**	**4.9**
Vehicle provided by employer (%)	10	12	4	**9**	6	11	8	**9**	5	23	4	**10**	**9**
Car as main vehicle (%)	75	52	56	**60**	69	78	68	**72**	67	86	84	**79**	**70**
Station wagon as main vehicle (%)	15	8	12	**11**	19	7	16	**13**	24	5	12	**13**	**13**
Weekly fuel costs ($)	16	20	16	**20**	31	25	27	**27**	35	47	37	**40**	**29**
Av. cost for public t/port users ($/wk)	0	15	14	**14**	8	0	16	**12**	0	0	13	**7**	**12**
Av. cost of paid parking by users ($)	8	9	5	**7**	2	0	3	**2**	2	12	0	**6**	**5**
Push bikes owned	1.3	1.7	1.8	**1.6**	3.7	2.0	2.4	**2.5**	1.5	2.7	3.3	**2.9**	**2.3**
Pushbikes used	.6	.8	.9	**.7**	1.3	1.1	.9	**1.1**	.3	1.3	1.9	**1.5**	**1.1**

Variable	C1	C2	C3	CT	M4	M5	M6	MT	E7	E8	E9	ET	GT
Travel details													
Daily trips (estimated)	3.8	3.0	3.0	**3.2**	3.2	3.7	3.5	**3.5**	2.4	3.1	4.3	**3.3**	**3.3**
Annual journeys from Townsville area	2.1	1.5	1.8	**1.8**	1.6	2.0	1.4	**1.7**	1.5	1.4	1.9	**1.6**	**1.7**
Drives more than 10 times per week (%)	50	32	40	**40**	50	70	40	**54**	52	68	84	**69**	**54**
Drives 5 - 10 times per week (%)	15	16	12	**14**	6	4	8	**6**	19	18	8	**15**	**12**
Distance from shop (Km)	.7	.6	.5	**.6**	1.0	1.0	.9	**.9**	4.7	3.0	1.7	**3.3**	**1.5**
Bus use – never/ virtually never (%)	90	80	72	**80**	88	96	68	**83**	100	100	100	**100**	**88**
Group % using public transport	10	20	28	**20**	12	4	32	**17**	0	0	0	**0**	**12**
Group % paying for parking	30	12	20	**20**	6	4	28	**13**	10	14	4	**9**	**15**
Cognative issues													
Use push bikes more if secure parking (%)	10	24	16	**17**	25	19	40	**28**	5	0	20	**9**	**18**
Difficult without car (%)	60	44	64	**55**	56	52	80	**63**	90	99	96	**96**	**72**
How long petrol will last (mean in yrs)	65	45	46	**51**	72	61	74	**69**	55	63	71	**64**	**61**
How long petrol will last (median in yrs)	60	45	50	**50**	50	55	60	**60**	50	60	45	**50**	**50**
Support light rail (%)	50	32	44	**41**	38	49	68	**53**	71	45	32	**48**	**47**

Appendix 12
Some written responses from the Townsville urban mobility study

B2 What are some of the strengths and weaknesses of driving a car?

Rating	HH #	Comment
+1	2405	Strengths: ability to go as you please and when you please, less time wasted waiting for public transport, ease of transporting children, particularly young ones. Weaknesses – cost of fuel and maintenance, parking in some places, timing on multiple short trips.
	2616	A car is very convenient but expensive [81 yo female]

Public transport

B7. What are some of the strengths and weaknesses of the bus service in Townsville/Thuringowa?

Rating	**HH #**	**Comment**
-2	2316	Can't get off at Western Campus without paying another section. I have to walk 20 minutes to town to catch bus [Sth. Townsville uni student].
	2605	No passenger service available by phone. No service in Garbutt to work/shops.
-1	2415	Strengths: easy and accessible, weakness: I hate buses [uses more than once per week].
	2307	Strengths: affordability Weakness: reliability on outer suburban routes
	2314	Most suburbs are good, but South Townsville residents cannot get to town before 10.30 am.
	2918	Cost too much. They don't go straight to destination I want and have to change buses too many times and cost too much to do so.
+1	2615	Desperately need permanent bus time tables fixed on every bus stop stating time and destination.

Local walking

B9. What are some of the strengths and weaknesses of walking to local destinations?

Rating	**HH #**	**Comment**
+1	1212	Reasonable views and walkways. Fear of being accosted by indigenous people.

Cycling

B8. What are some of the strengths and weaknesses of pushbike use?

Rating	HH #	Comment
-3	2804	Very dangerous to ride along High Range Road.
-2	2324	S – used to do it all the time, great! (exercise, cheap etc.) W – no showers at work, and I have to wear tie, long pants etc.
+1	2115	Strengths: fitness, no parking hassles, free, quiet. Weaknesses: traffic, arriving hot and sweaty at destination, time.
0	1112	Strengths: cheap, exercise, ride places you can't take a car, transport bike by car. Weaknesses: hot – hot and sweaty to work, can't carry too much, security, dangerous.

B8.1. Would you ride your push-bike more if you could leave it safely at a bus stop? Comments.....

Rating	HH #	Comment
-2	2415	Strength: cheap. Weakness: I know several people who have been attacked and bashed.
-1	2316	Enjoy the walking – don't like the dogs. Don't walk over Victoria Bridge – it is personally unsafe.

Car ride-sharing, or car pooling

B10. What are some of the strengths and weaknesses of ride-sharing?

Rating	HH #	Comment
0	2104	Strength – reduces costs, congestion. Weakness – must organise with others, time delays waiting for others.
	2324	Strength – save on fuel. Weakness- too hard to organise, sharing costs etc.
+1	2115	Strengths: lower costs, save time without walking. Weaknesses: relying on others who may be late, not having any-one in your area who you can share with.
	8610	Strengths – less traffic in popular areas ie shopping centres and work areas. Less pollution from cars, savings on car maintenance, parking costs. Weaknesses – not being able to leave work early, or if not going directly home, you are unable to change destination.

11. (where applicable) What are some of the strengths and weaknesses of working from home one or two days per week?

Rating	HH #	Comment
0	2116	Economical. Attracts capital gains tax (weakness).
	2323	Great if bosses would trust the process.
+1	2306	Would save on transport costs and reduce pollution. Industrial relations issues would need to be resolved.
	2902	Convenient. Easy to be distracted by other jobs in the house.

B12. What would be some of the strengths and weaknesses of using light or heavy rail transport for urban travel in the Townsville/Thuringowa area?

..

Rating	HH #	Comment
0	2117	Would lessen traffic congestion. Have to build overpass at Ingham Road lights and where else necessary.
	2816	There would have to be connecting bus services to run out from the main rail line to various work destinations.
+1	2611	Strengths – good reliable transport, but must have good timetable. Weakness – people's security and vandalism.
	2711	If there was a rail service from Rollingstone to Townsville I would use it. The service used to run years ago.
+3	2113	I think Woolcock/Dalrymple corridor is ideal for light rail, it bisects the urban areas of Townsville.

B13. Comments about special needs groups, such as people in wheelchairs:

Rating	HH #	comment
+1	2405	Transport and buildings need to be made accessible for wheelchairs and also prams.
	2907	I find a need for modification of older public buildings such as small shops. To me more accessible parking spaces in larger shopping areas – especially need much more access on and off footpaths, crossings and lights. Accessibility to buttons at pedestrian crossings. We find the bikeways and walking tracks in this area [Upper Ross River Road] great as they are also enjoyable for wheelchairs [spouse of wheelchair user]
+2	2318	Need a place in supermarkets for elderly to sit. Need hand rails around all supermarkets [73 yo carer].

D1.2. What connection, if any, do you see between the way that suburbs are laid out and the amount of driving you have to do?

Rating	HH #	comment
-2	2103	Suburbs are too spread out (suburban sprawl). People and work places are located far apart from each other. This increases the amount of cross city driving. Nothing is concentrated in the inner city any more.
	2109	Sprawl is creating a great deal more travel for me. Townsville has areas where you need to travel around instead of straight to points, eg city to Annandale.
	2816	Very poor planning by government bodies in the placing of services such as (eg) Transport Department in the centre of industrial area of Garbutt – the only mode of transport to this place is by car.
-1	2117	Too many roundabouts (not needed).
	2320	While shopping/recreation areas are provided for specific urban areas, as opposed to one 'city' like area, there is a negative aspect arising also. Ie. I have no reason in South Townsville to 'visit' other areas like Kelso as they offer nothing I need. While accessibility is a fine thing, we are also breeding segregation.
	2323	I see many cars go by when I walk, many with only one driver, going my way. Why not take me? Hitching posts at UQ used to be great.
	2709	Poor planning of suburbs and Townsville and Thuringowa has led to unnecessary travel.
+1	2817	I think the modern trend of suburban shopping centres is quite good as most requirements can be obtained in one area, requiring less travel. However, more shade trees in the acres of bitumen parking areas should be considered essential.
+2	2305	The move to condensing inner city suburbs (eg high density) looks to reducing the need from private transport – re-routing heavy transport out of residential areas of inner city will encourage more people to live closer in.
+3	2907	For me the way the city is laid out does determine the miles I have to travel and I find Townsville better in this area than any other place I've lived.

D2. <u>your</u> perceptions of urban mobility now (what you think of the way we travel around at present):

Rating	HH #	Comment
-2	2227	Inevitably private and independent will be slowly curtailed as Govts., (in all countries) begin to comply with world govt., aims to limit the freedom of the individual, thereby gaining control of same.
-1	2323	The bus time tables are a mystery – no-one understands them. What about a TCC bus available for funerals. This is most difficult for many of us, especially indigenous.
	2622	People have to crowd nearly all functions into daylight hours. At night public transport almost ceases. Weekend transport is almost non-existent, making cars necessary.
	2709	Time consuming and stressful.
	2910	Not enough use of public transport. Too many cars with only one driver.
0	2701	There is no option but to own a vehicle. Stop the number of small centres (business and shopping) from increasing. Provide public transport for future sub divisions to existing centres.
1	2119	I enjoy driving because I can be independent and also because I now own my dream car, although the effects on the environment do concern me.

D3. how <u>you</u> value and think about your current urban travel :

Rating	HH #	comment
0	2318	For convenience, but because of arthritis, difficult to get on and off bus.
	2607	I would love to have a car.
+1	2316	Bus service OK.
	2319	I use lots of taxis – drivers need to be trained more thoroughly on an ongoing basis- I had a driver one who didn't know where Castletown was!! What about introducing mini cabs – a cheaper alternative to large cabs for single passengers.
+2	2225	The urban sprawl to Thuringowa will not effect me at this time. I believe totally in the resurgence of the CBD. People will move back. Close to work, restaurants, nightclubs, casino and beach, so very little driving.
	2919	I would feel almost a prisoner in my own home without access to own vehicle.
+3	2214	You could not get anywhere without it.
	2707	Values are high as without transport of some kind life would be pretty useless, considering health issues, loneliness, mixing with people.

D4. your beliefs about mobility in the future:

Rating	HH #	comment
-2	2813	We need to conserve our fuel. WE also need to protect our environment. If we don't there will be no future.
+1	2318	We have to provide small bus services – all different sizes.
	2701	One city would be the realistic way to start.
+2	2902	Fuel price/availability will become a problem, but while its available I will use it. People will need to re-evaluate transport/distances travelled, and constraints in the future may see a return to localised living/working/shopping/socialising (42 yo student).
+3	2907	Perhaps interlinked tram-like vehicles in urban areas – connecting with buses from outer areas with incentives (like not expensive) so people who can travel this way will leave their cars at home and just use them for family and weekends etc.

D5. What easy changes would definitely help you or other household members to reduce your car use?

D6. Are there other things that you think we might use or do to easily reduce our use of petrol, diesel or gas (LPG)?

Rating	HH #	comment
0	2305	Ban private vehicles in city centres, ride bikes, walk.
+1	2905	Market some of the inventions (engines) designed and purchased and destroyed by GM and other vehicle companies to save their business.
+2	2409	Much improved safety for bicycles and pedestrians. More shade trees and shelter, water (drink).
	2901	Frequent buses and places to put groceries and getting them on and off.
+3	2301	More frequent buses from Sth. T/ville to uni., the shortest route via Oonoonba and past Lavarack Barracks. Improved bikeways eg along Ross River from Sth. T/ville to uni. Reduce car usage – use public transport, bike or walk, share cars. Reduce streets, create community gardens instead and therefore reduce food transportation locally and nationally.

D7. If you knew that petrol was going to sharply increase in price, what would you do, and what sorts of changes would you like so that your household needs could continue to be met?

Rating	HH #	comment
-2	2706	A sharp increase in petrol price would immediately flow on to all other costs. What can one do but tighten the belt and curse the government.
-1	2402	Stop visiting my family in Mackay. Stop allowing my children to attend sporting competitions and music competitions where we have to travel away, and probably move to a capital city if there is a sharp difference in living expenses.
+1	2911	Not be at all surprised. Mothers to be paid a wage (weekly) to mind their children at home.
	2925	Think of getting smaller car.
+3	2409	- change car to one which uses less fuel – have kids walk to/from school – negotiate with boss to work from home - mobile phone – computer access – use bicycle more.

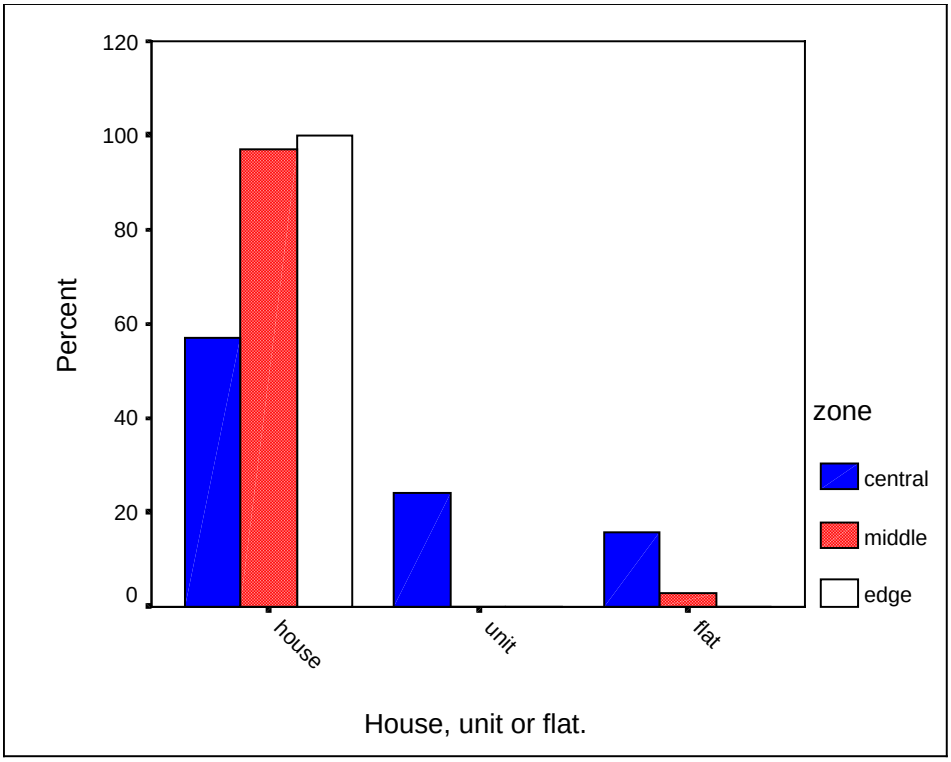
D8. Light rail:

Further comments on light rail (developed from question B12)

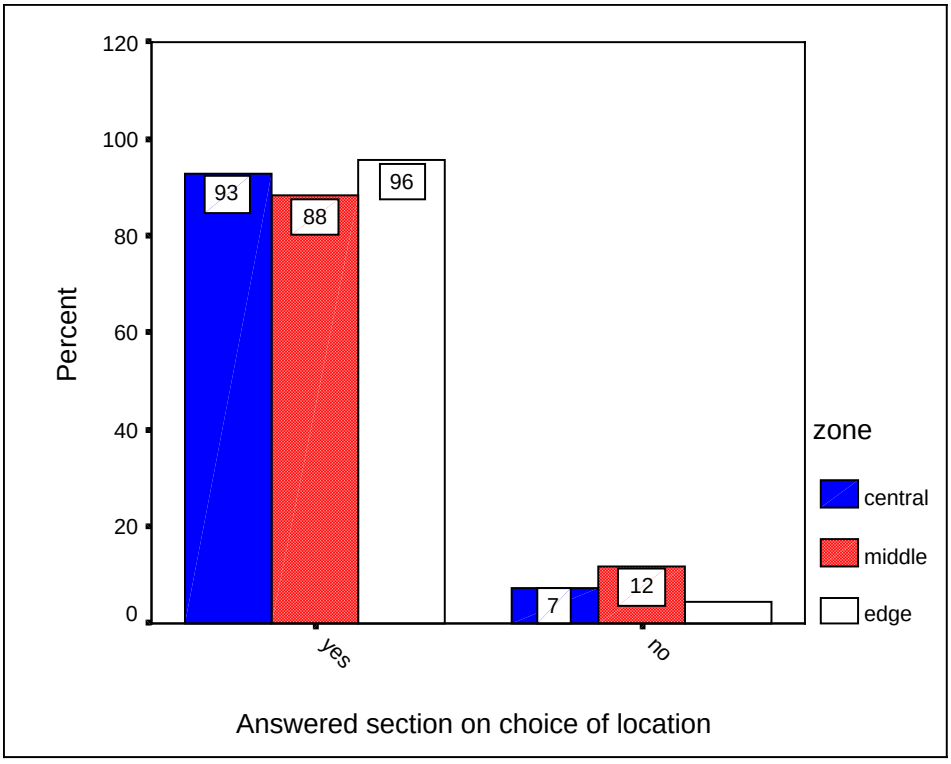
Rating	HH #	comment
-3	2305	This city can't run a bus service. How will they run a train? Urban sprawl makes a train service unrealistic.
-2	2804	It would be very disruptive to the environment and would need to cover a great area and run frequently to be of any use.
-1	2925	Good idea, but would cost too much to set up, as they would have to lay track and have stations at popular destinations.
+2	2615	A round trip from the city centre along The Strand heading out to the Willows along Nathan Plaza and back to the city every ½ hour to start with. Would be nice tourist attraction as well as functional.
	2919	I believe it would not only be beneficial to residents but would offer a new tourist attraction.
+3	2307	When we lived in Railway Estate years ago we used to catch the railmotor into the Townsville railway station and home again. There were stops where you could get off and on (70 yo).
	2614	Light rail motors (double units that don't need a turntable to reverse direction) would be ideal for Townsville area. Seating capacity of 90 passengers.
	2705	Manchester UK have reintroduced the old tram system and by all accounts have been so successful this will expand, ditto for Townsville in certain corridors.

Appendix 13

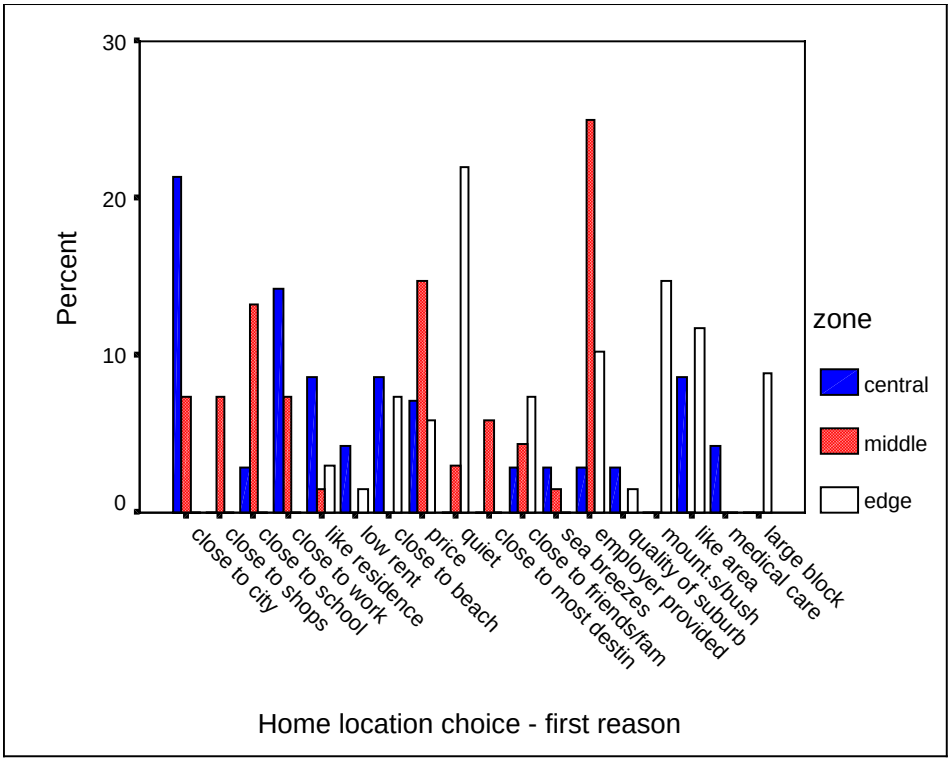
Townsville general charts and associated written comments



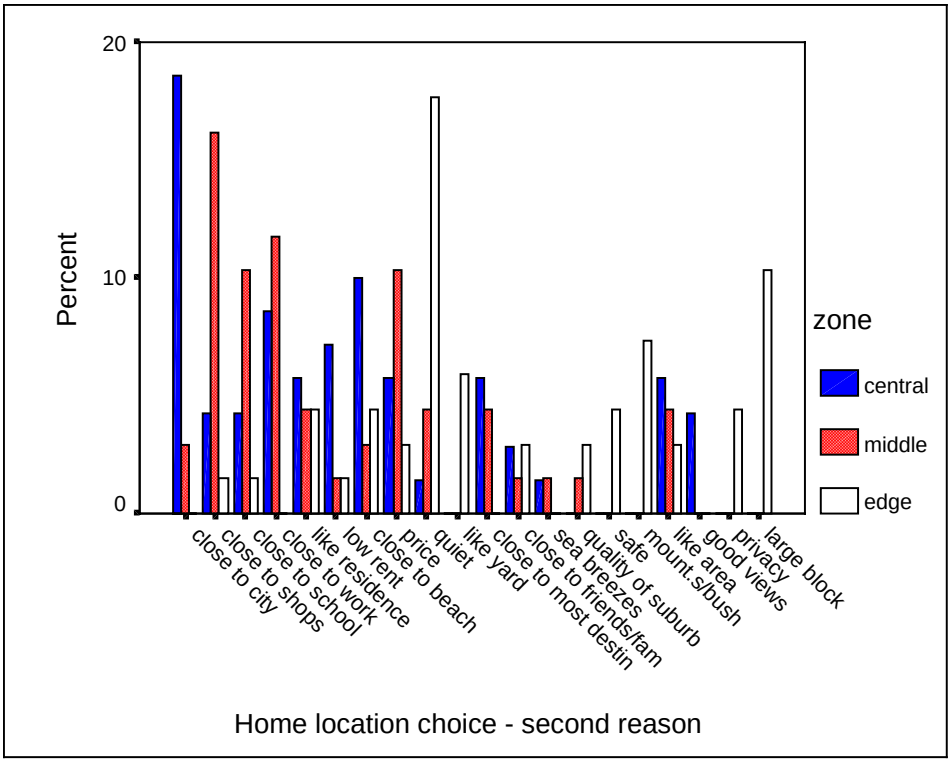
House, unit or flat.



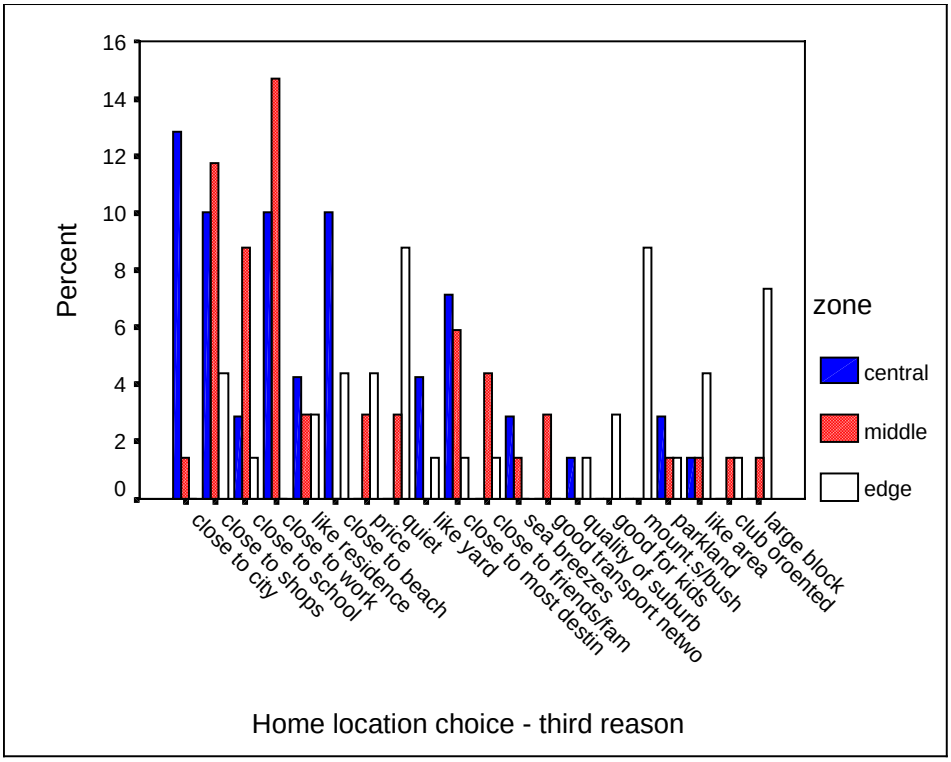
Answered section on choice of location



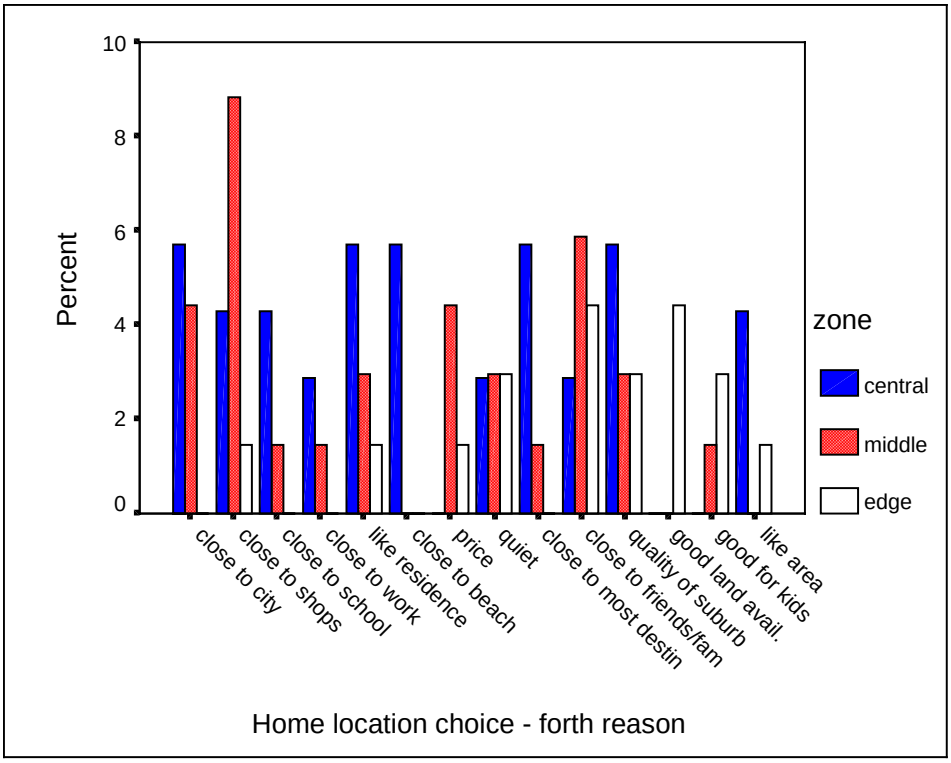
Home location choice - first reason



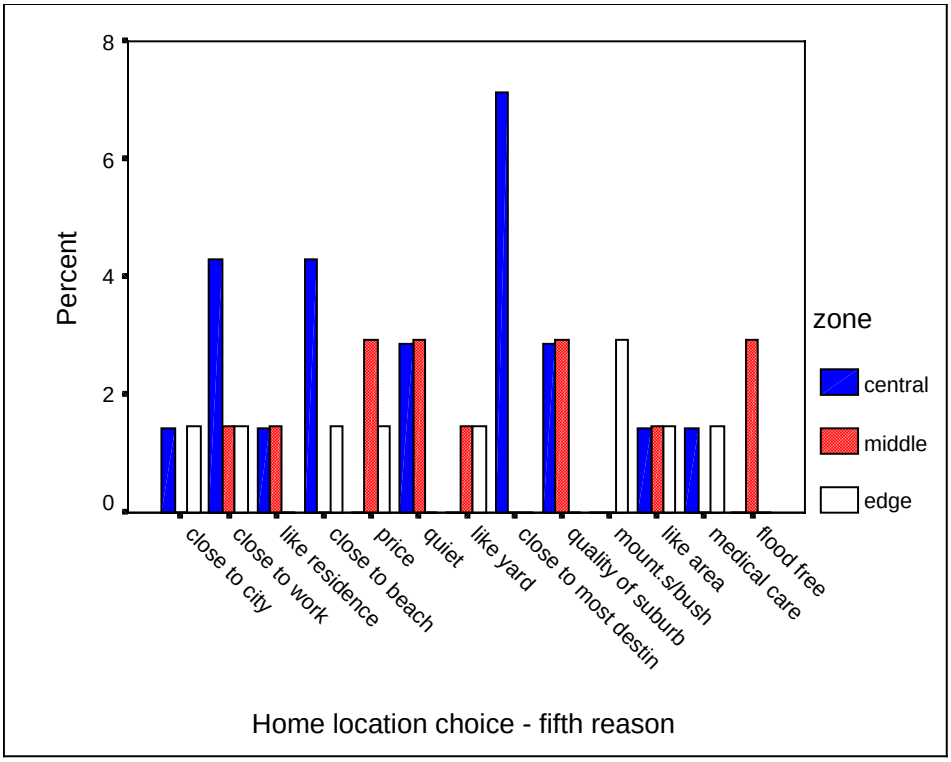
Home location choice - second reason

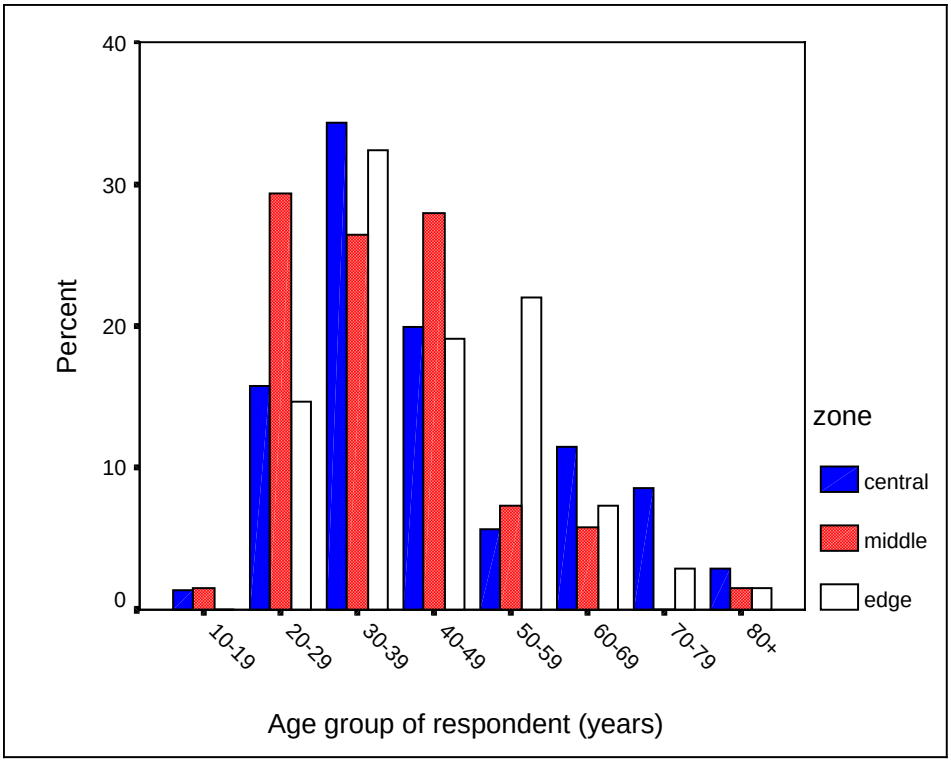


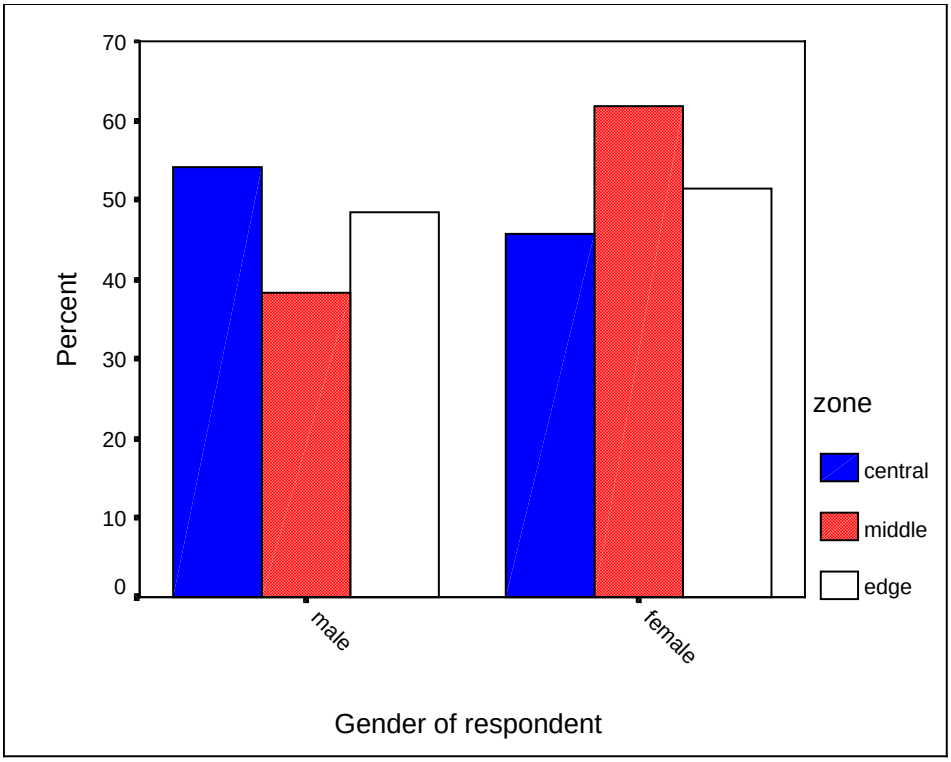
Home location choice - third reason

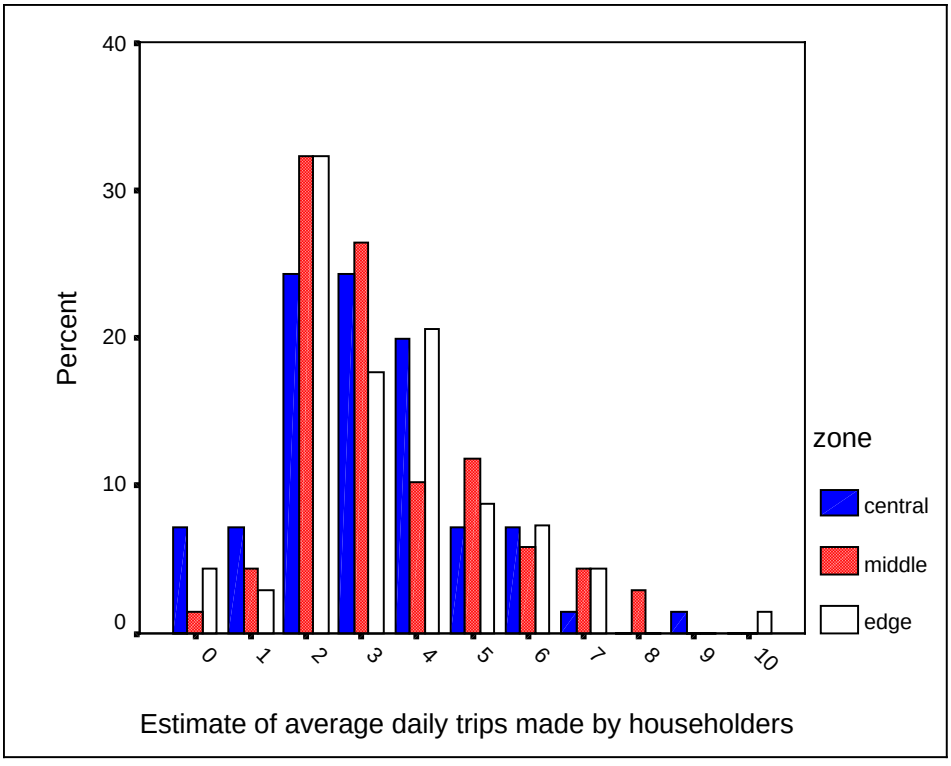


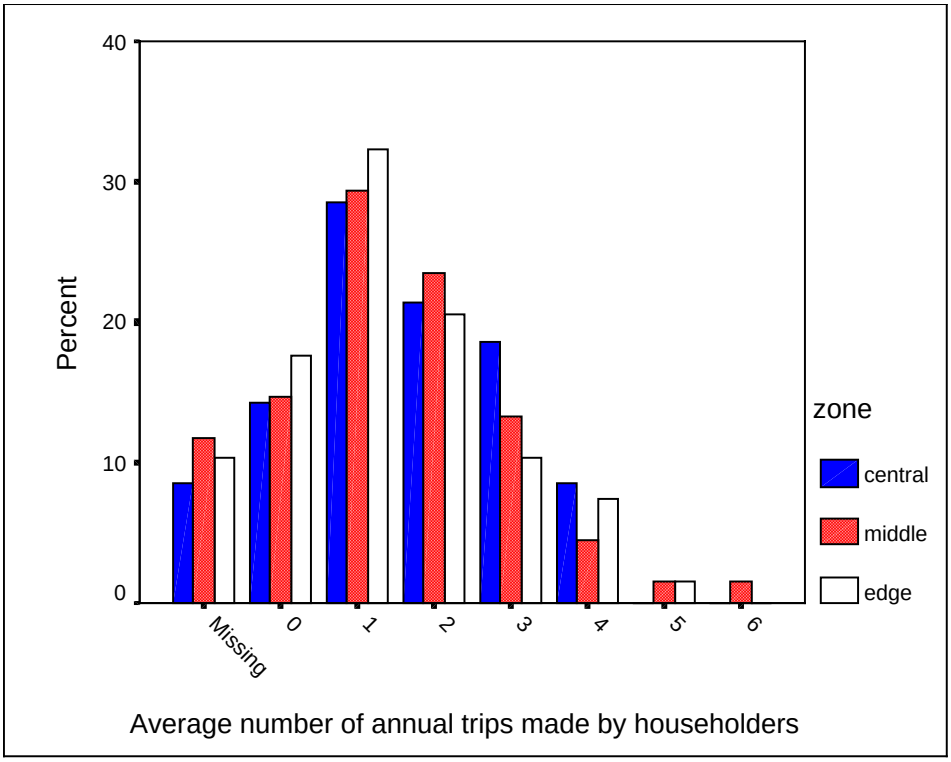
Home location choice - forth reason


Percent
8
6
4
2
0
zone
central
middle
edge
close to city
close to work
like residence
close to beach
price
quiet
like yard
close to most destin
quality of suburb
mount.s/bush
like area
medical care
flood free
Home location choice - fifth reason

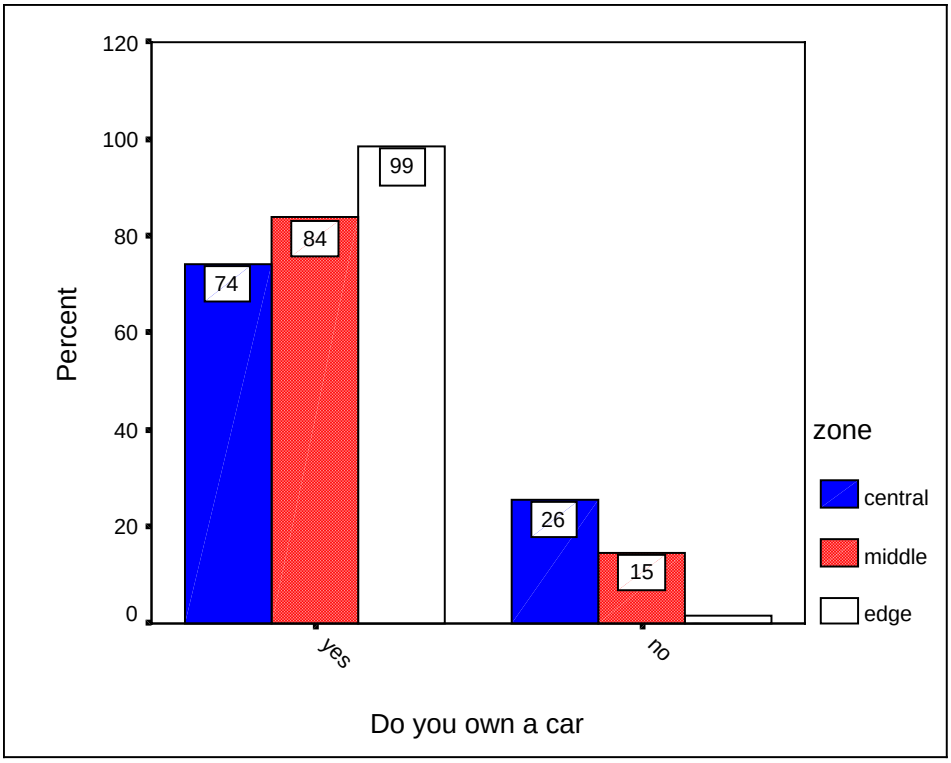

Percent
40
30
20
10
0
zone
central
middle
edge
10-19
20-29
30-39
40-49
50-59
60-69
70-79
80+
Age group of respondent (years)


70
60
50
40
30
20
10
0
Percent
male
female
Gender of respondent
zone
central
middle
edge

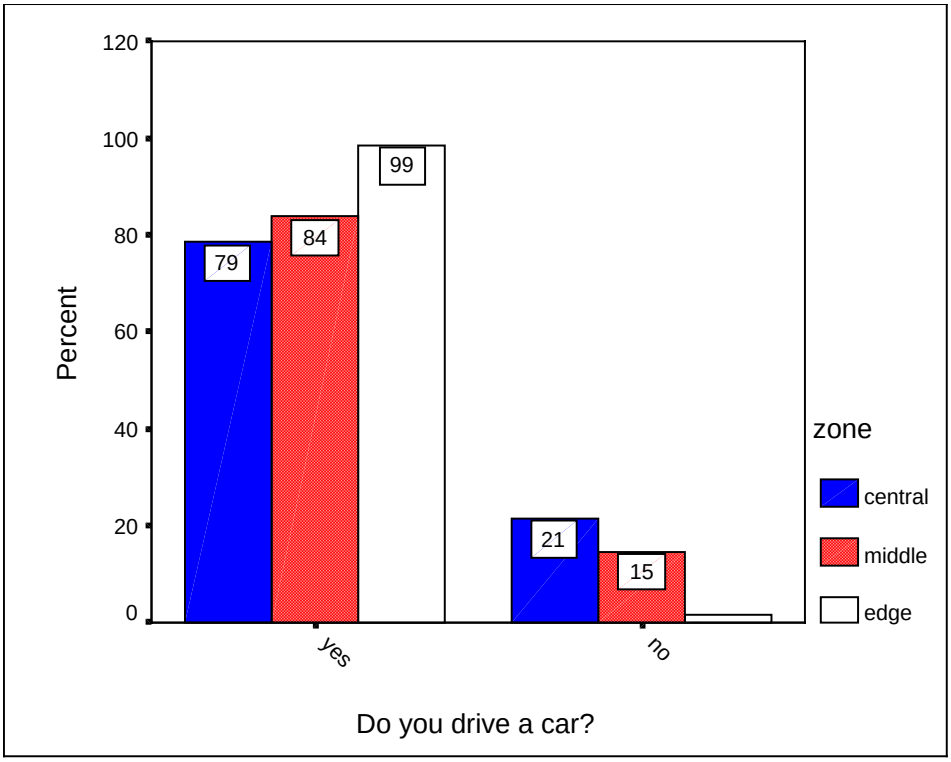

40
30
20
10
0
Percent
0
1
2
3
4
5
6
7
8
9
10
Estimate of average daily trips made by householders
zone
central
middle
edge

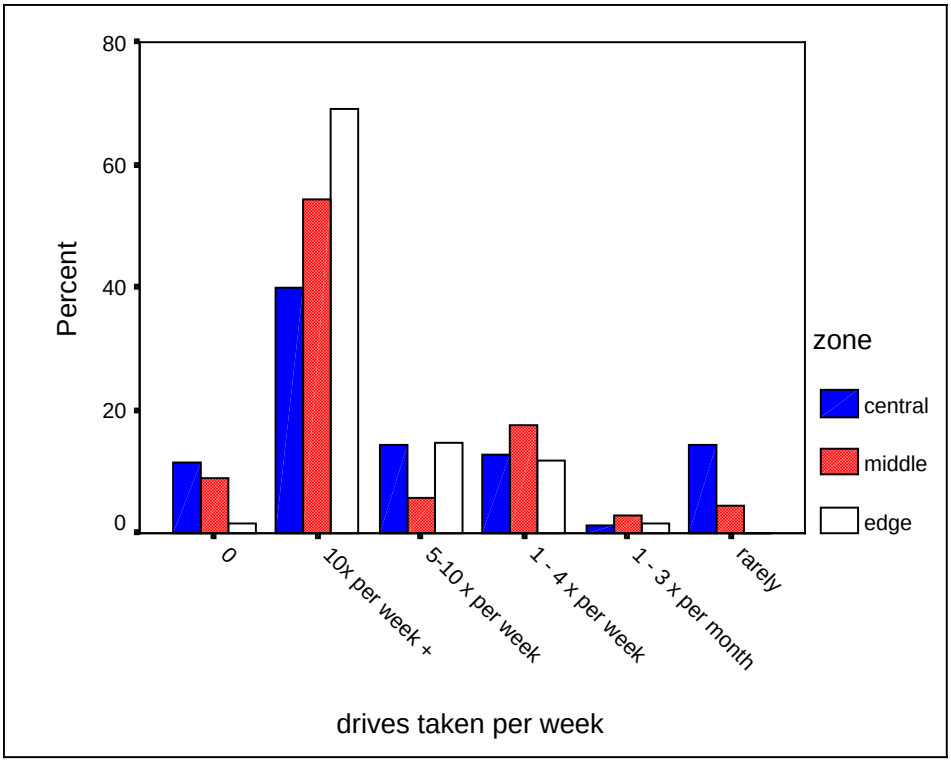


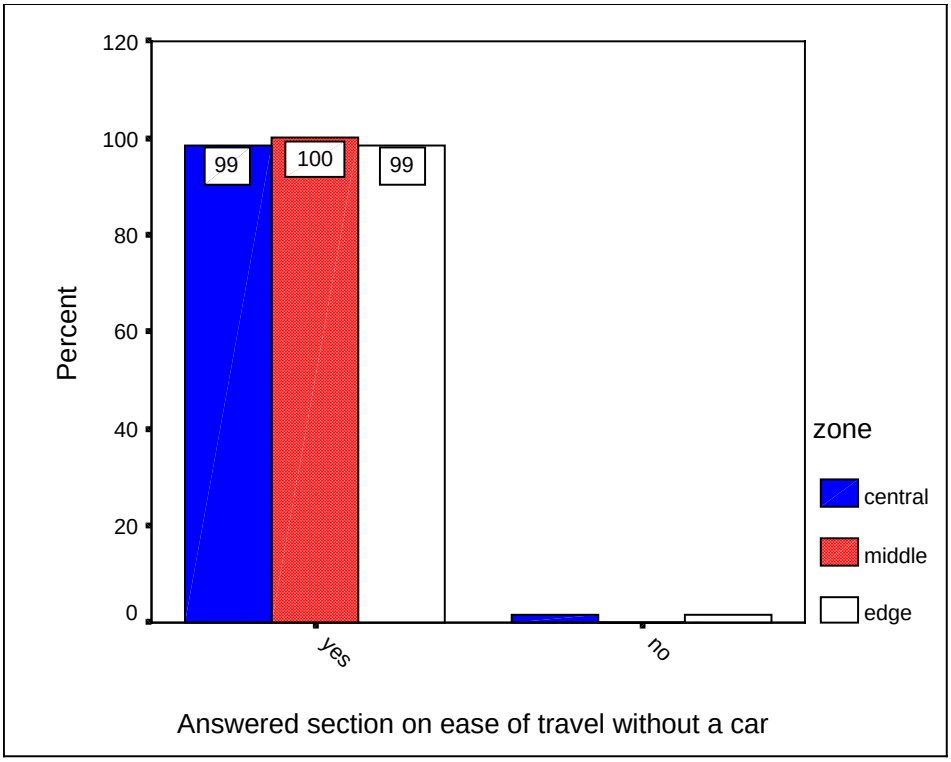
Average number of annual trips made by householders



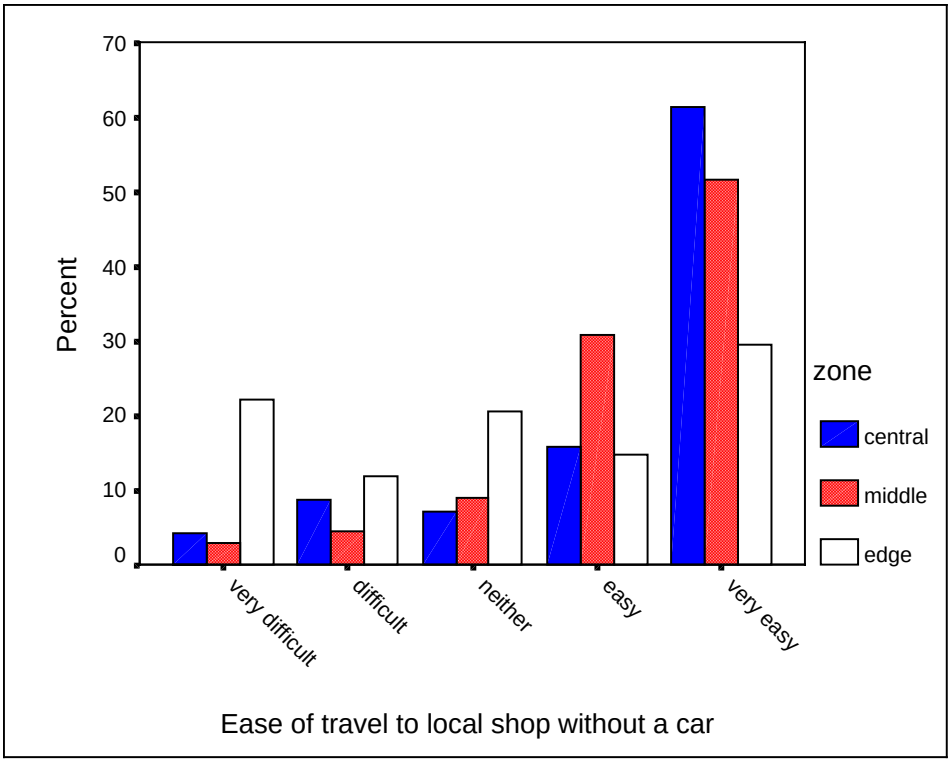
Do you own a car


120
100
80
60
40
20
0
Percent
79
84
99
21
15
yes
no
Do you drive a car?
zone
central
middle
edge

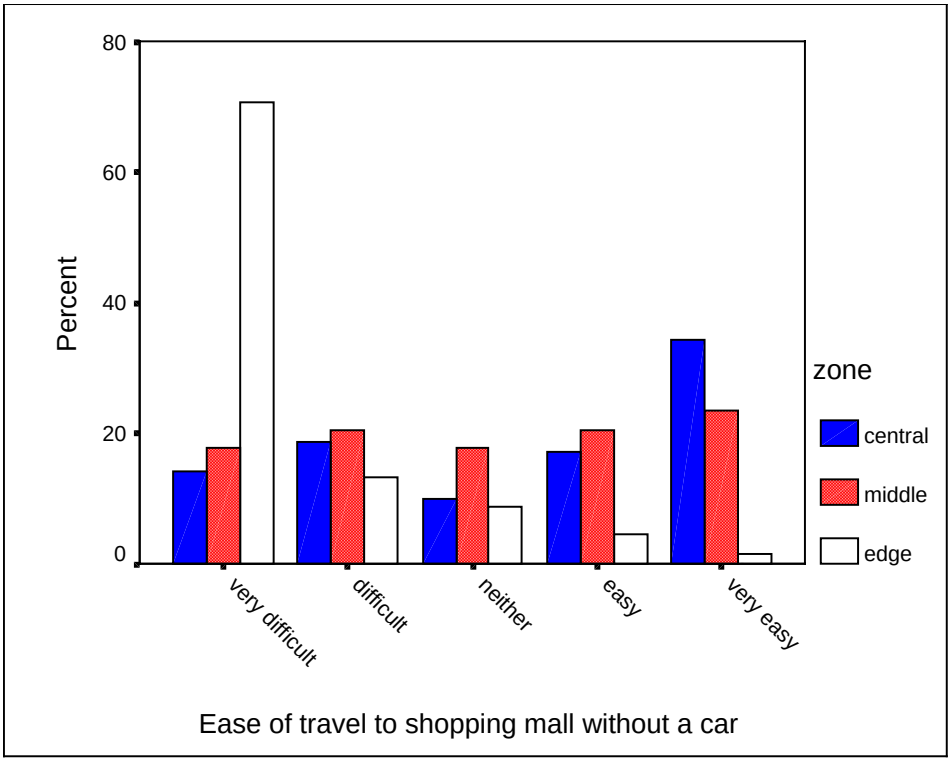

80
60
40
20
0
Percent
0
10x per week +
5-10 x per week
1 - 4 x per week
1 - 3 x per month
rarely
drives taken per week
zone
central
middle
edge



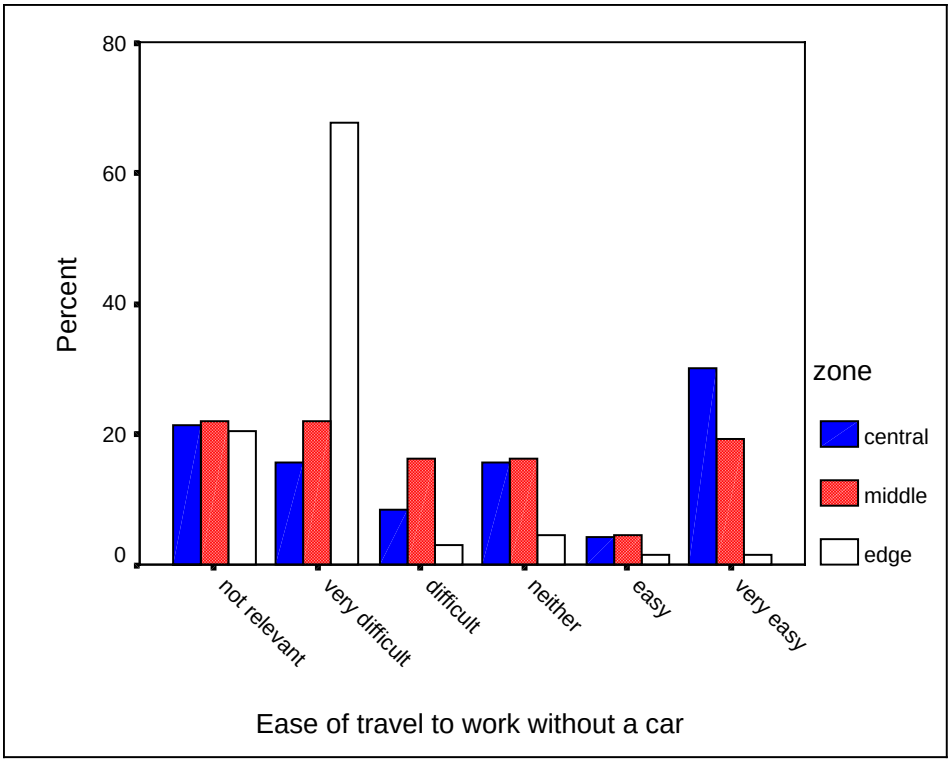
Answered section on ease of travel without a car



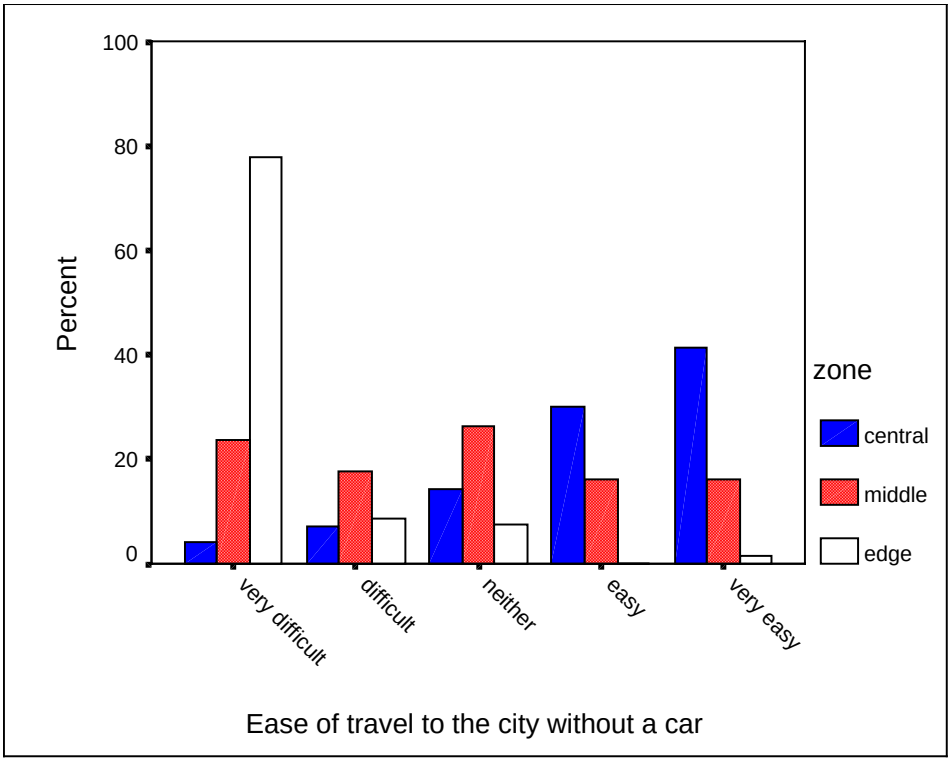
Ease of travel to local shop without a car



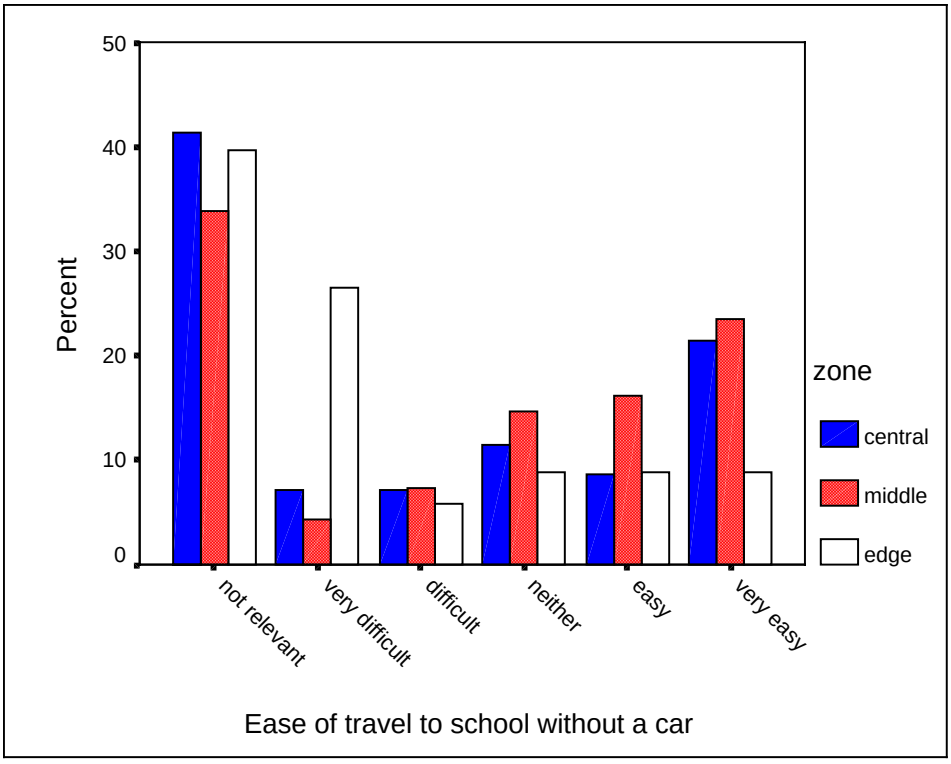
Ease of travel to shopping mall without a car



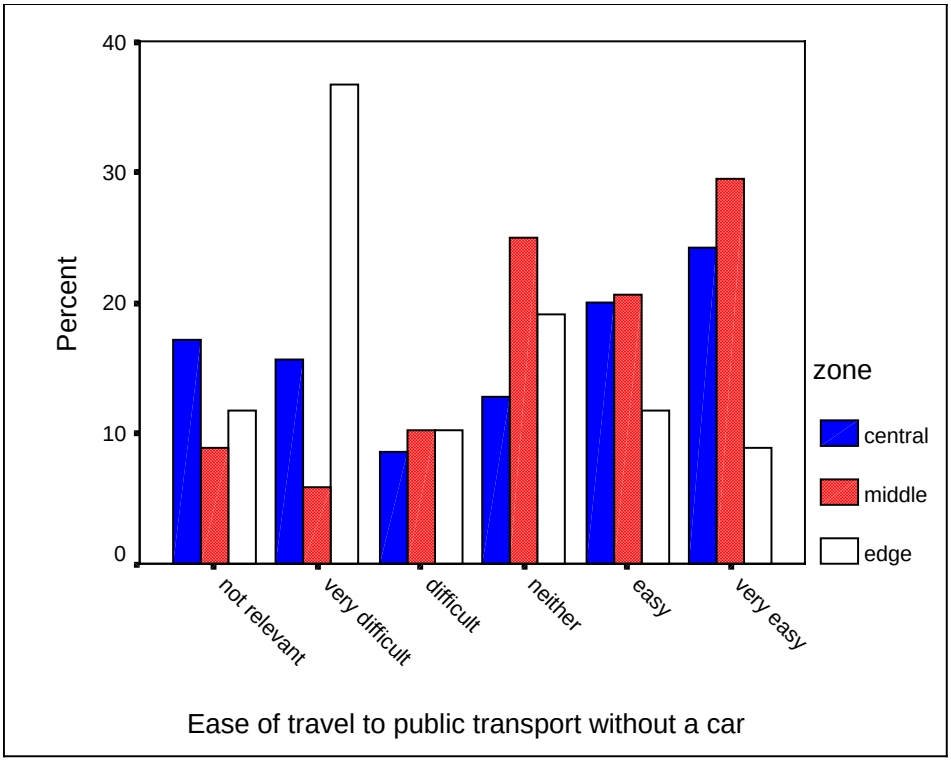
Ease of travel to work without a car



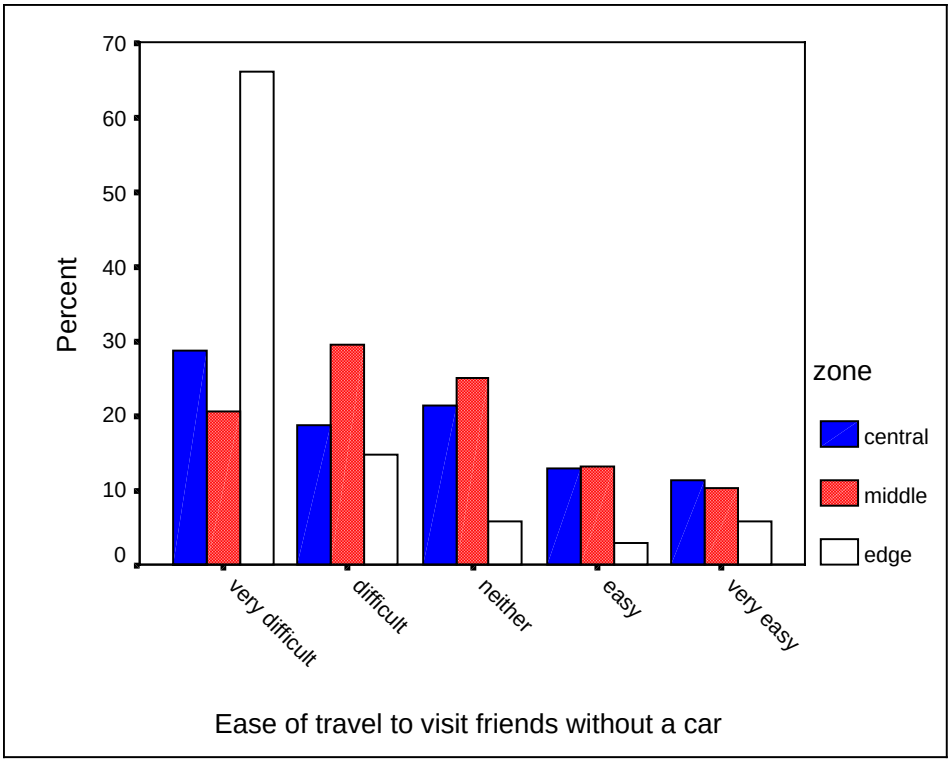
Ease of travel to the city without a car



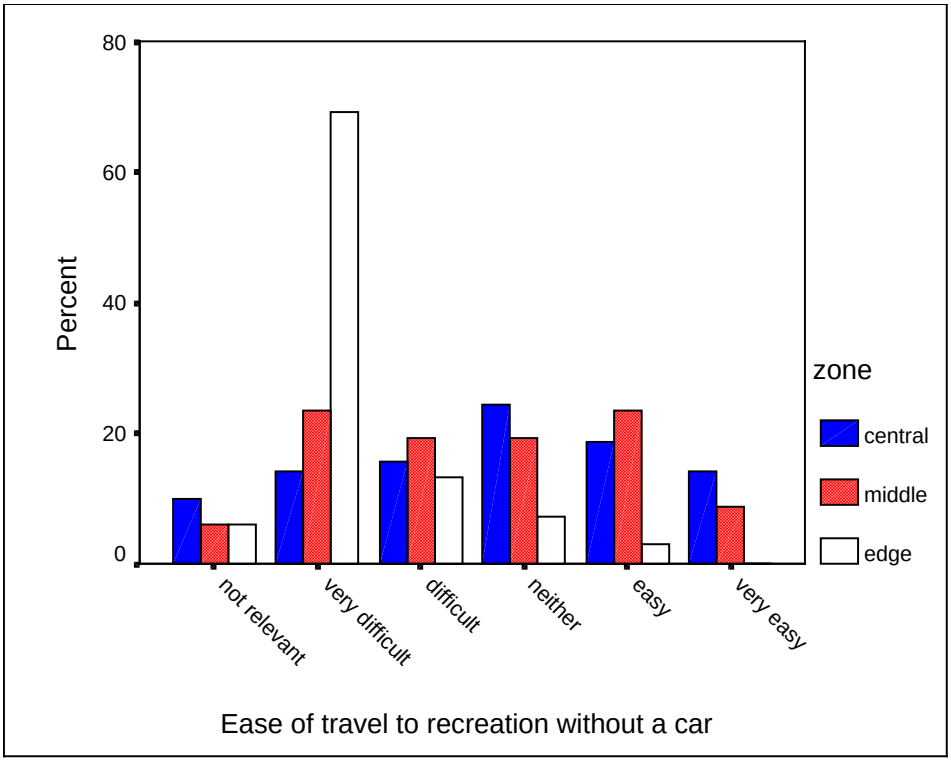
Ease of travel to school without a car



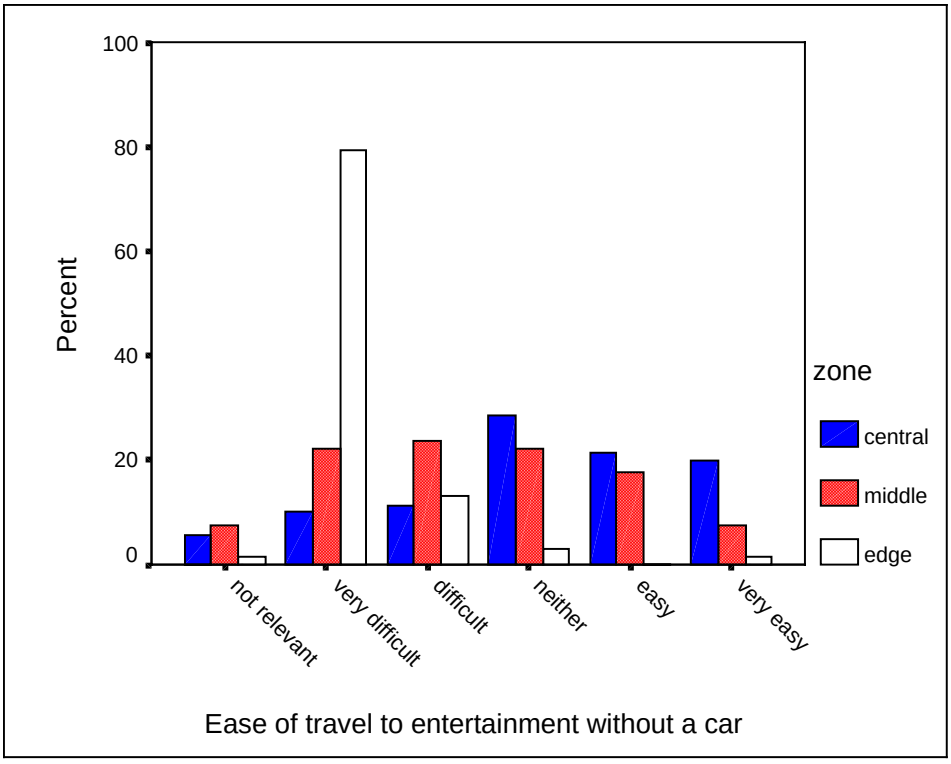
Ease of travel to public transport without a car



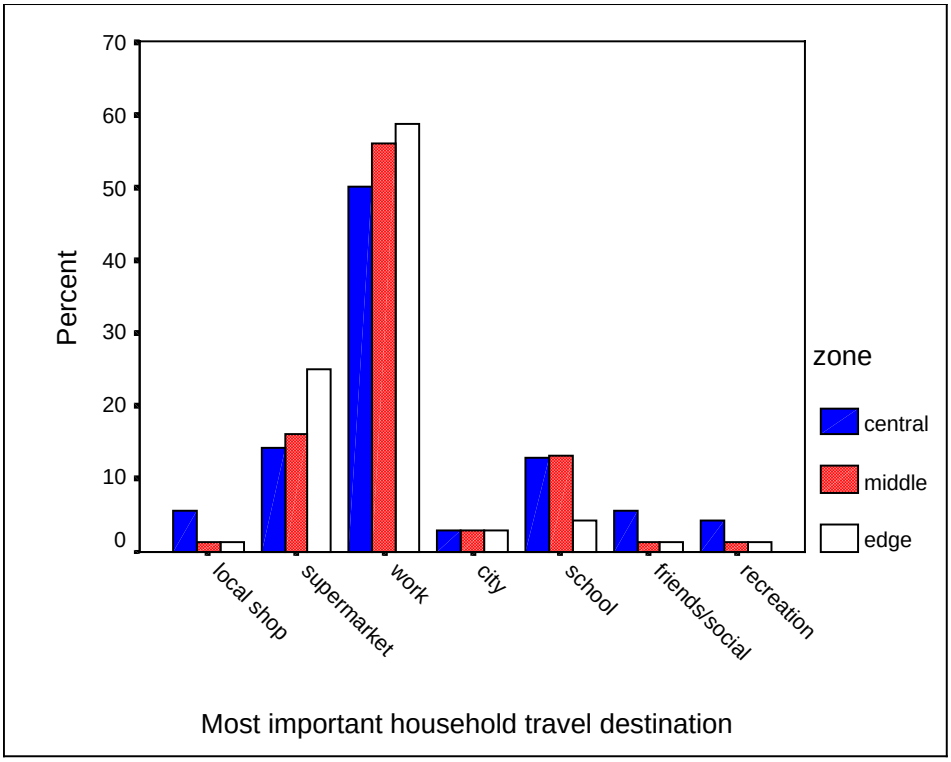
Ease of travel to visit friends without a car



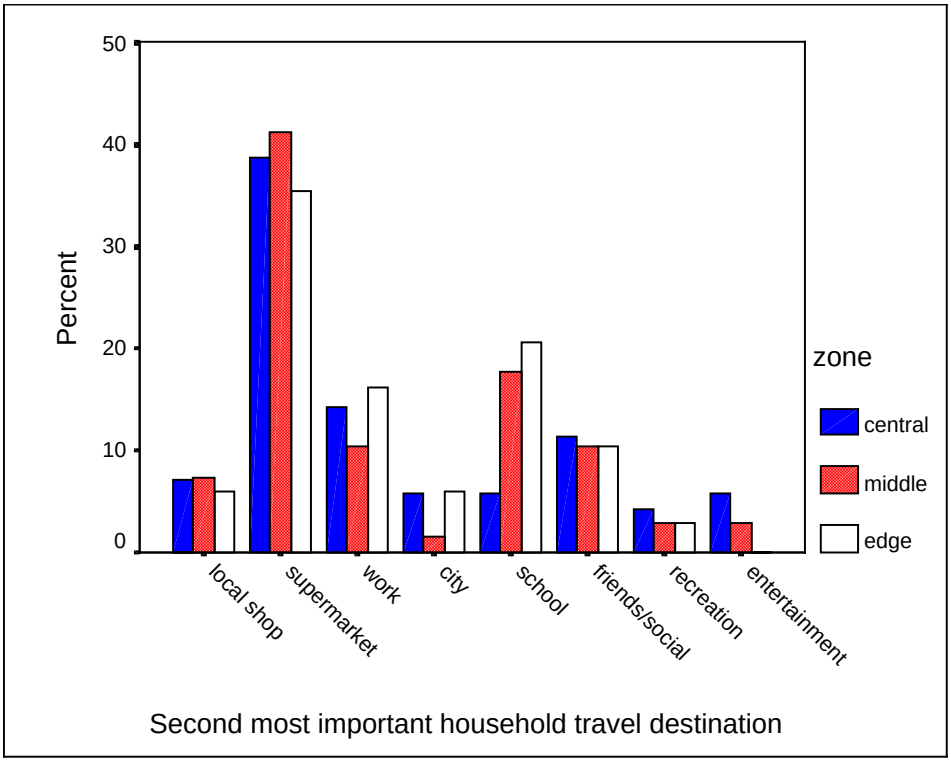
Ease of travel to recreation without a car



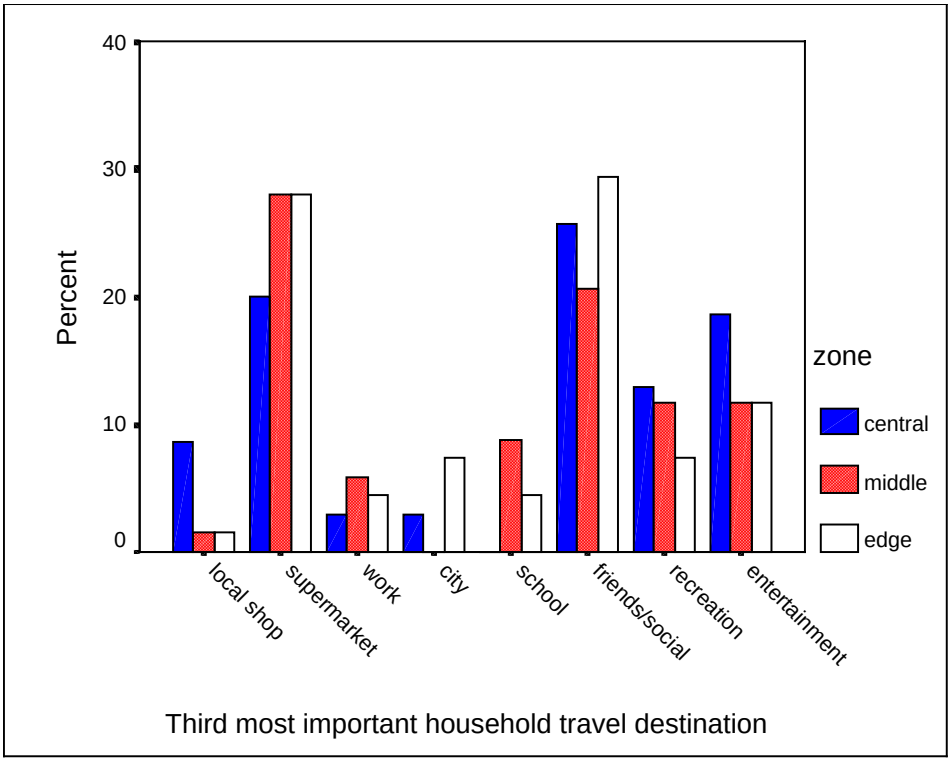
Ease of travel to entertainment without a car



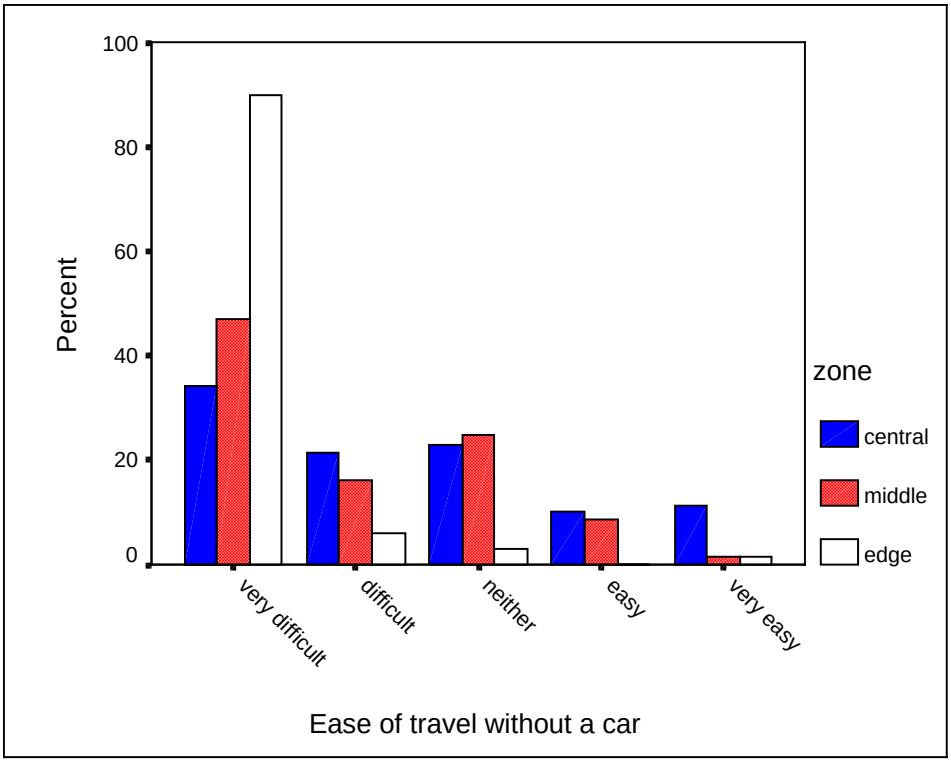
Most important household travel destination



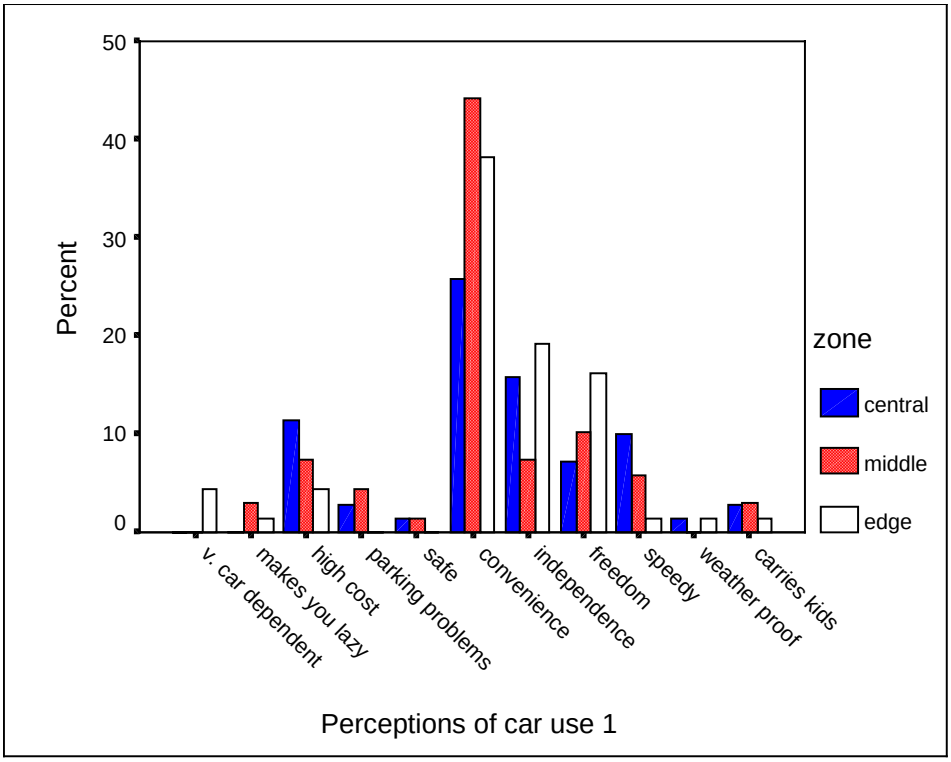
Second most important household travel destination

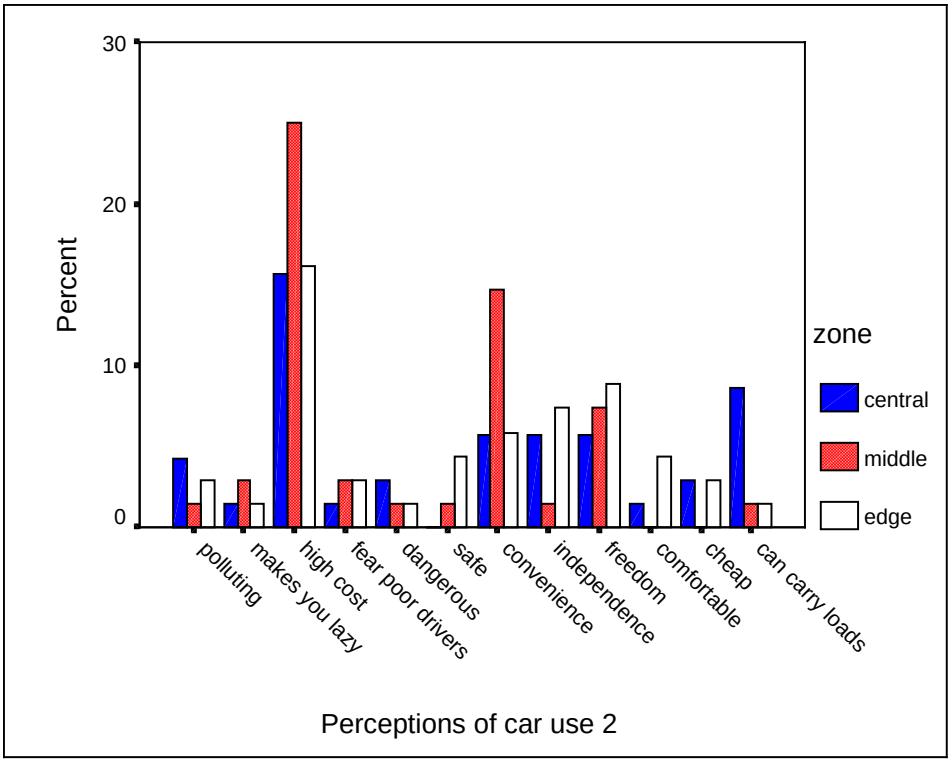


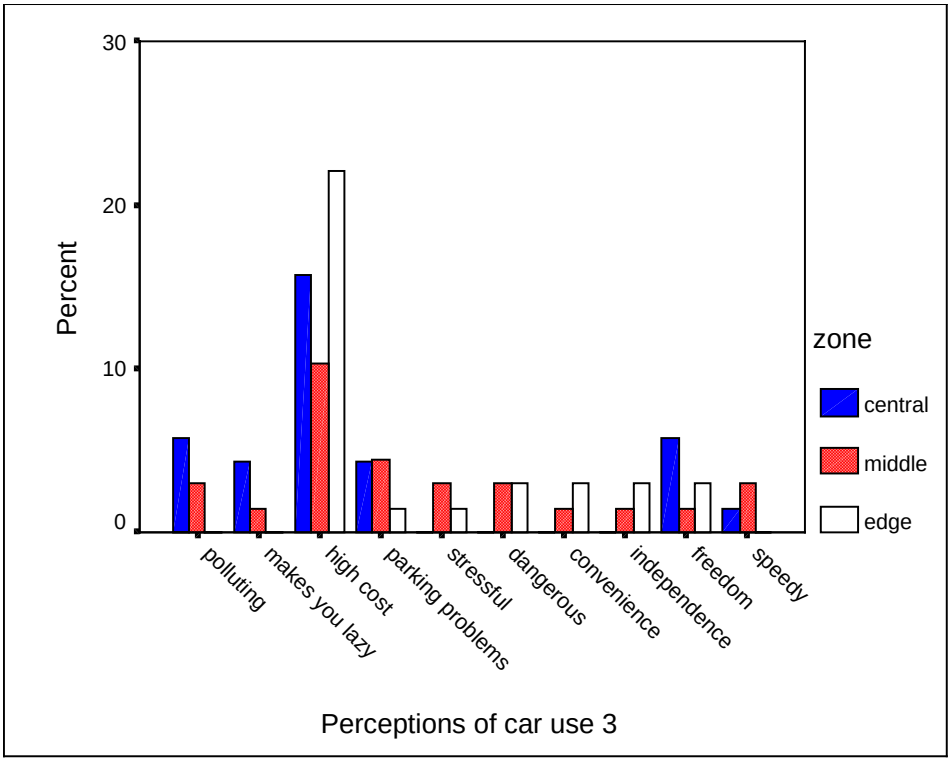
Third most important household travel destination

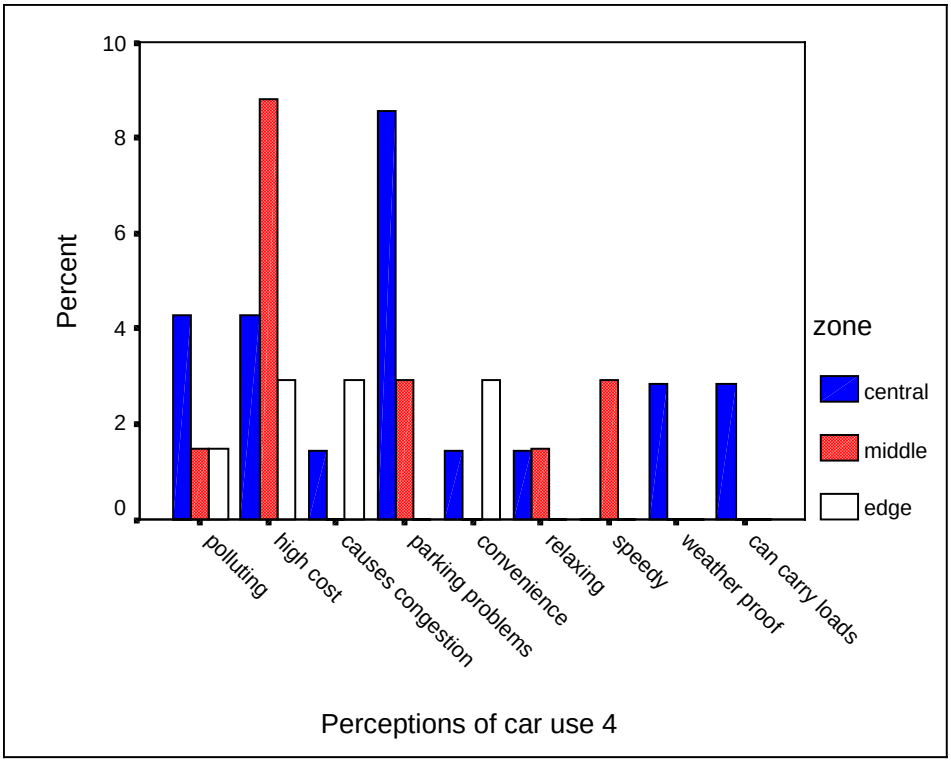


Ease of travel without a car

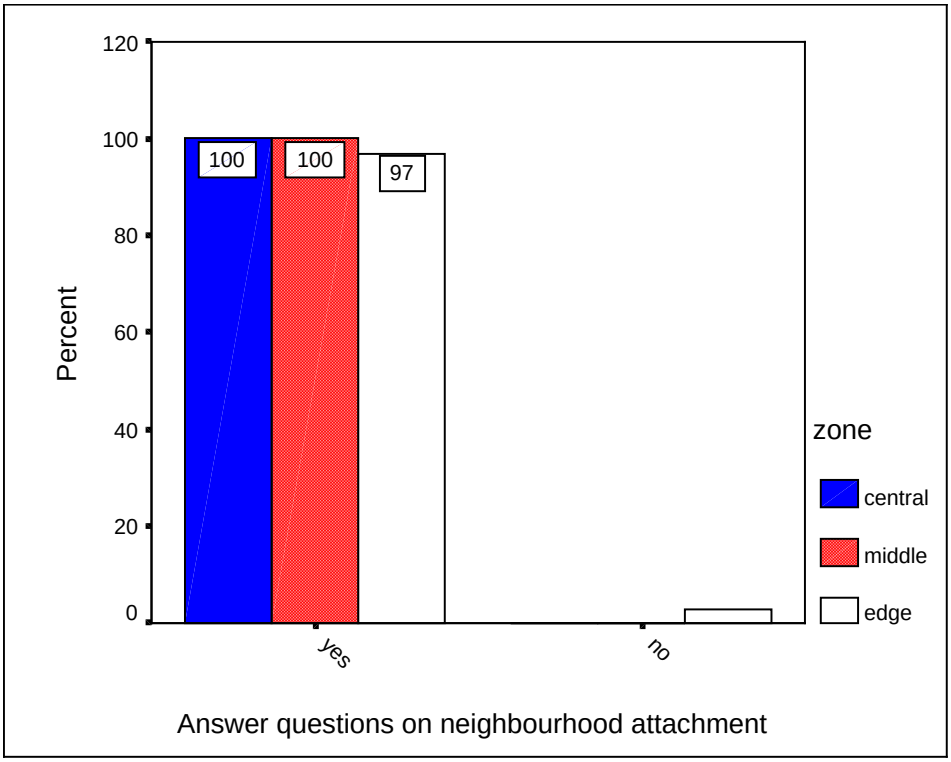

50
40
30
20
10
0
Percent
zone
central
middle
edge
v. car dependent
makes you lazy
high cost
parking problems
safe
convenience
independence
freedom
speedy
weather proof
carries kids
Perceptions of car use 1

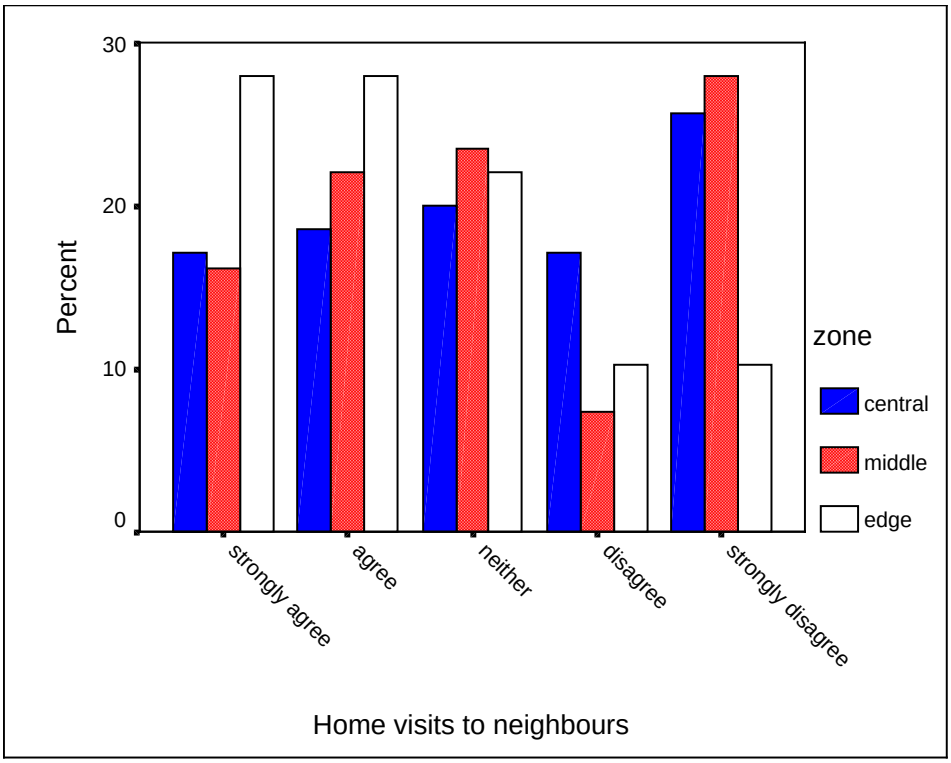

30
20
10
0
Percent
zone
central
middle
edge
polluting
makes you lazy
high cost
fear poor drivers
dangerous
safe
convenience
independence
freedom
comfortable
cheap
can carry loads
Perceptions of car use 2

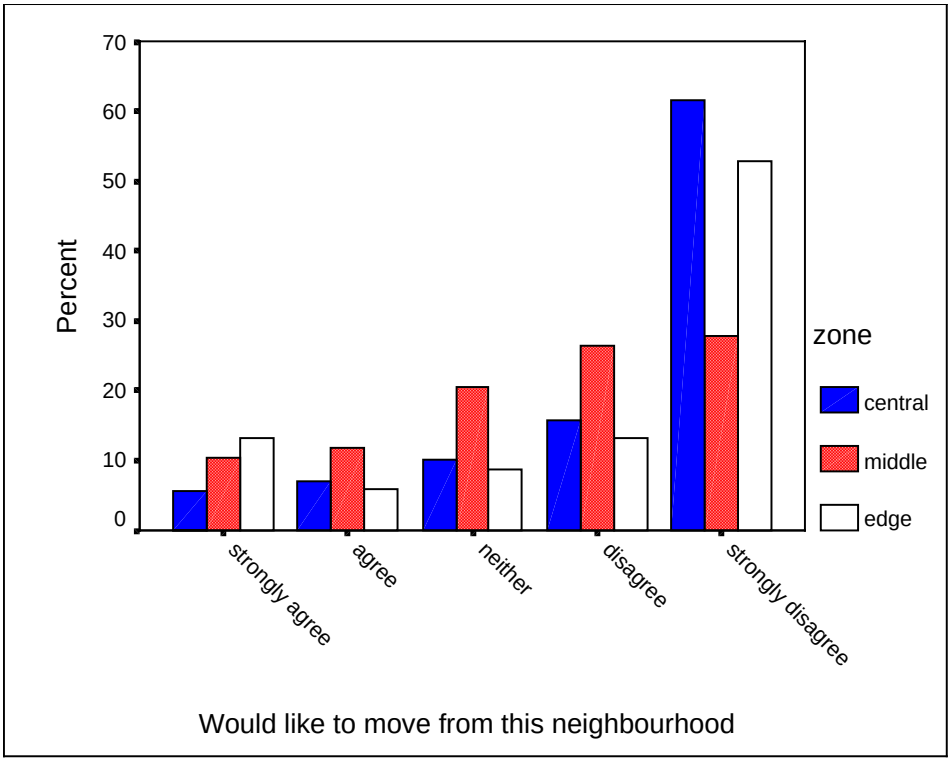

30
20
10
0
Percent
zone
central
middle
edge
polluting
makes you lazy
high cost
parking problems
stressful
dangerous
convenience
independence
freedom
speedy
Perceptions of car use 3


10
8
6
4
2
0
Percent
zone
central
middle
edge
polluting
high cost
causes congestion
parking problems
convenience
relaxing
speedy
weather proof
can carry loads
Perceptions of car use 4

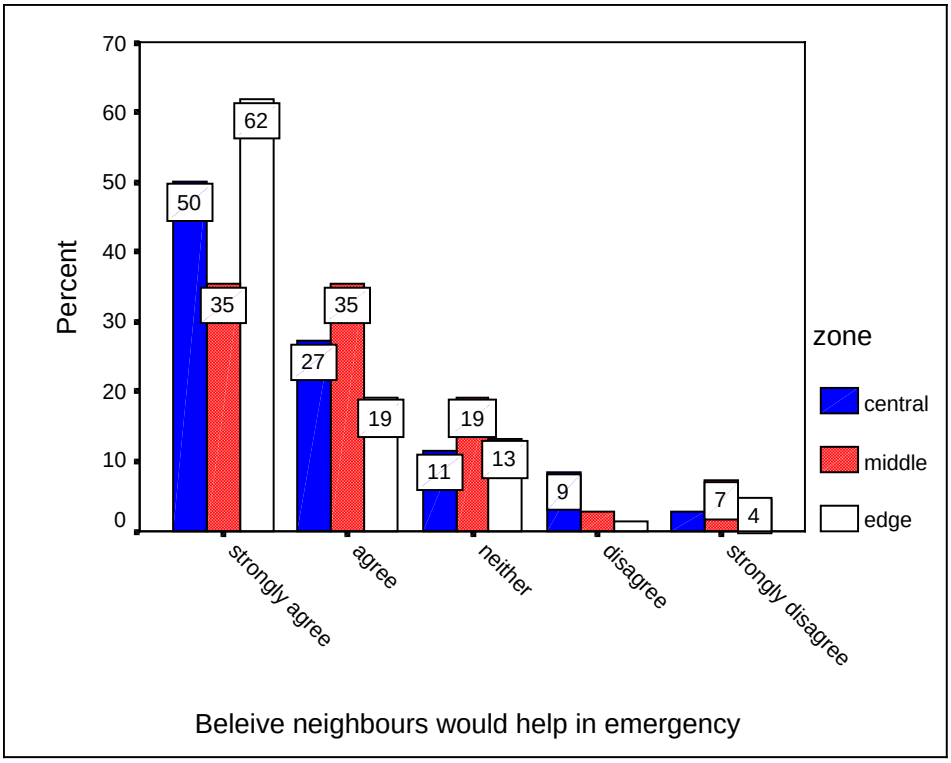
Neighbourhood attachment



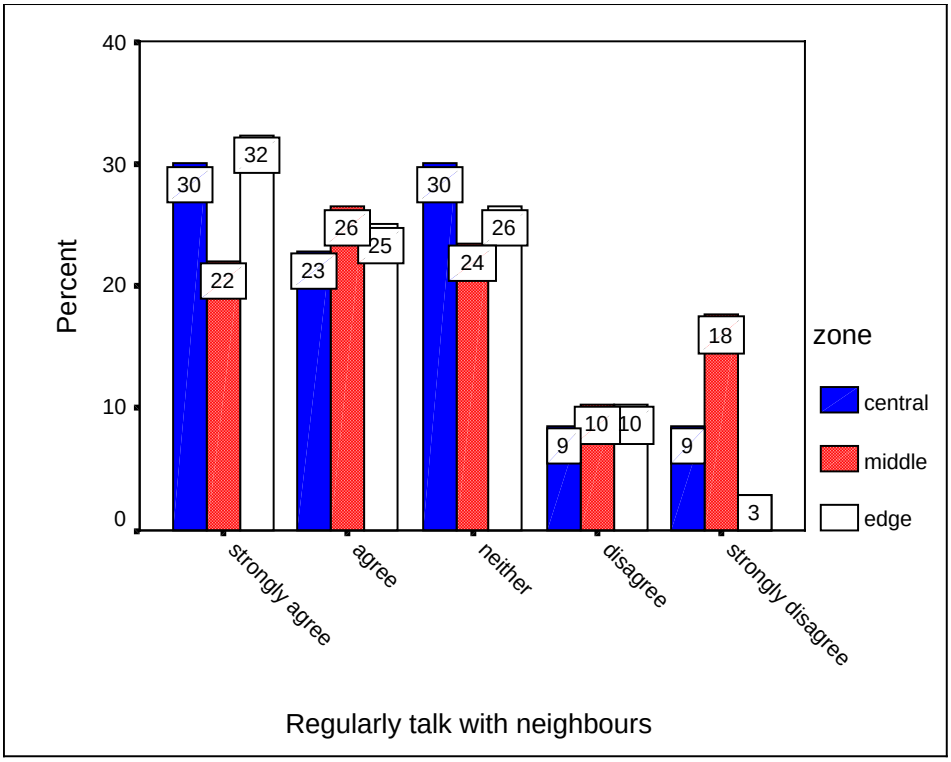




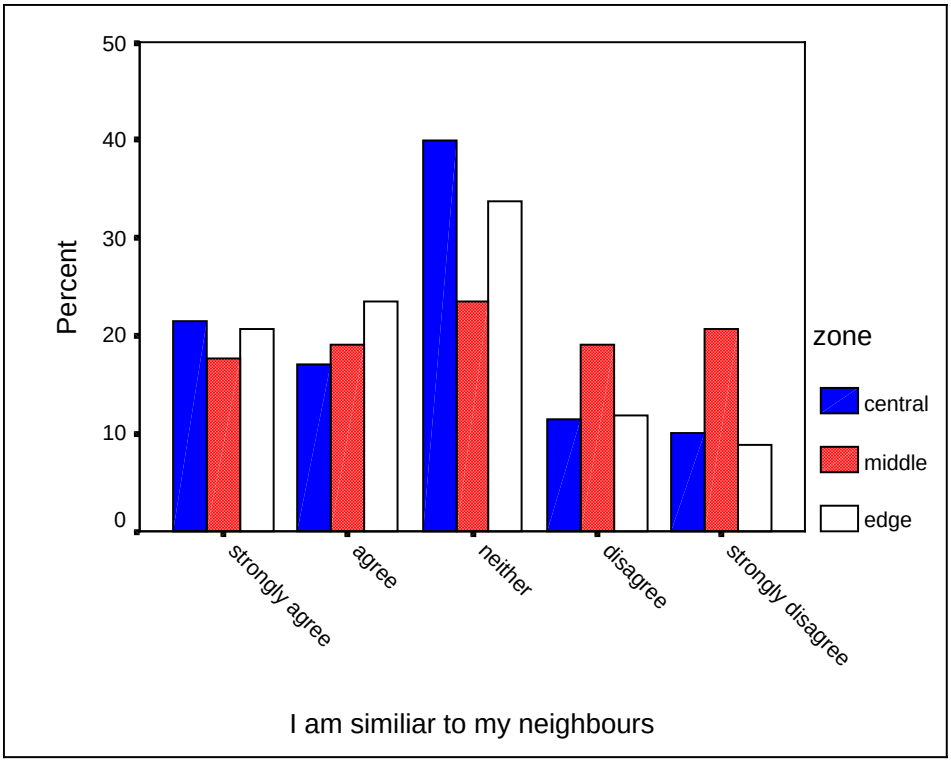
Would like to move from this neighbourhood



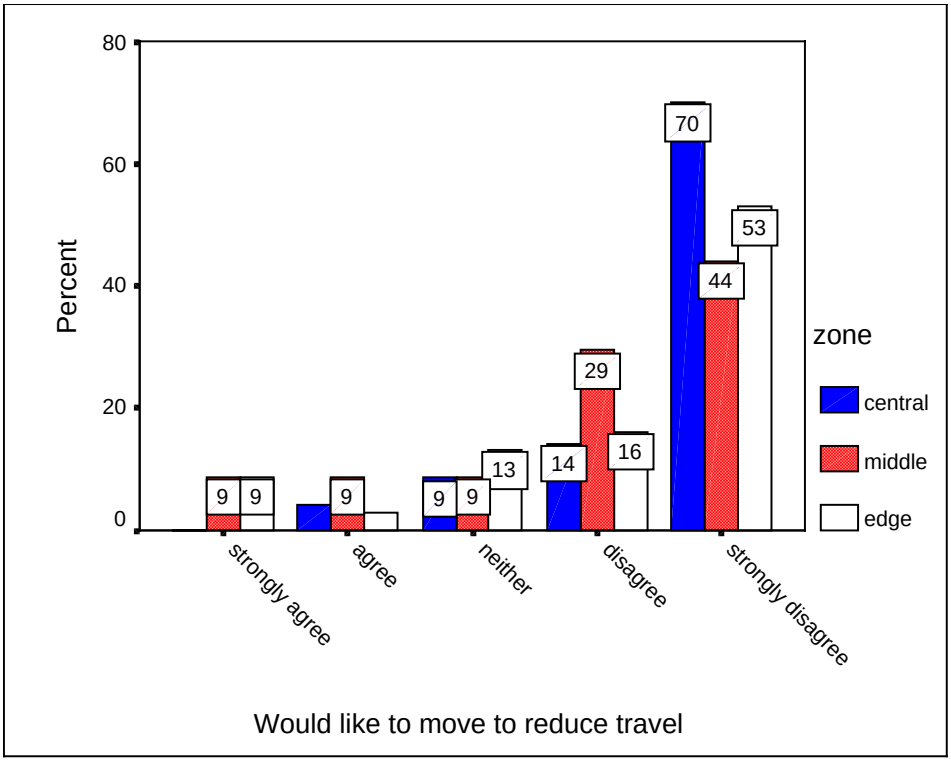
Beleive neighbours would help in emergency



Regularly talk with neighbours



I am similiar to my neighbours



Note that household numbers in the tables below are grouped into the three zones: Central 2101-2330, Middle 2401 - 2630 and outer2701 – 2930. The second digit indicates the collector districts:

Household code	**Collector district suburb/ Zone**
	Central
2101+	Inner North Ward
2201+	Outer North Ward
2301+	South Townsville
	Middle
2401+	Kirwan
2501+	Heatley (high armed forces presence)
2601+	Garbutt
	Edge
2701+	Balgal Beach (semi weekenders)
2801+	Rupertswood (acreage)
2901+	Kelso/Condon

Table A17.1 Neighbourhood comments

Inner	Comment
2106	Not close, most say hello
2112	Like neighbourhood. Bond for security.
2115	Great neighbourhood, bad, noisy neighbours
2204	Need to be close to hospital
2215	Not close to neighbours
2219	Not close
2304	Very close knit secure neighbourhood
2320	There are some hostile neighbours
2324	Want to shift, but like convenience
Middle	
2404	Housing commission area
2503	As RAAF, not liked by neighbouring Army
2507	Don't like some of the neighbours
2509	Want to buy own home
2514	Central
2517	Good paths in Heatley
2611	Visit neighbours if sick or needy
2625	Move - all housing commission
2628	Ok, but not enough buses
Outer	
2710	All retirees good.
2714	Like nature
2715	Like more privacy - bigger block
2716	Like here, hate the city
2801	Near the family farm
2805	Parents choice
2806	Move closer for kids
2807	Travel a disadvantage from here
2808	Good community support
2821	It's remote, which I like
2902	There are increased shops in area
2904	Prefer more central
2910	Want to be nearer people our age
2913	Love the peace and quiet
2914	Move closer to work

Table A17.2 Preferred home location, and reasons

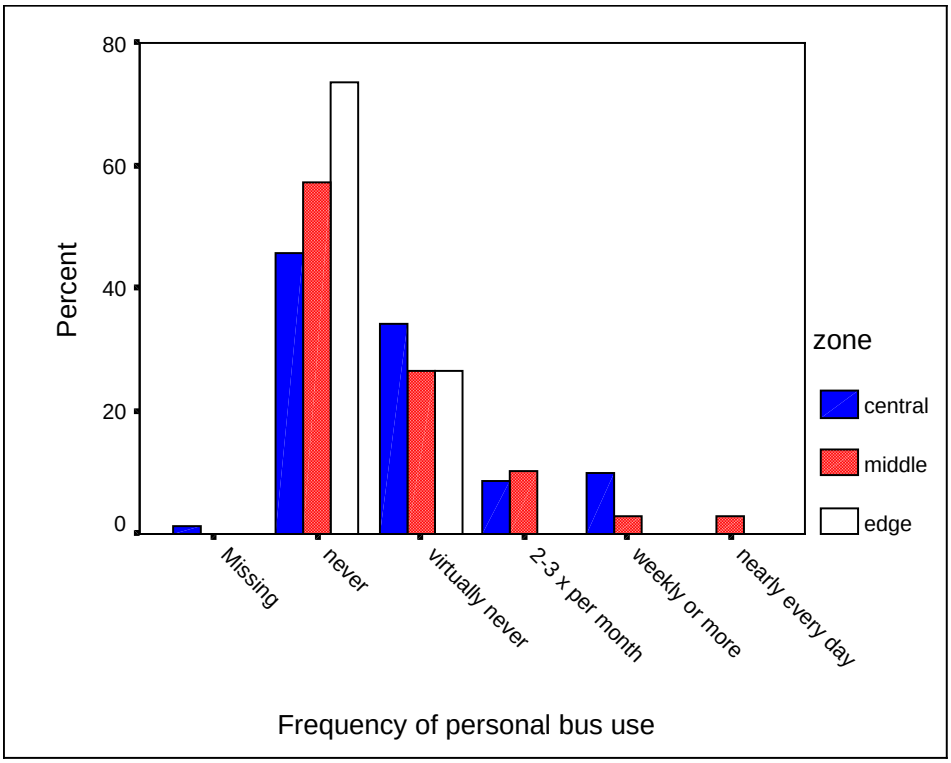
Household ID	Move to	Because
Inner		
2103	Kuranda	small and convenient
2110	Annandale	closer to work
2117	a beach suburb	relaxed, and clean fresh air
2119	Near JCU	could walk or cycle
2204	closer to hospital	
2213	Brisbane	family
2221	Sth. T/ville	closer to mates and work
2301	Douglas	nearer uni., close to open space
2311	North NSW	closer to family and friends
2319	Gold Coast	reduce travel costs

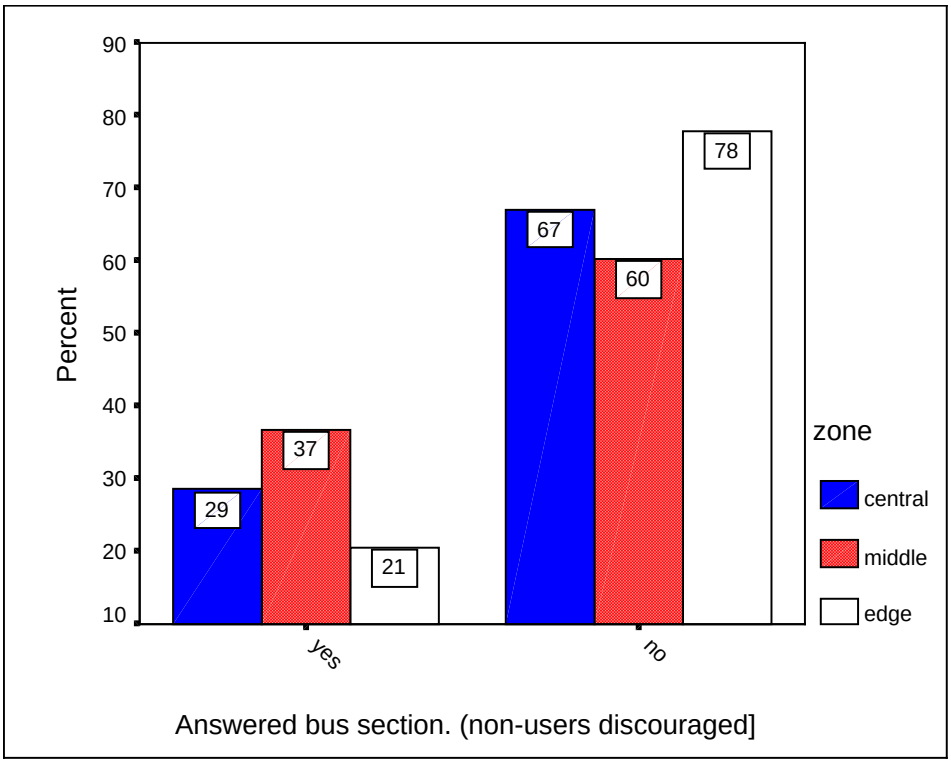
Table A17.2 Preferred home location, and reasons (continued)

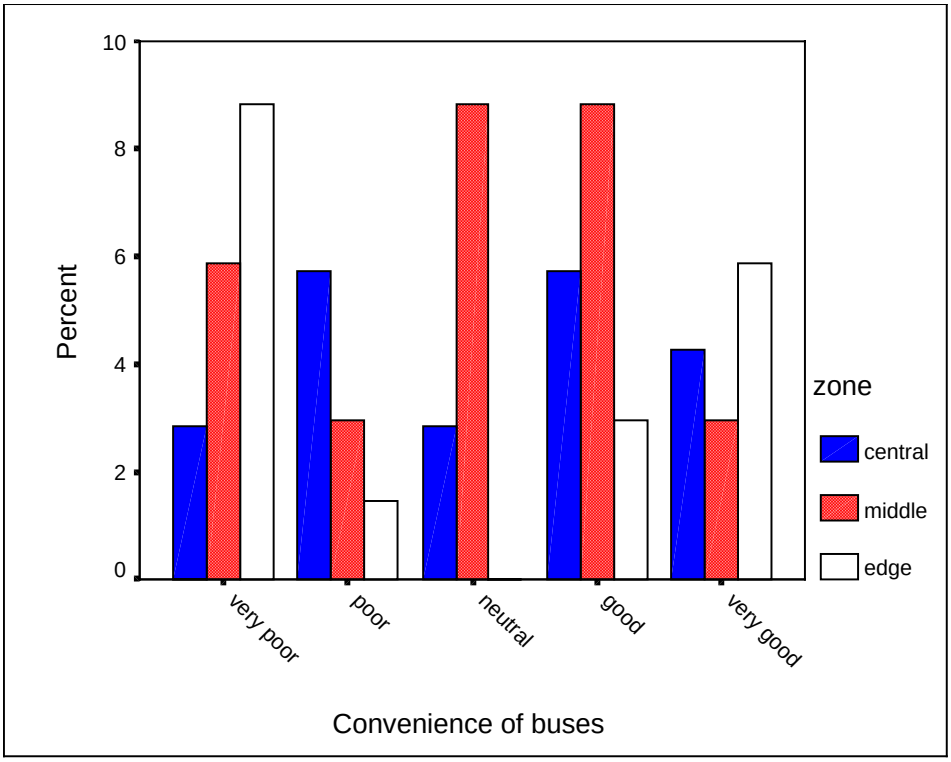
Household ID	Move to	Because
2323	Magnetic Isle.	can walk/hitch everywhere
Middle		
2402	town	able to walk to work
2404	Annandale	quiet and safe
2407	Rangewood	larger blocks of land
2415	Mundingburra	more central
2503	sane suburb	close and safe
2504	Anbnandale/Rosslea	closer
2506	Kirwan	quiet, more ammenities
2507	Rupertswood	more peaceful
2508	another suburb	better neighbours
2509	Kelso	family, quiet, relaxed
2510	Brisbane	
2511	Annandale	nicer, nearer family
2512	edge	larger property
2514	Annandale	good resale
2517	Annandale	modern suburb, close to work
2520	Adelaide	change
2523	Belgian Gardens	walk to work/play
2601	Douglas/Annandale	close to uni and shops
2602	Nort Ward	closer to city
2607	North Ward	closer to beach
2608	Vincent/Atkenvale	near supermarket
2611	country town	work
2612	suburb	closer
2615	Annandale or Cranbrooke	feel safe, and close to school
2624	Nth Ward	closer
2626	Hyde Park	closer
2628	Sydney	good public transport
Edge		
2702	city centre	near workplaces
2705	Magnetic Island	suitable for retirement
2706	Townsville	closer to work
2707	suburb	nearer amenities
2708	SE Qld.	job opportunities
2709	bushy coast without sand	wouldn't get bitten
2711	Townville	closer
2712	Townsville	closer to relatives
2716	T'ville	become too old to care for sel
2718	Town	easier, but lose life-style
2719	Ingham	closer to facilities
2720	Townsville	
2721	city	
2801	city	big block hard to maintain
2802	Mundingburra	closer
2803	Kirwan	closer
2804	Kirwan	closer to shops and school
2805	Kirwan	near medical
2806	suburb	reduce travel for kids
2808	suburb	reduce travel cost and stress

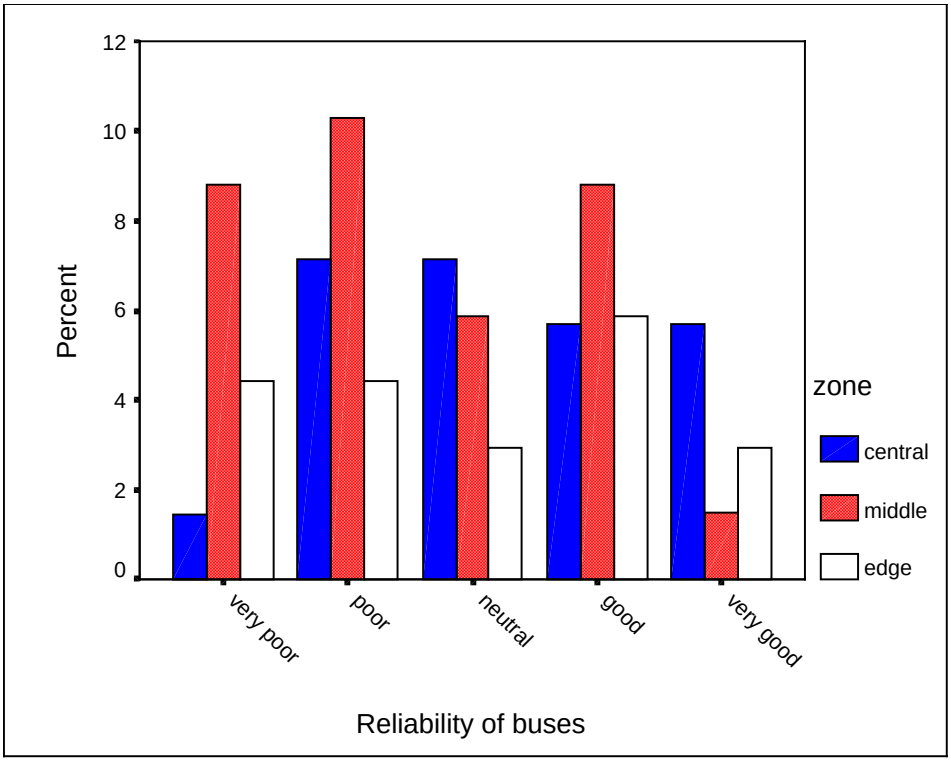
2809	town	reduce travel costs
2811	inner suburb	closer
2812	city	get married quarters
2813	NSW	family
2816	Kirwan	
2819	Tablelands	closer
2820	Townsville	closer
2821	Pallerenda	near beach
2822	suburb	could ride share commute
2901	Sth. Townsville	convenient
2902	Mundingburra	more central
2904	Nth Ward	central
2906	Kirwan	central
2907	Kirwan	closer
2908	Annandale	closer to work
2909	Annandale	closer to work
2910	closer	want to be near people our age
2911	Kelso	like Kelso
2912	Annandale	closer to main work
2913	Sth. Townsville	close to work
2914	Kirwan	ride push bike to work.
2917	suburb	
2918	bush	peace, no neighbours
2924	Mt Louisa	
2925	Kirwan or Annandale	closer

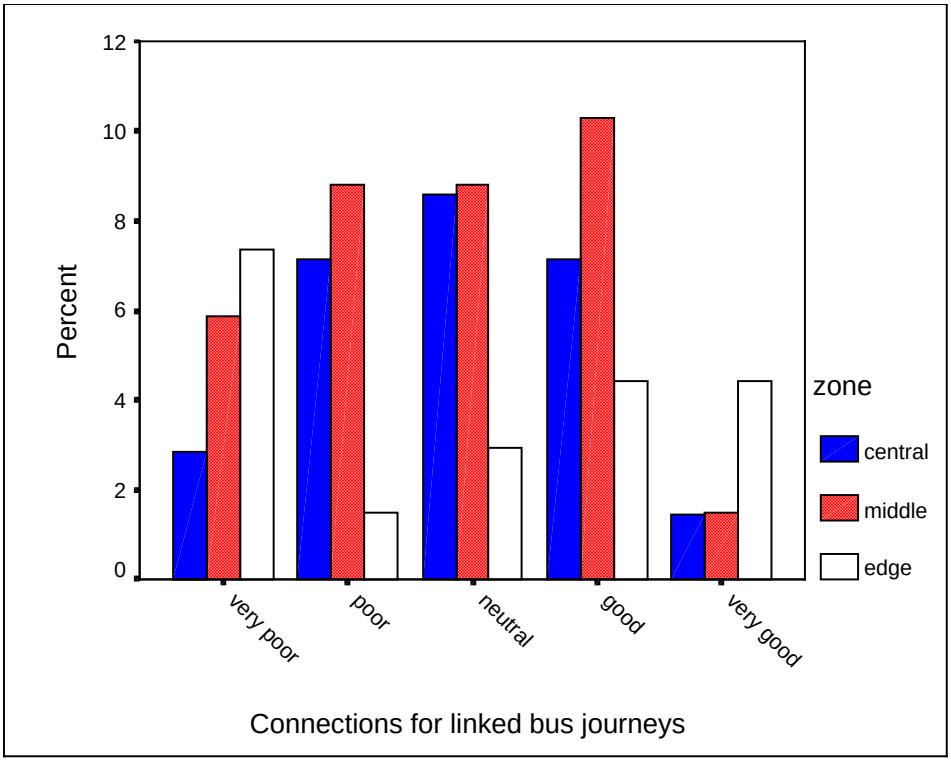
Bus use


80
60
40
20
0
Percent
zone
central
middle
edge
Missing
never
virtually never
2-3 x per month
weekly or more
nearly every day
Frequency of personal bus use

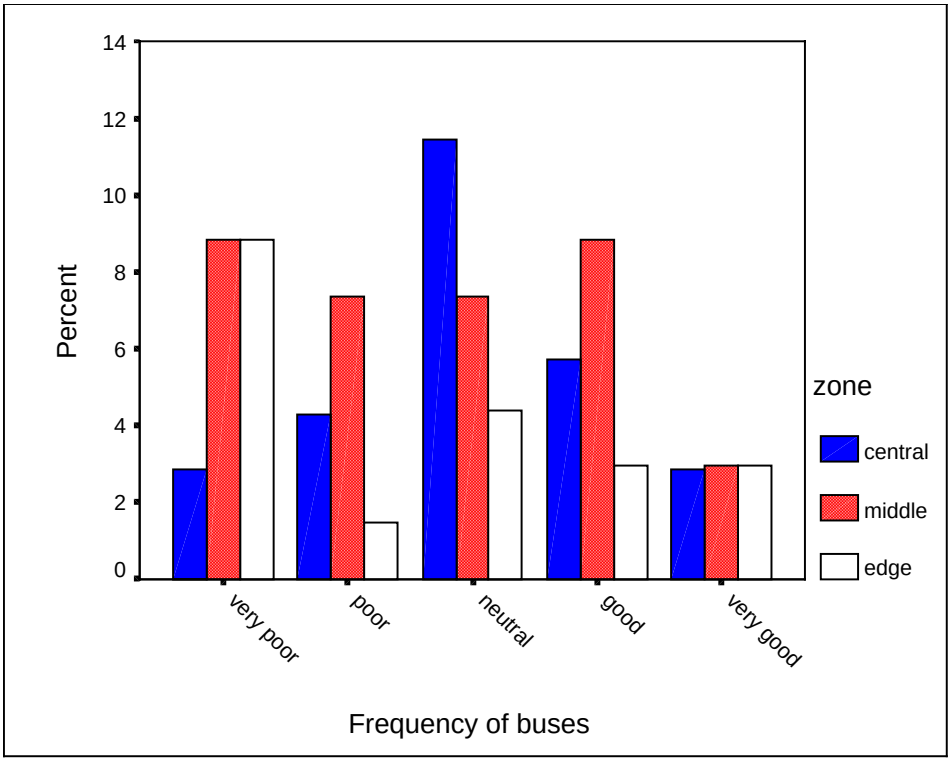

90
80
70
60
50
40
30
20
10
Percent
29
37
21
67
60
78
zone
central
middle
edge
yes
no
Answered bus section. (non-users discouraged]


Percent
10
8
6
4
2
0
very poor
poor
neutral
good
very good
zone
central
middle
edge
Convenience of buses

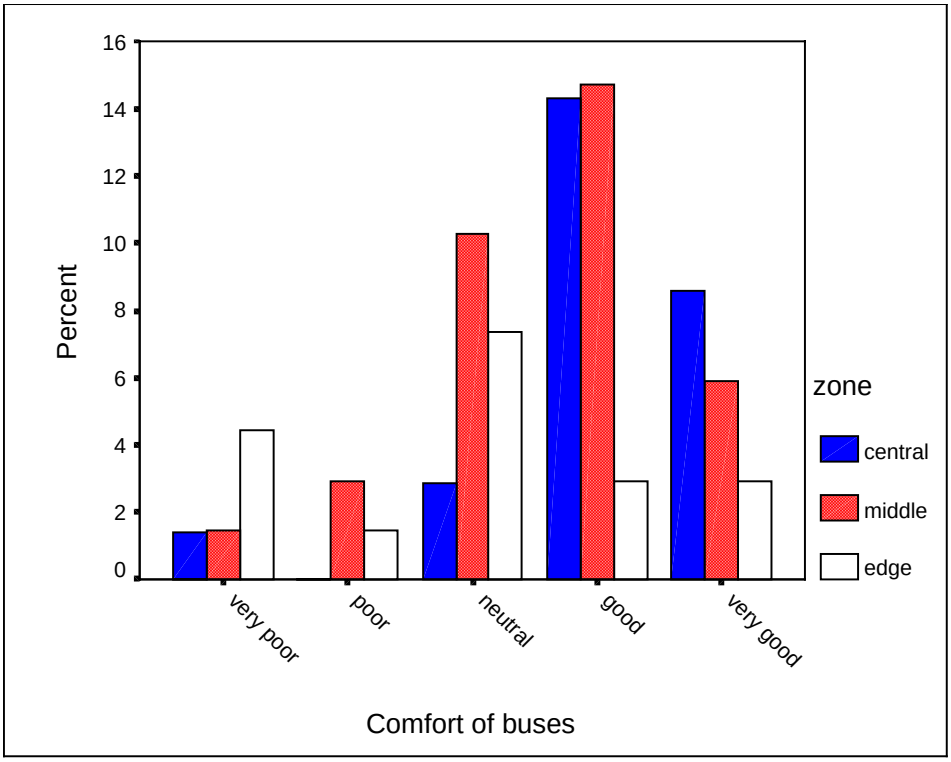

Percent
12
10
8
6
4
2
0
very poor
poor
neutral
good
very good
zone
central
middle
edge
Reliability of buses

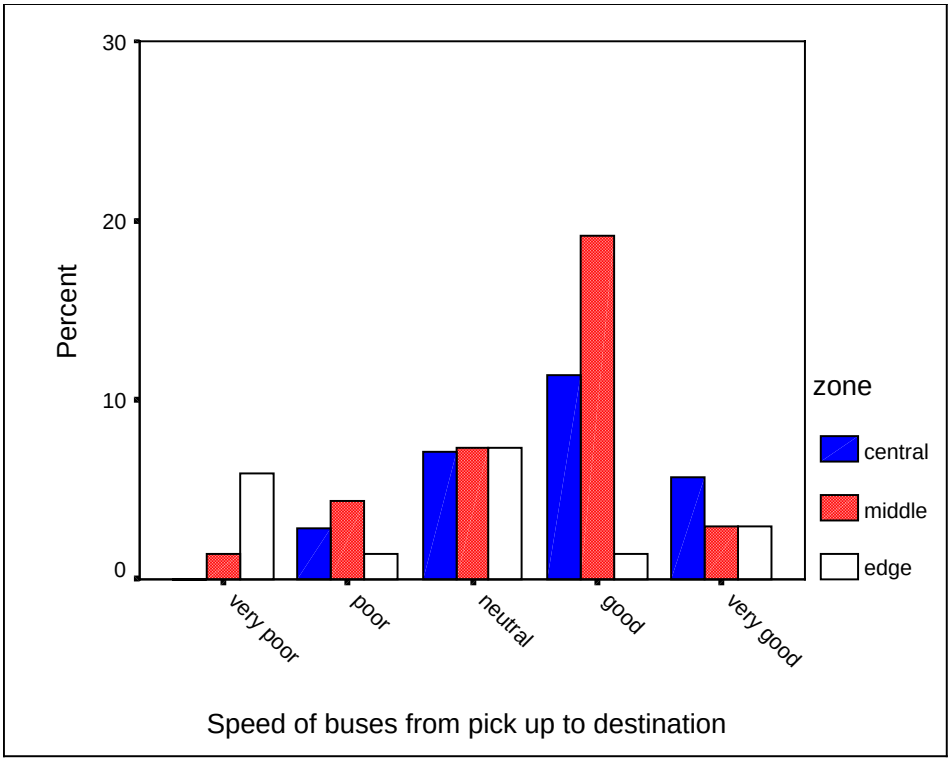


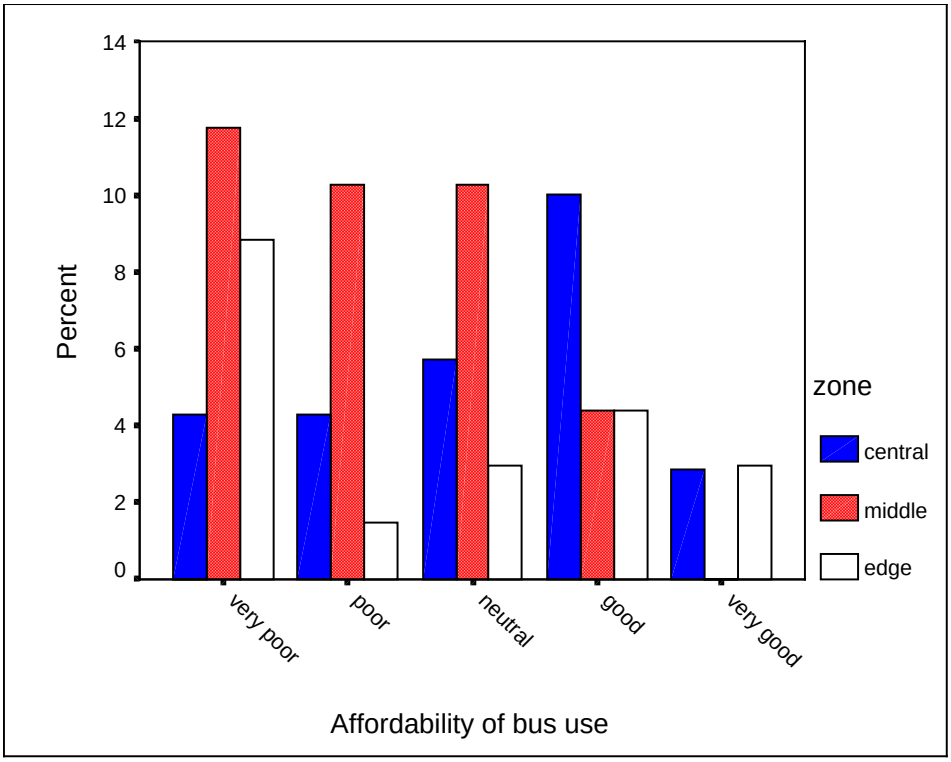
Connections for linked bus journeys

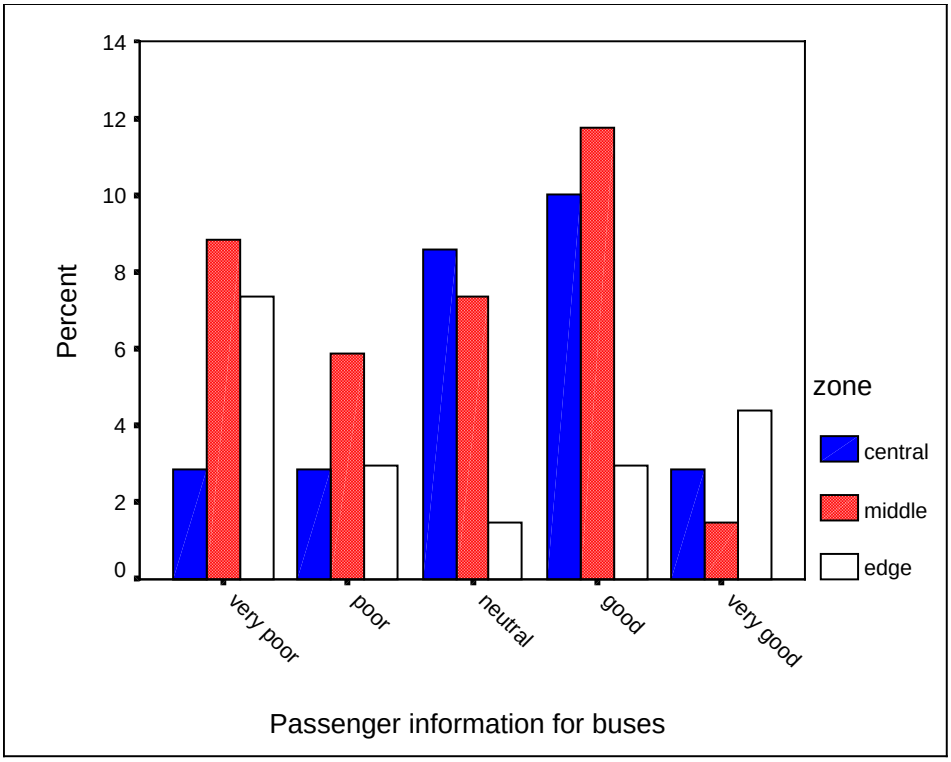


Frequency of buses


16
14
12
10
8
6
4
2
0
Percent
very poor
poor
neutral
good
very good
zone
central
middle
edge
Comfort of buses


30
20
10
0
Percent
very poor
poor
neutral
good
very good
zone
central
middle
edge
Speed of buses from pick up to destination

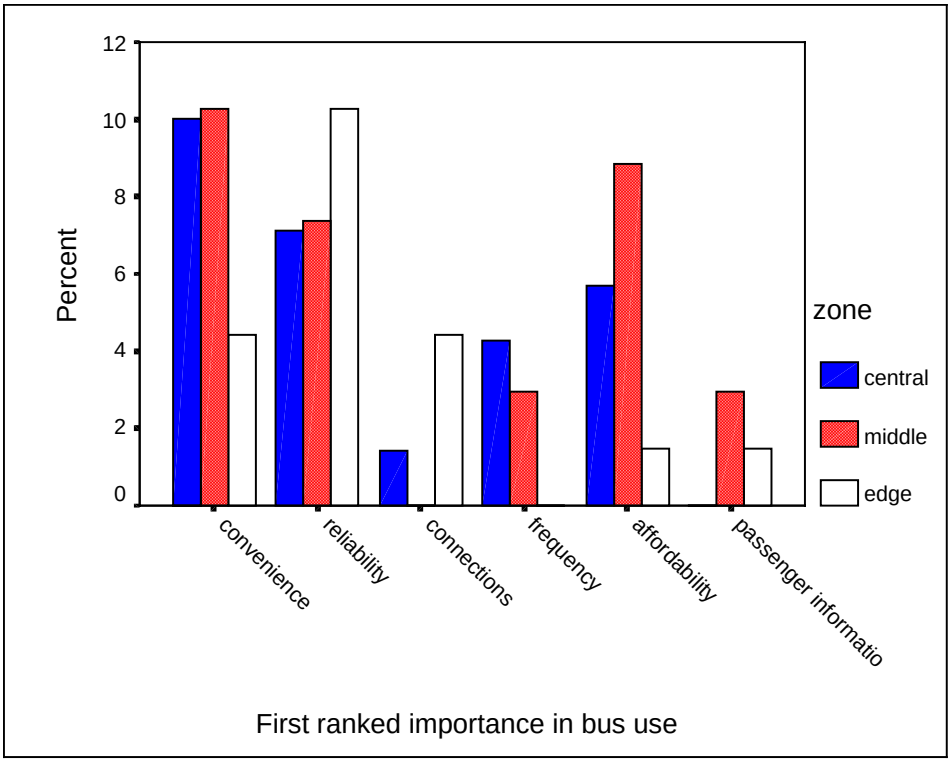




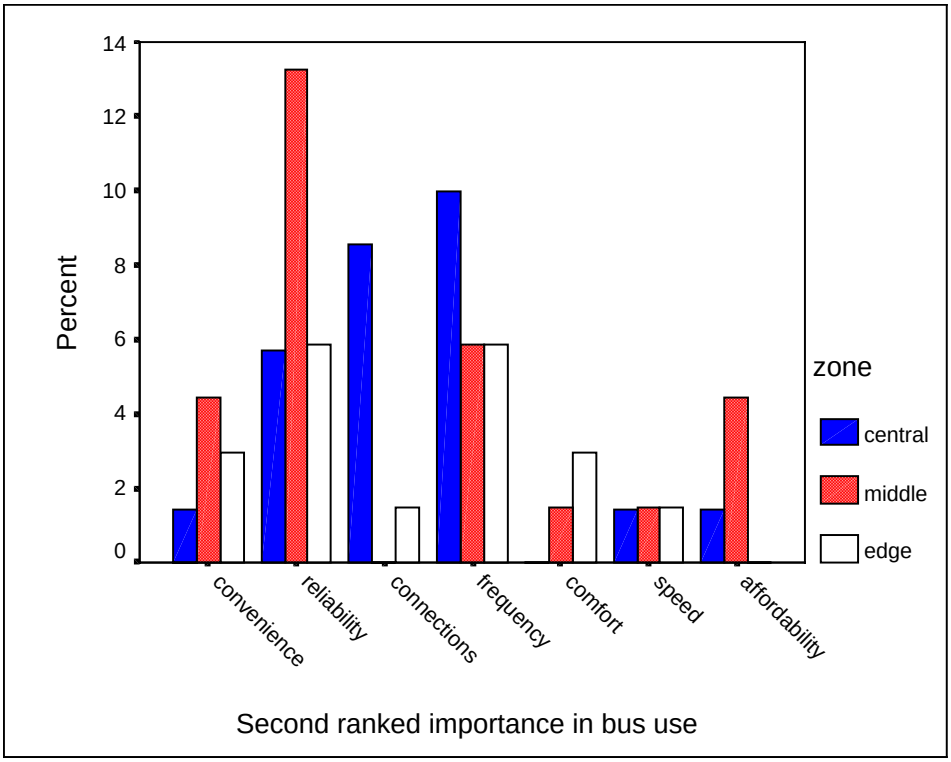
Other bus use issue by collector district

2102	timetable ambiguous
2510	not extensive enough
2527	not for workers after midnight
2603	doesn't go from Garbutt to Castletown then into city
2604	bus stop too far away
2804	There is no bus service to Rup
2807	not serviced here

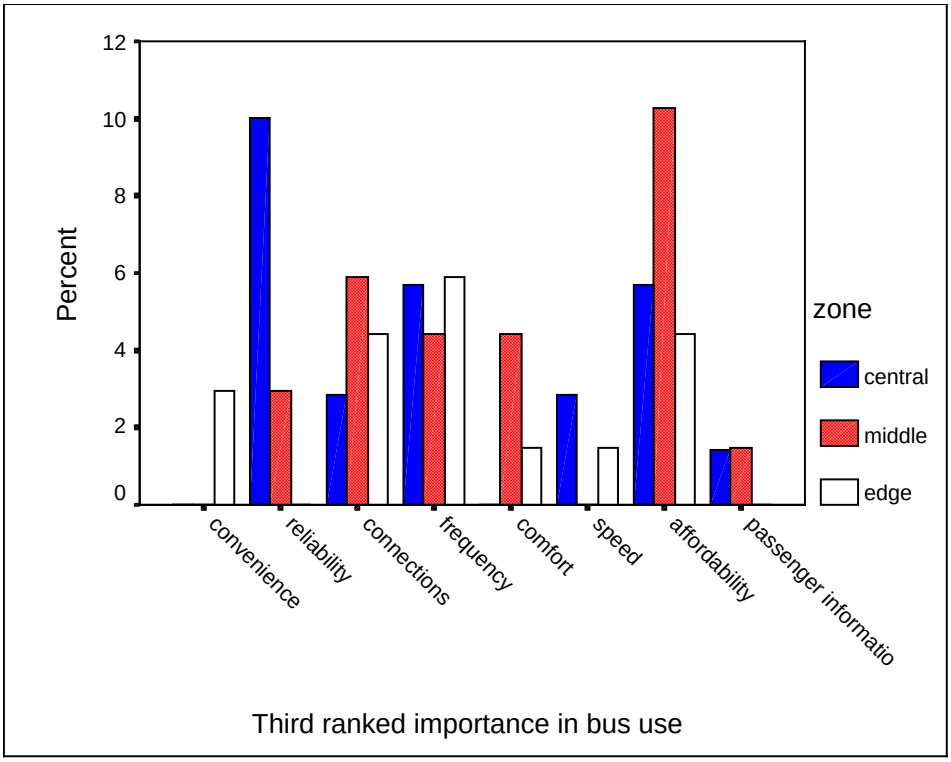
2808	only school service
2815	no service
2819	no service
2820	safety
2822	no service
2910	courtesy



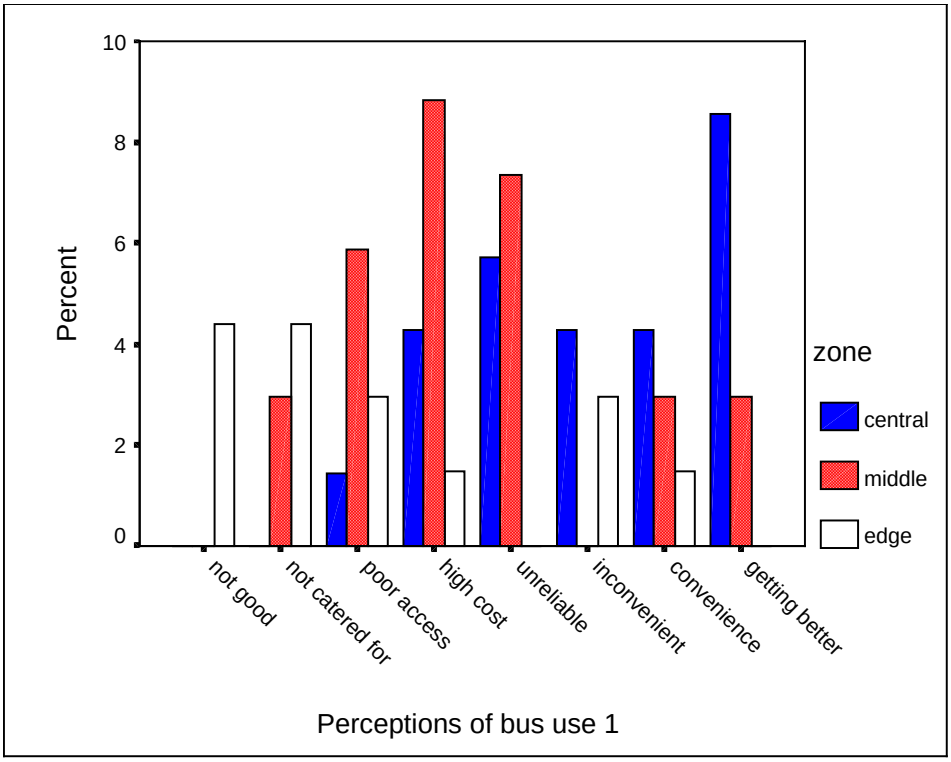
First ranked importance in bus use



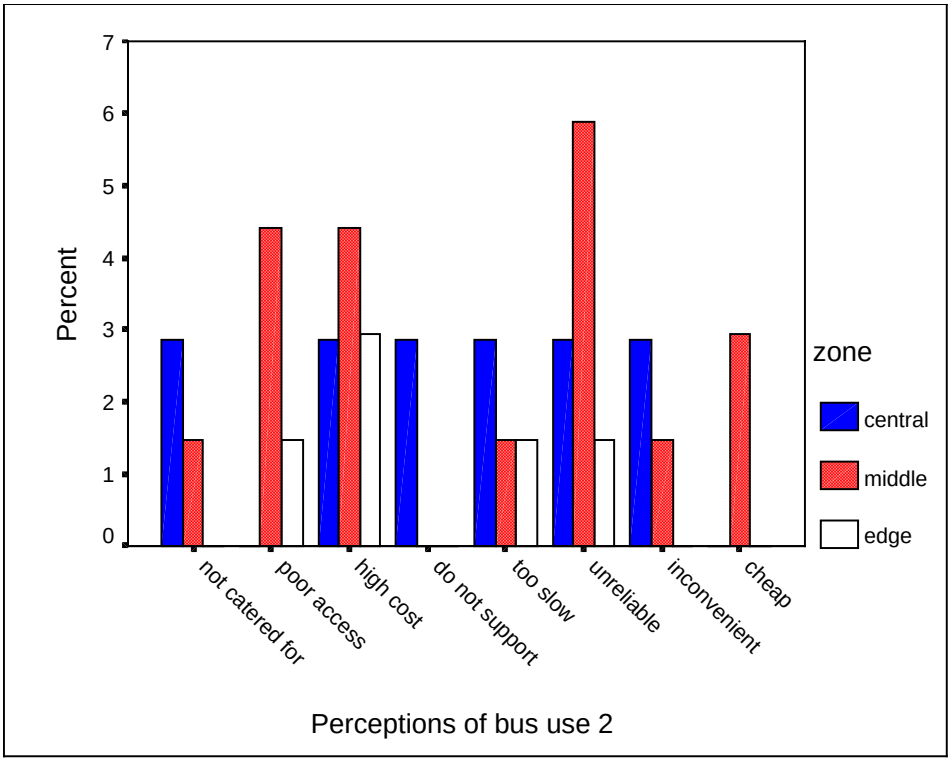
Second ranked importance in bus use

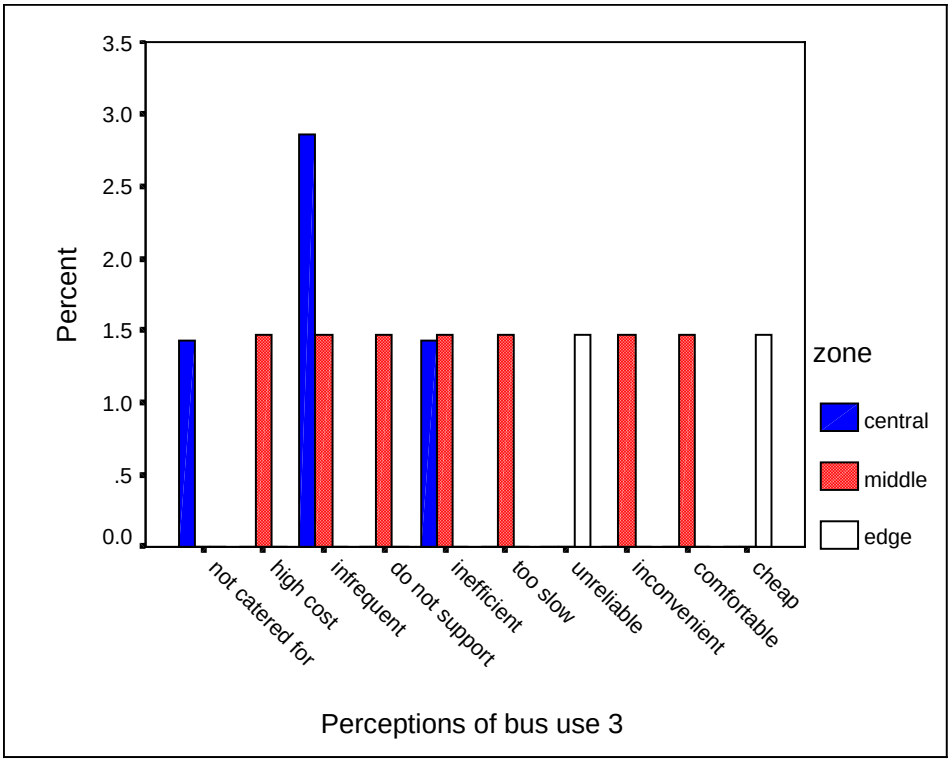


Third ranked importance in bus use

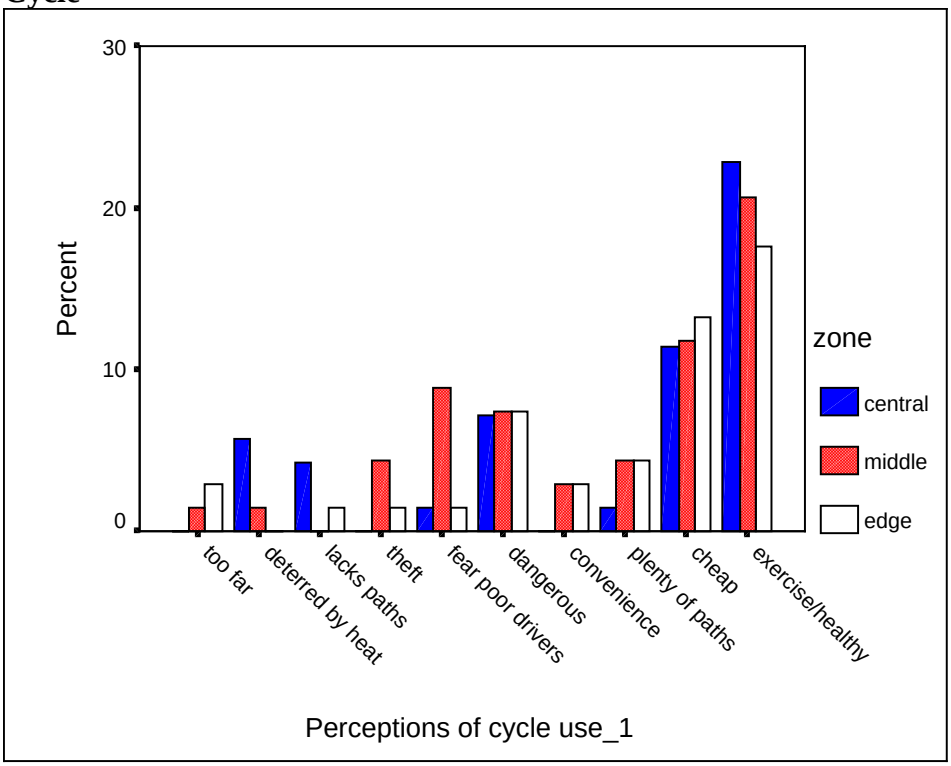


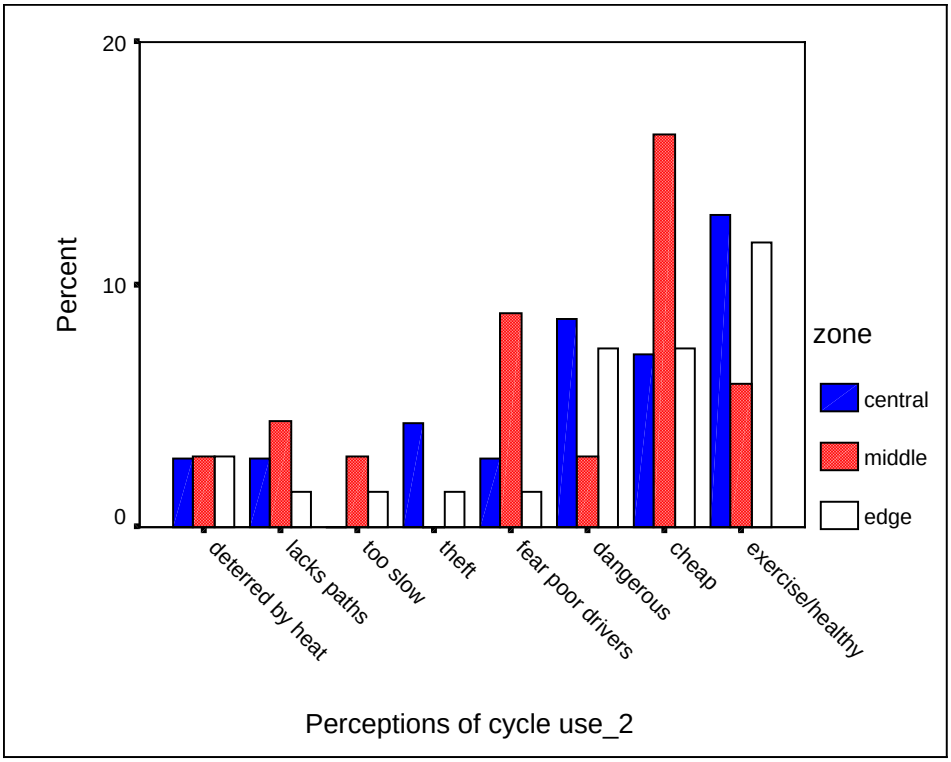
Perceptions of bus use 1

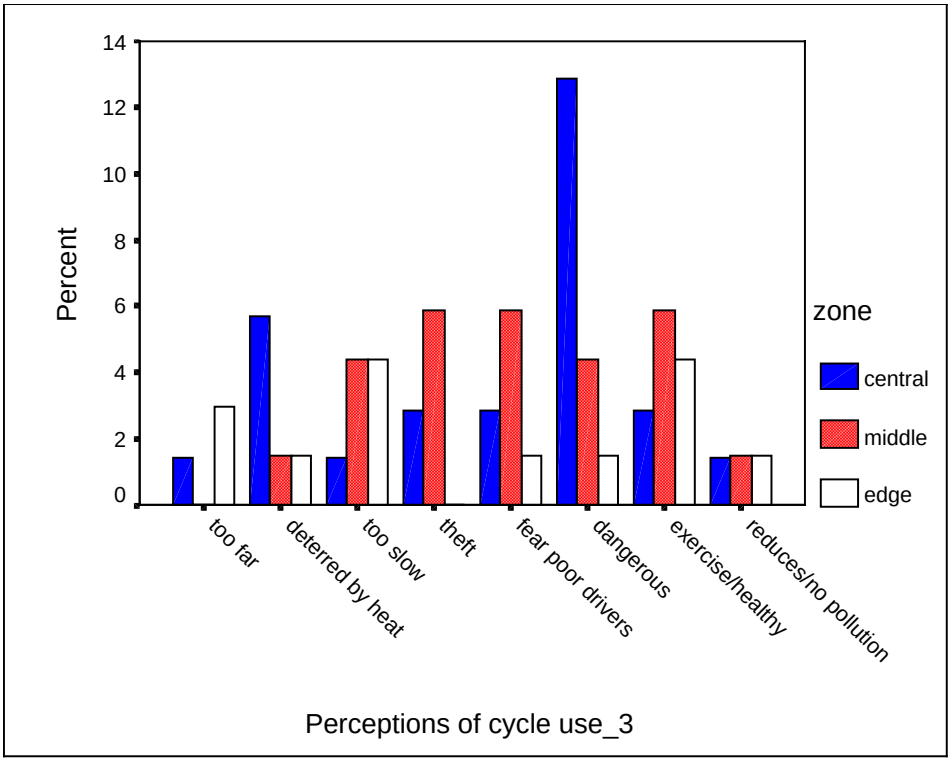

Percent
7
6
5
4
3
2
1
0
not catered for
poor access
high cost
do not support
too slow
unreliable
inconvenient
cheap
zone
central
middle
edge
Perceptions of bus use 2


Percent
3.5
3.0
2.5
2.0
1.5
1.0
.5
0.0
not catered for
high cost
infrequent
do not support
inefficient
too slow
unreliable
inconvenient
comfortable
cheap
zone
central
middle
edge
Perceptions of bus use 3

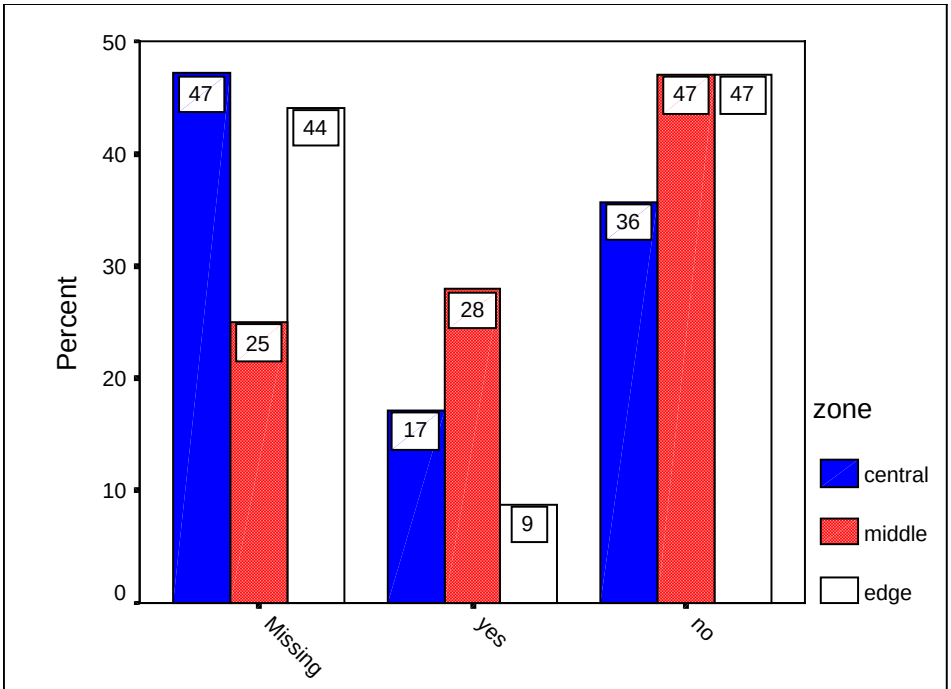
Cycle


30
20
10
0
Percent
zone
central
middle
edge
too far
deterred by heat
lacks paths
theft
fear poor drivers
dangerous
convenience
plenty of paths
cheap
exercise/healthy
Perceptions of cycle use_1


20
10
0
Percent
zone
central
middle
edge
deterred by heat
lacks paths
too slow
theft
fear poor drivers
dangerous
cheap
exercise/healthy
Perceptions of cycle use_2



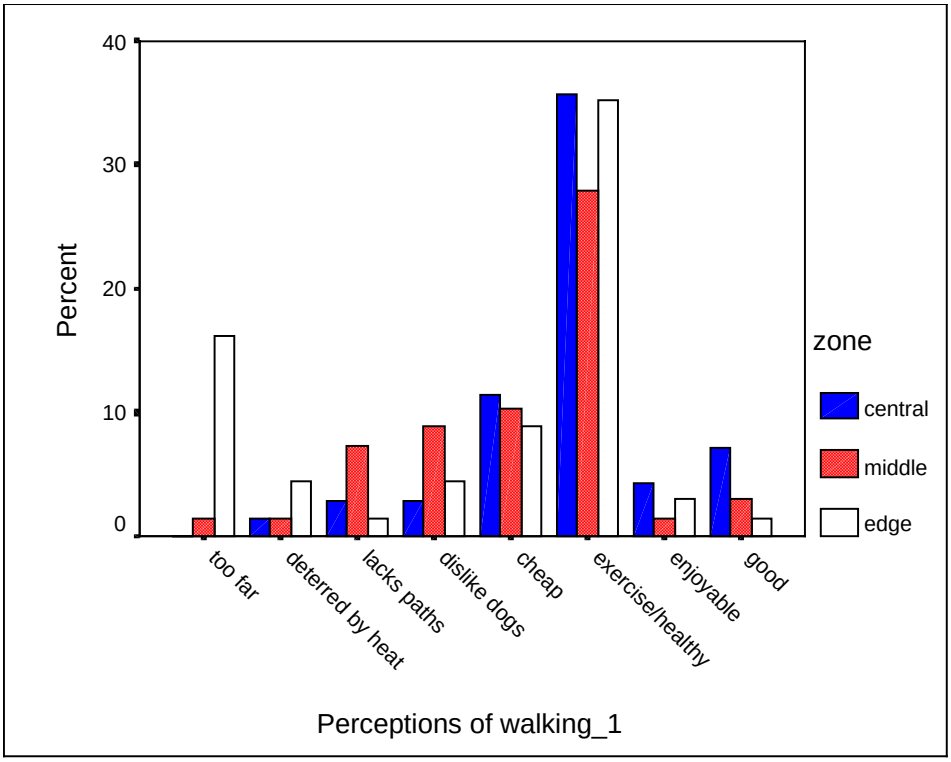
Perceptions of cycle use_3

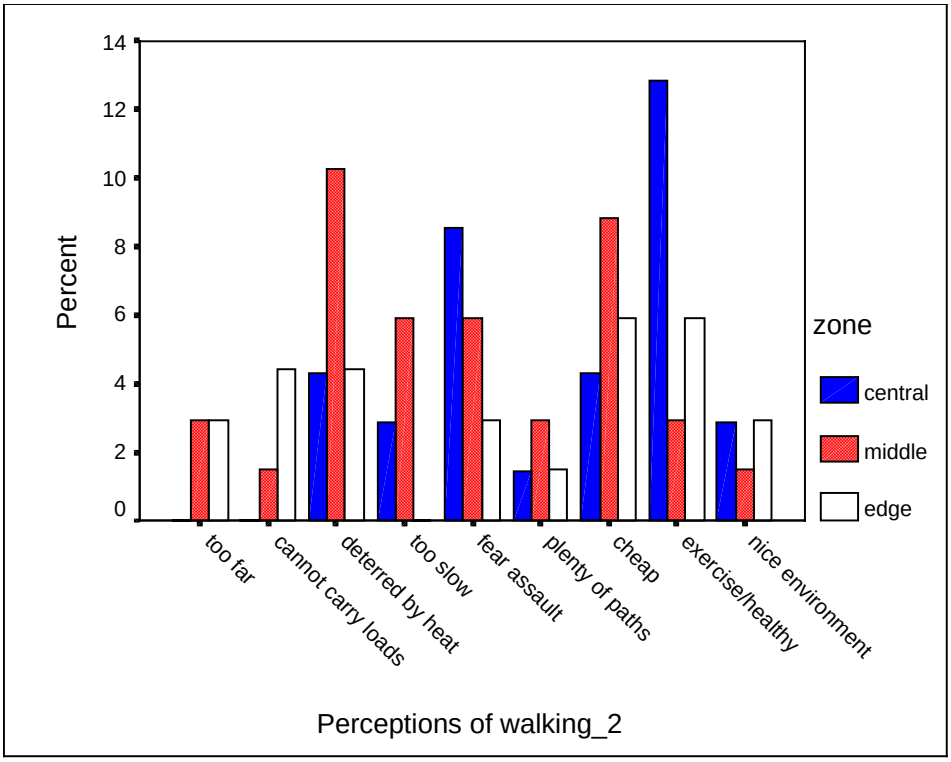


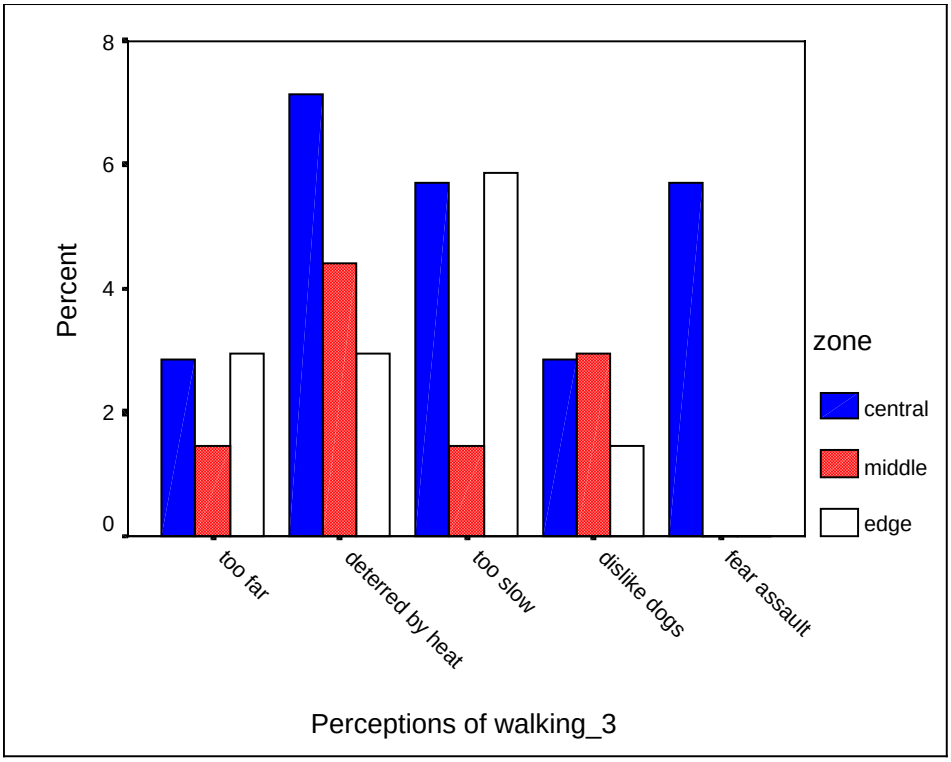
Would you use your pushbike more with storage security at a bus stop?

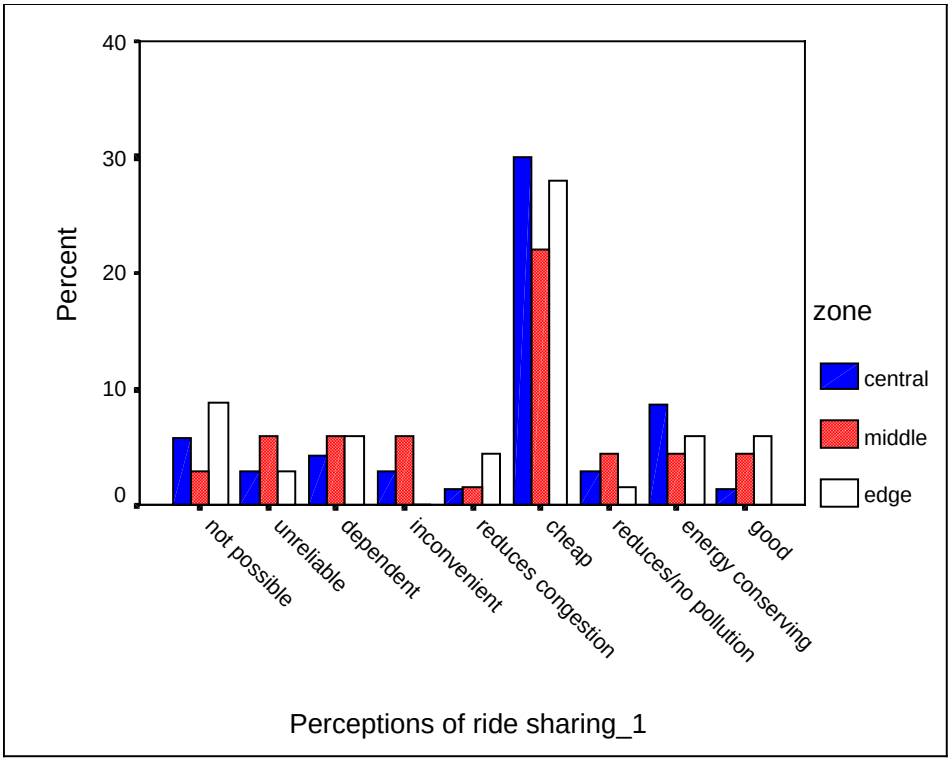
Comments on safe storage of bikes at bus stops

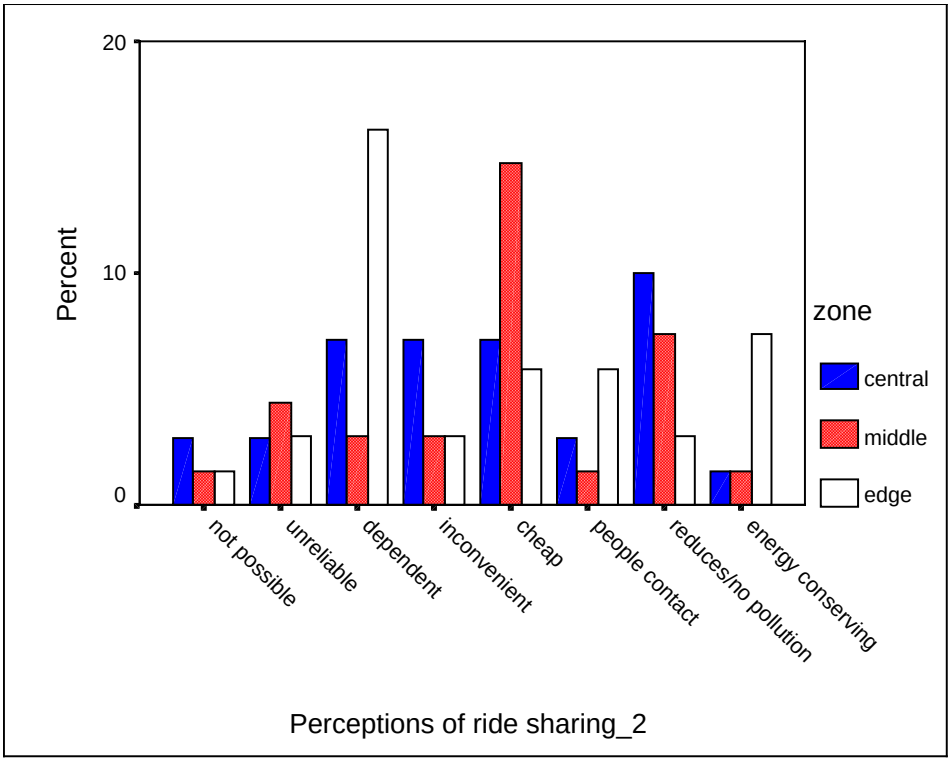
Household code	Written comment
Inner urban	
2105	I hate push bikes
2106	Small child makes bike difficult
2215	I would need to get a child seat
2217	Need car for work and loads
2218	Too slow
2219	Don't feel safe on roads
2221	No time, quicker riding.
2306	Even if security is guaranteed, it is dangerous and getting worse
Mid urban	
2512	Would ride to work
2513	Don't use bus any more
2514	Never happen
2602	Theft
2603	Too hard with kids
2615	Helments optional for adults
Outer urban	
2705	Security?
2712	Would not be there when return
2805	Theft anyway
2806	Not practical
2807	Too far out
2814	There is no bus service
2818	Too old
2819	No bus service
2906	Get stolen
2913	Wouldn't use a bus
2914	Bus doesn't go to work
2925	I ride to work


Percent
40
30
20
10
0
too far
deterred by heat
lacks paths
dislike dogs
cheap
exercise/healthy
enjoyable
good
zone
central
middle
edge
Perceptions of walking_1

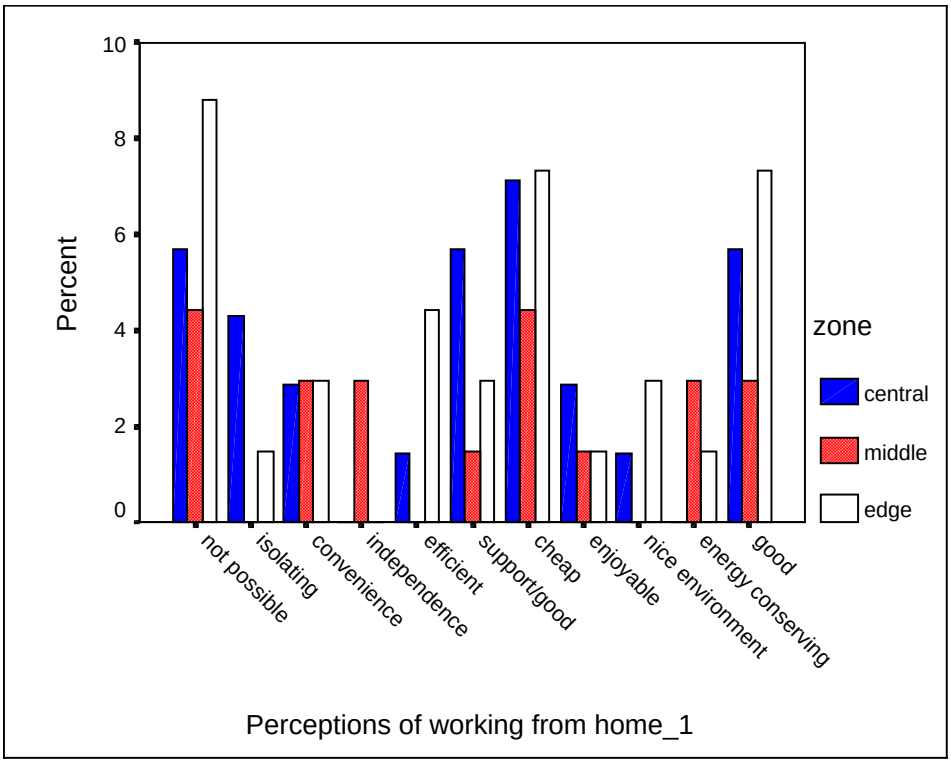

Percent
14
12
10
8
6
4
2
0
too far
cannot carry loads
deterred by heat
too slow
fear assault
plenty of paths
cheap
exercise/healthy
nice environment
zone
central
middle
edge
Perceptions of walking_2


Percent
8
6
4
2
0
too far
deterred by heat
too slow
dislike dogs
fear assault
zone
central
middle
edge
Perceptions of walking_3

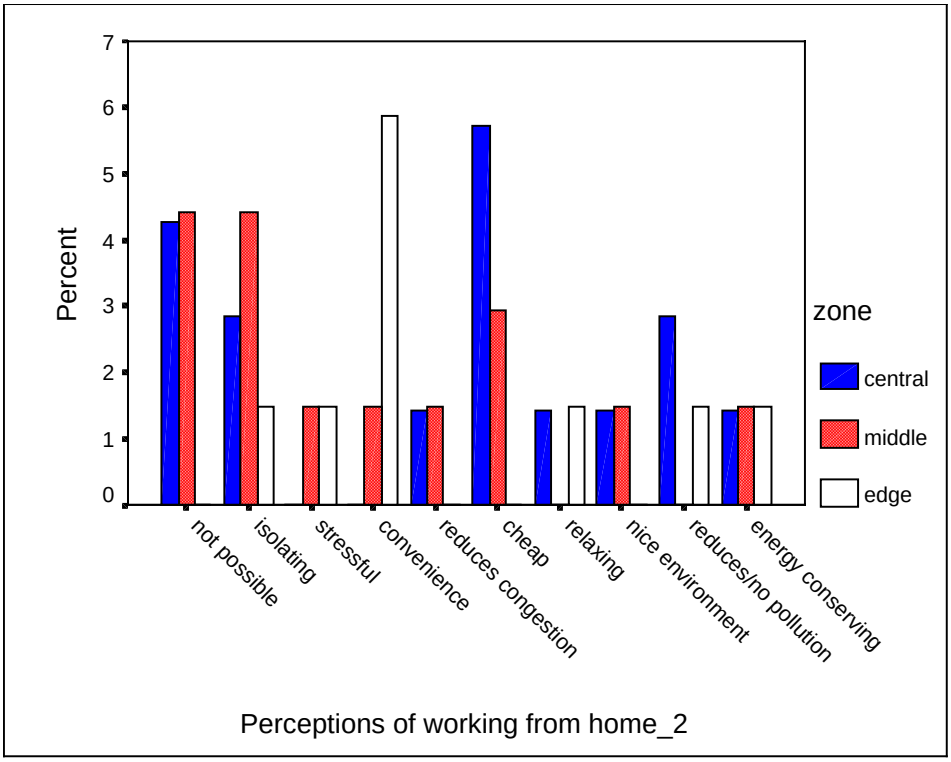

Percent
40
30
20
10
0
not possible
unreliable
dependent
inconvenient
reduces congestion
cheap
reduces/no pollution
energy conserving
good
zone
central
middle
edge
Perceptions of ride sharing_1



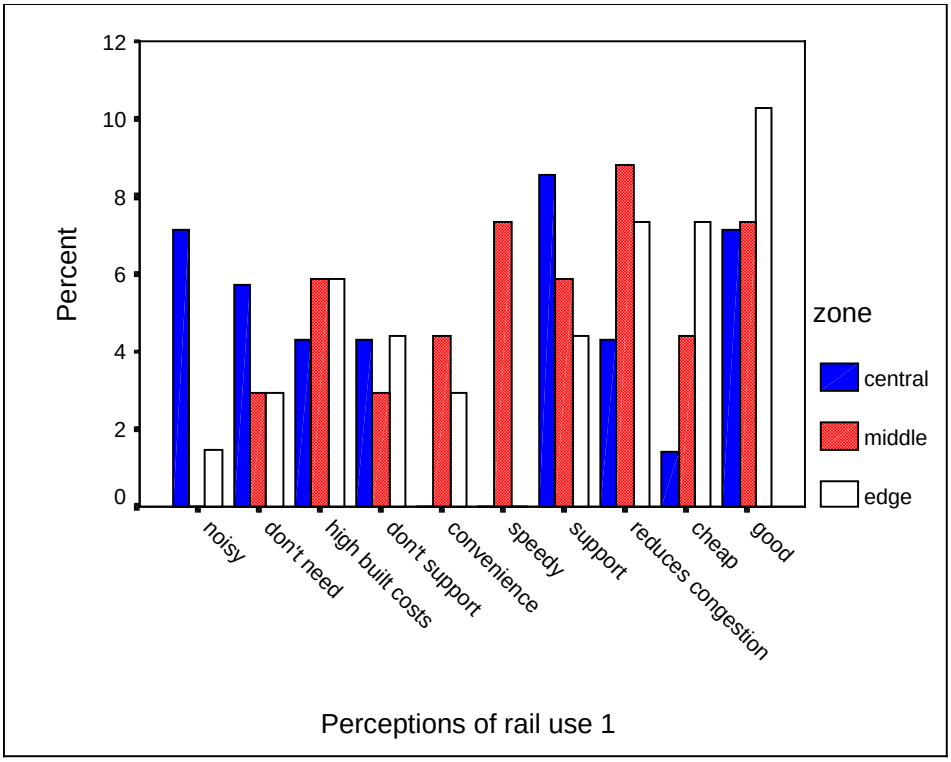
Perceptions of ride sharing_2



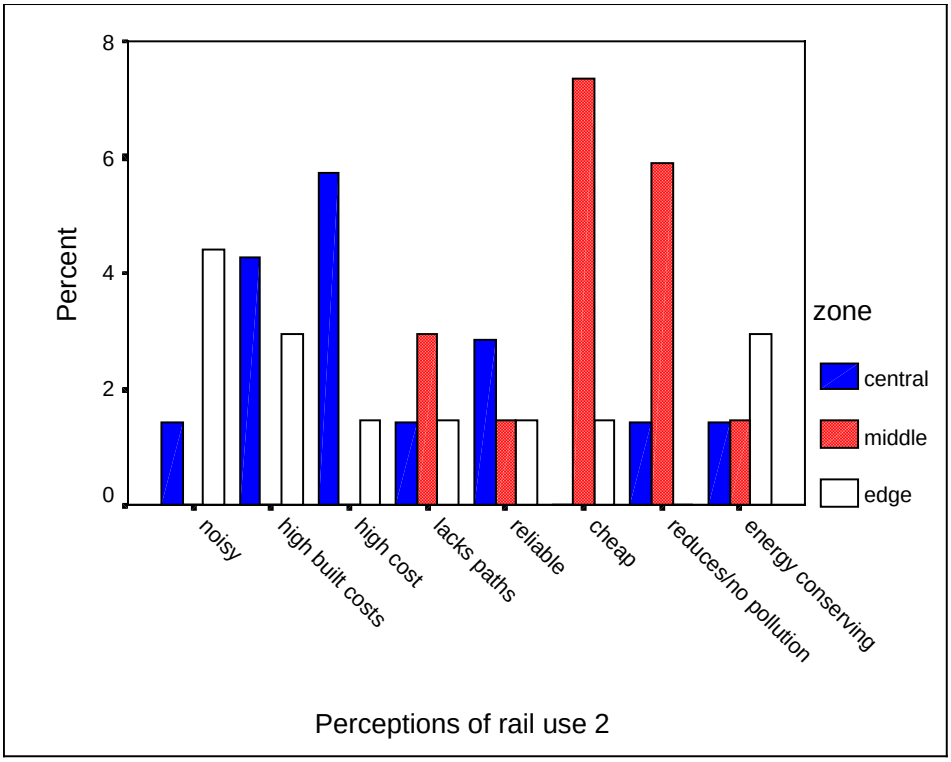
Perceptions of working from home_1



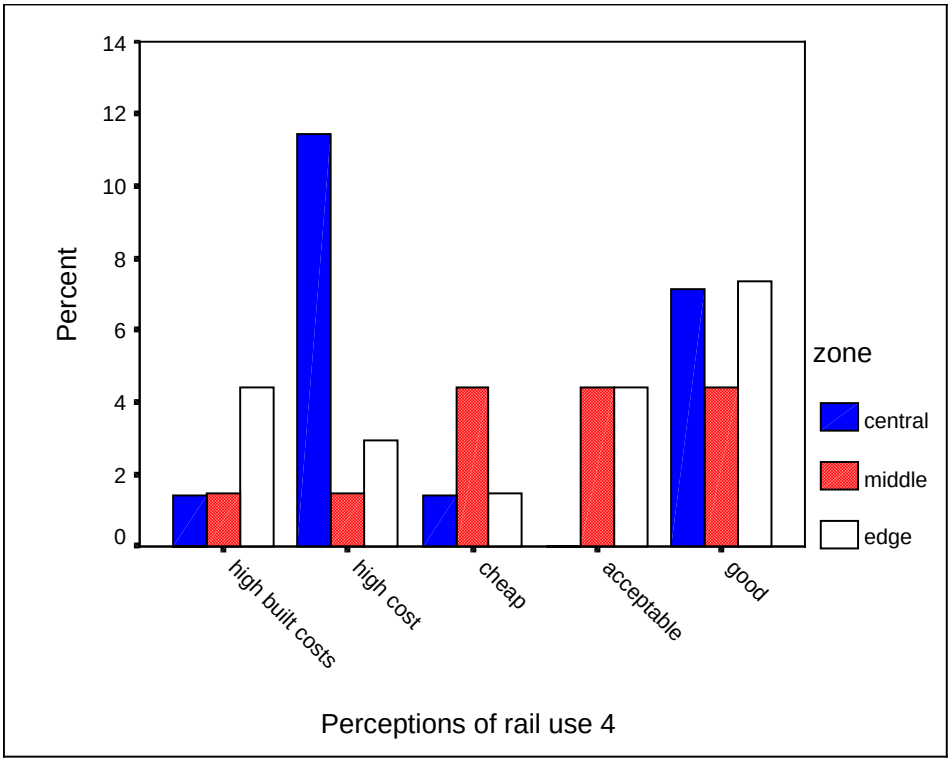
Perceptions of working from home_2



Perceptions of rail use 1



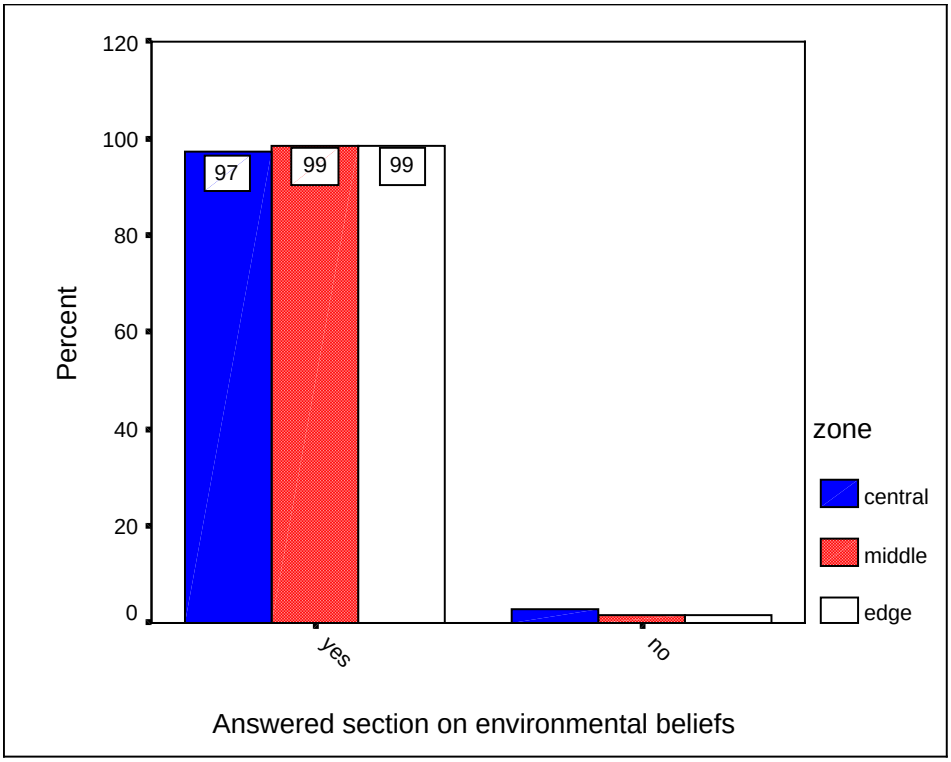
The third group of perceptions has been omitted because there were only 19 entries, however, the fourth group, toward the end of the questionnaire, is included below.

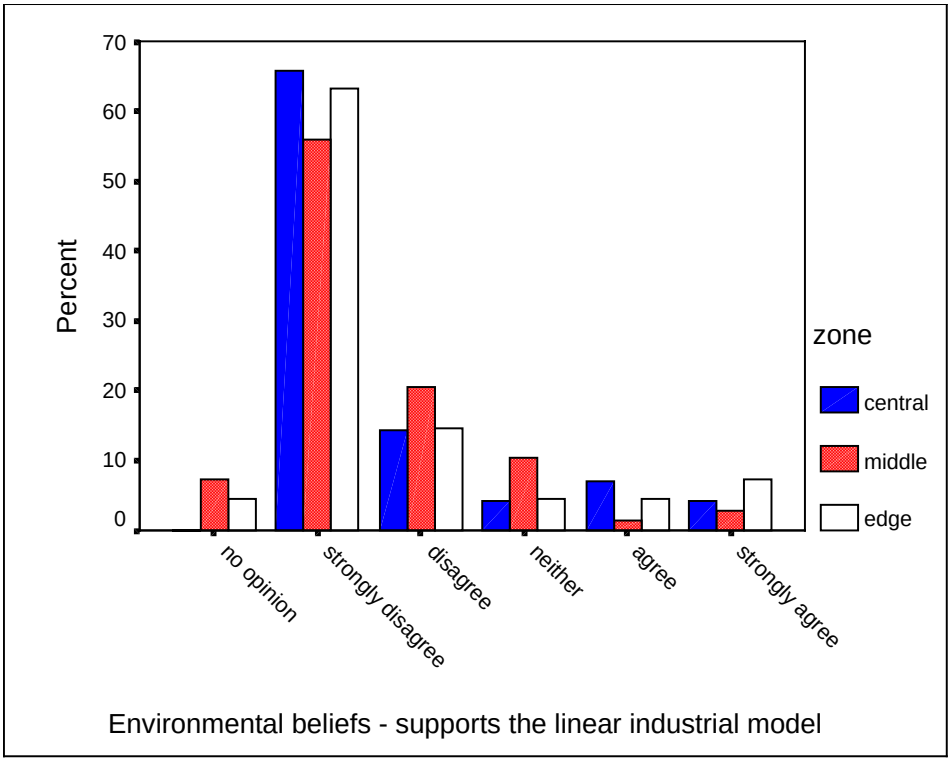


B13. Comments about special needs groups, such as people in wheelchairs:

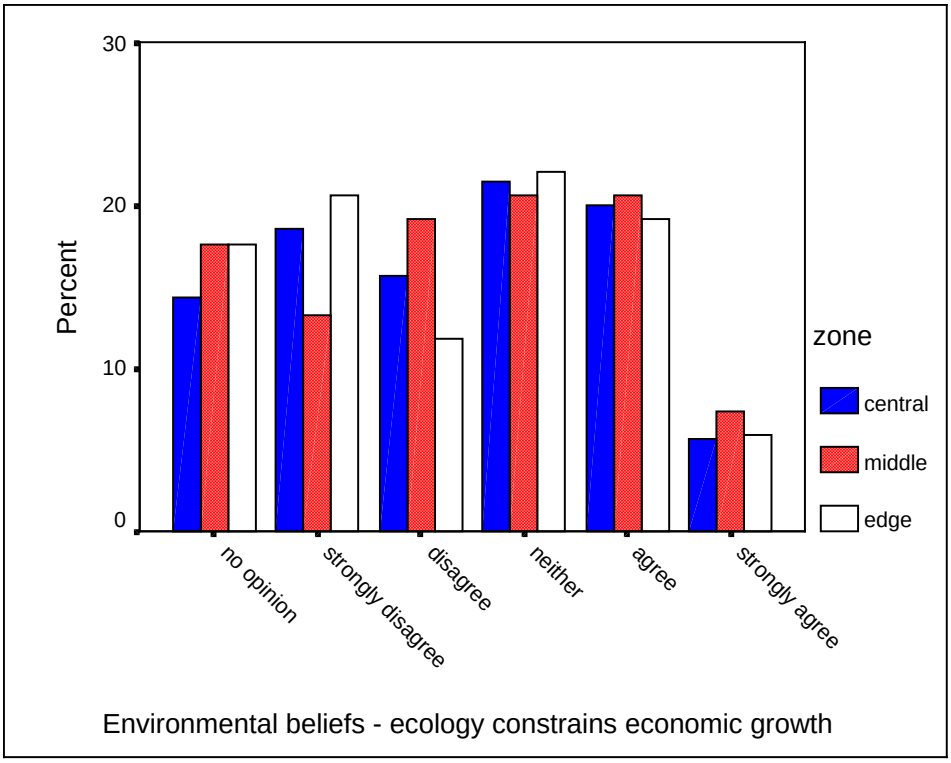
Household	Comments about urban mobility for disabled
2105	should be catered for
2107	poor access/no facilities
2114	local taxis good
2115	more curb ramps
2117	special built bus for outings
2119	There are many ramps.
2207	good bikeways for wheelchair use too.
2208	getting better, but needs work
2210	no access on transport for disabled
2213	more ramp access
2216	need special buses
2219	help keep cool
2223	cross overs and public toilet access. Improve general access.
2304	equal access to public transport
2306	currently inadequate
2308	better building access
2312	better parking at shops
2318	seats and hand-rails in supermarkets for elderly
2320	pavers in mall no good. Need more footpaths
2322	too much emphasis on disabled
2323	mentally ill need courtesy from bus and taxi drivers.
2402	use specialised taxis
2404	there are improvements to to footpaths and access
2411	make things easier for wheelchairs
2502	better access
2504	assist in all ways
2505	need special transport for groups
2506	mall good, shopping centres awful
2514	provide access
2527	make better at shops
2603	trams could cater
2606	more parking, policing and ramps
2607	need more public phones
2609	police parking
2611	gentle ramps, crossovers needed
2613	need more
2614	police and penalise parking
2615	only wheelchair users catered for
2622	need footpaths and gutter ramps
2626	ramps to all business, clear smooth foot paths
2628	special buses
2704	police parking spots
2706	catered for by taxis
2707	need more facilities

2708	shocking
2711	more consideration, especially on Ferry.
2714	they need cars surely
2718	need transport
2801	should be well provided for
2805	better services in town
2807	make travel convenient
2808	could improve
2810	provide fully
2819	buses not good, taxis good
2821	honest use of wheelchair parking
2901	councils don't seem to know wheelchairs exist
2903	more facilities in shopping centres and public places
2904	better planning, access to all public transport
2905	served by taxis
2907	accessable buttons at pedestrian crossings
2911	more car parks and consideration
2912	cater to needs as civic plasnning

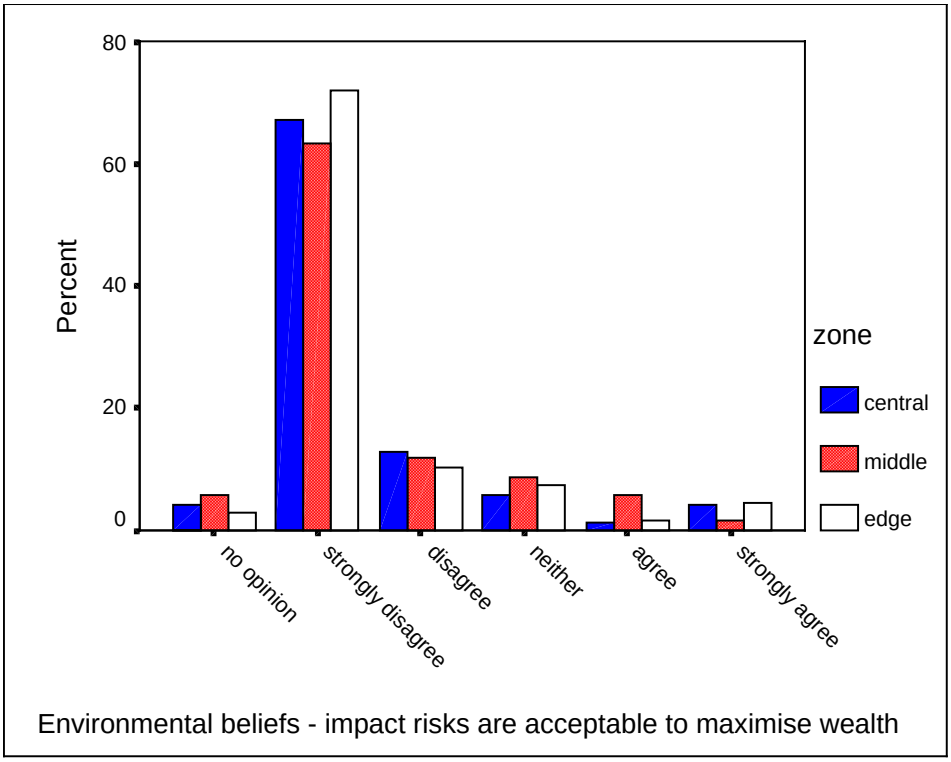




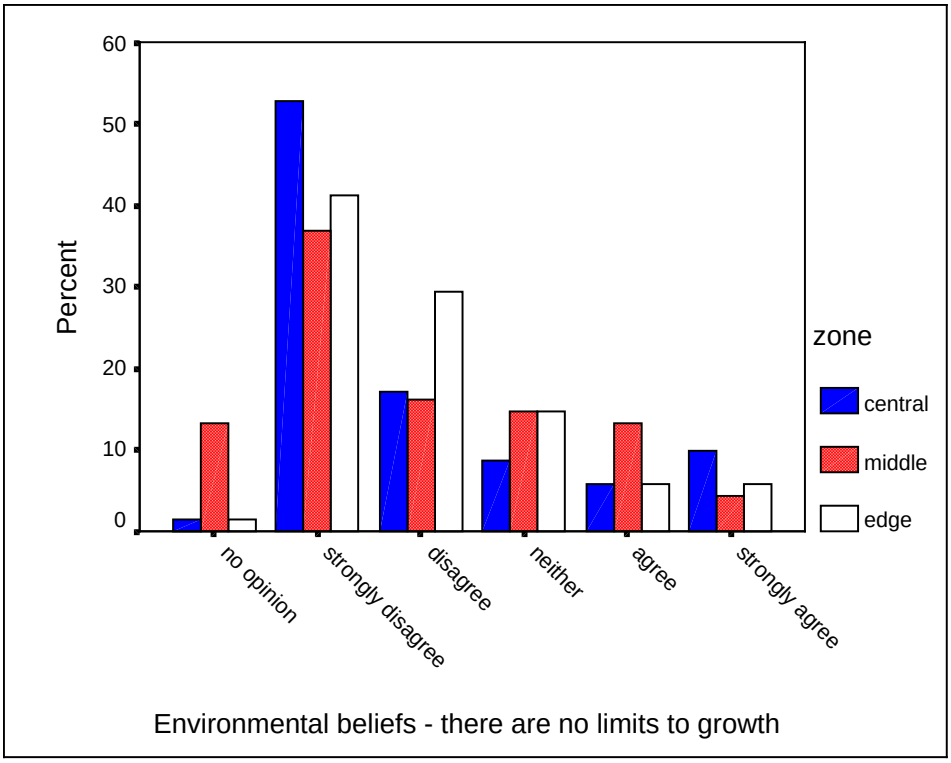
Environmental beliefs - supports the linear industrial model



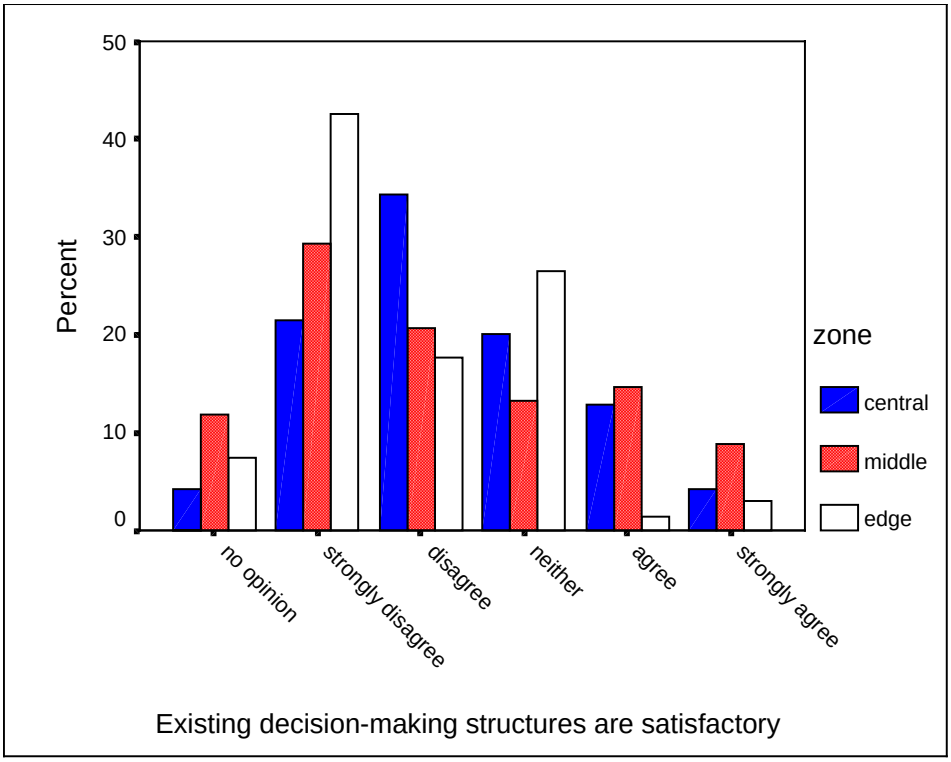
Environmental beliefs - ecology constrains economic growth



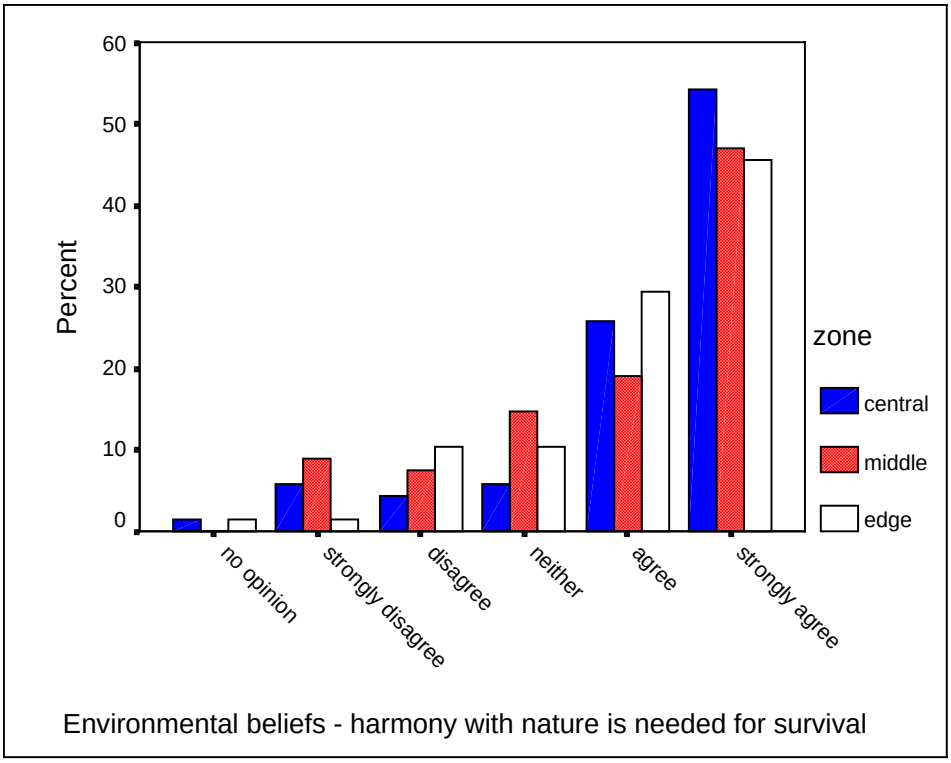
Environmental beliefs - impact risks are acceptable to maximise wealth



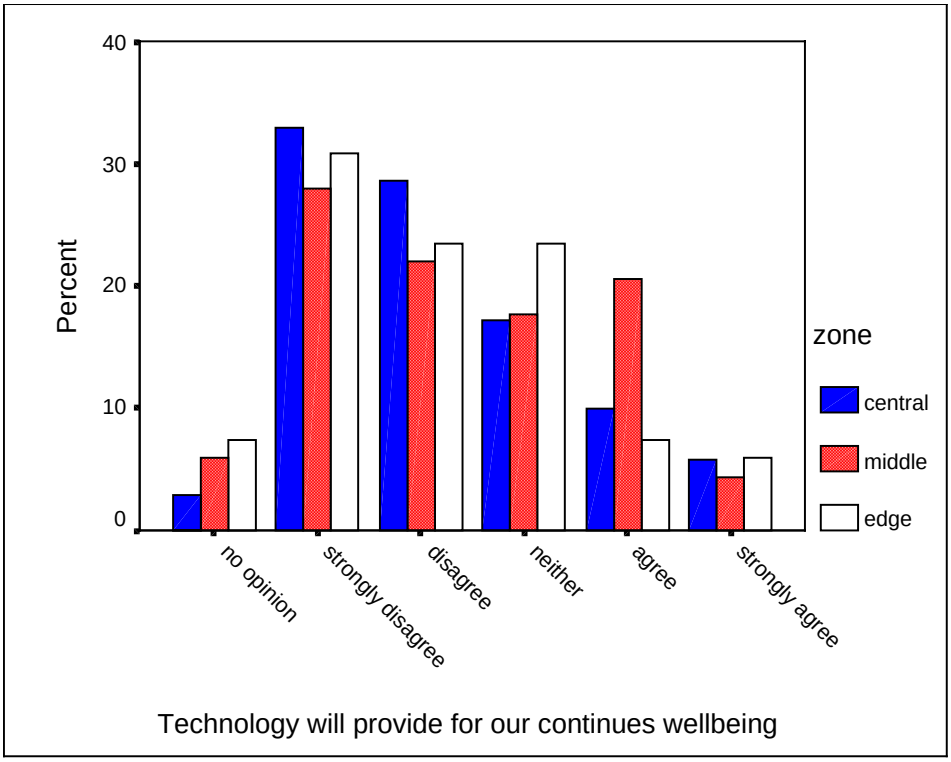
Environmental beliefs - there are no limits to growth



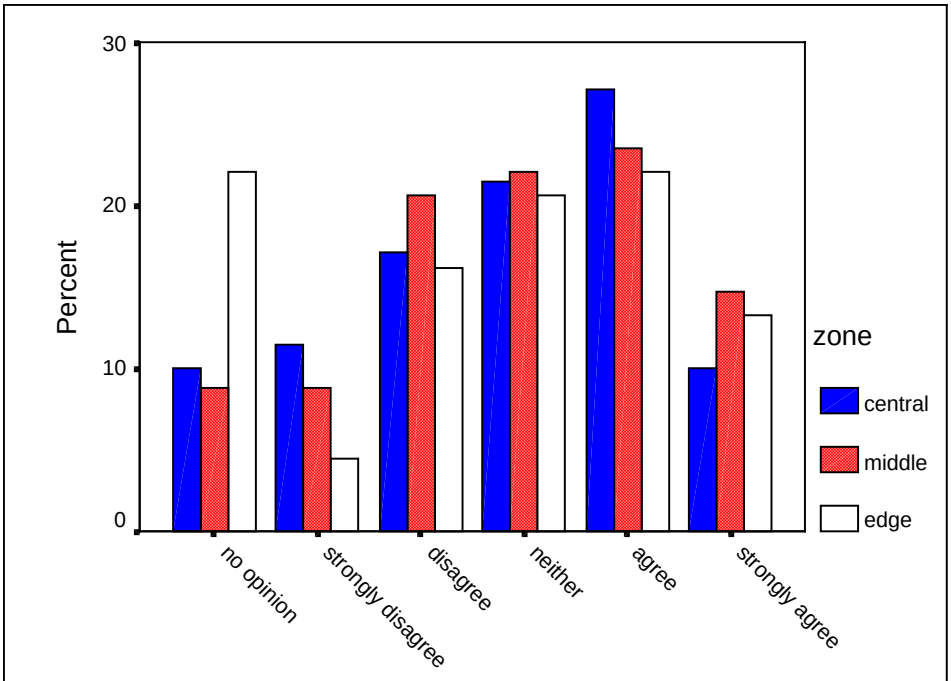
Existing decision-making structures are satisfactory



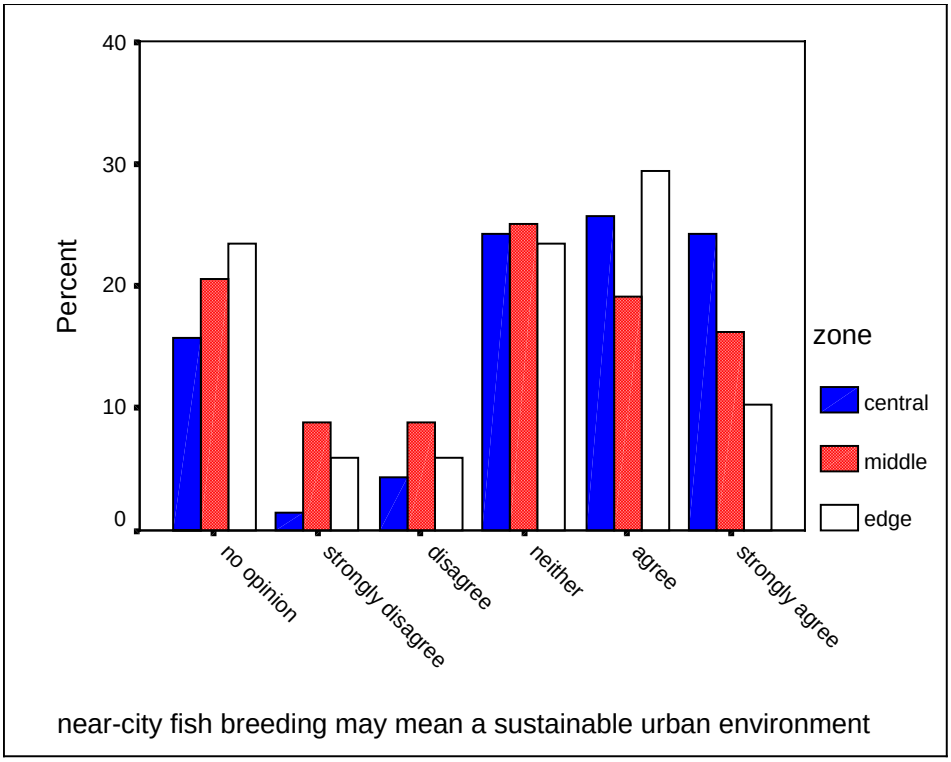
Environmental beliefs - harmony with nature is needed for survival



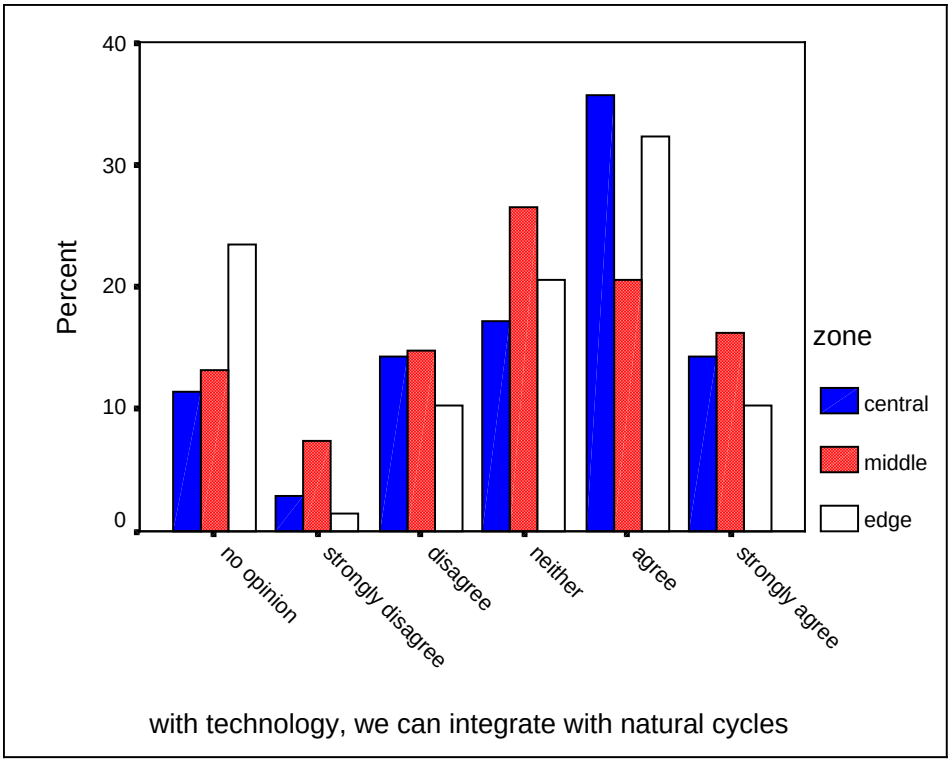
Technology will provide for our continues wellbeing



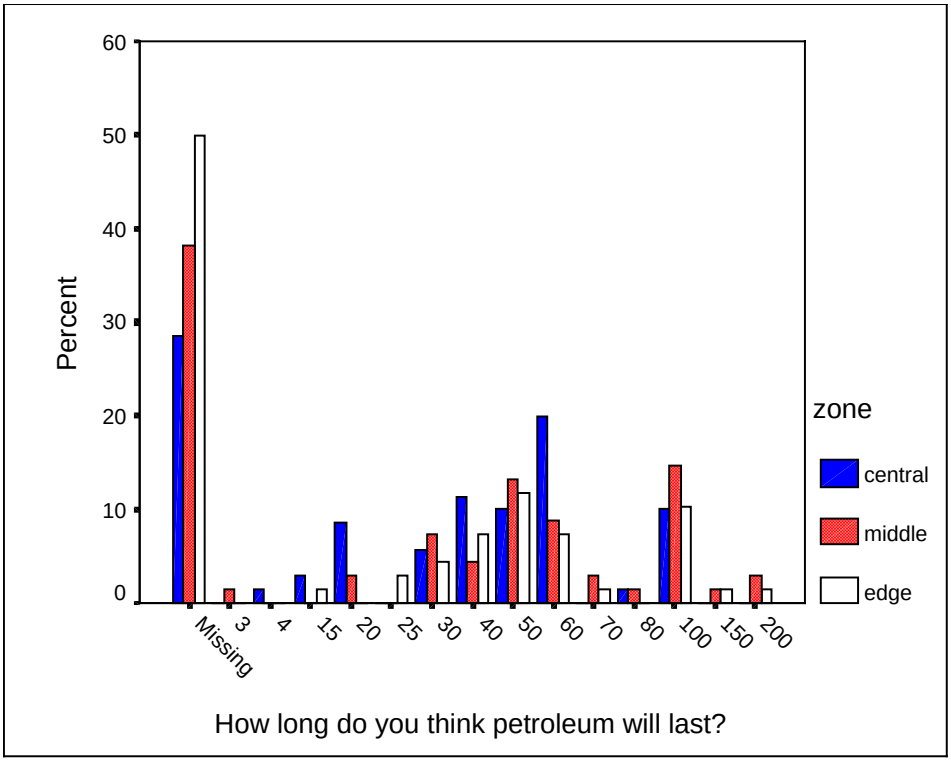
Environmental beliefs - new fuels will support unconstrained vehicle use



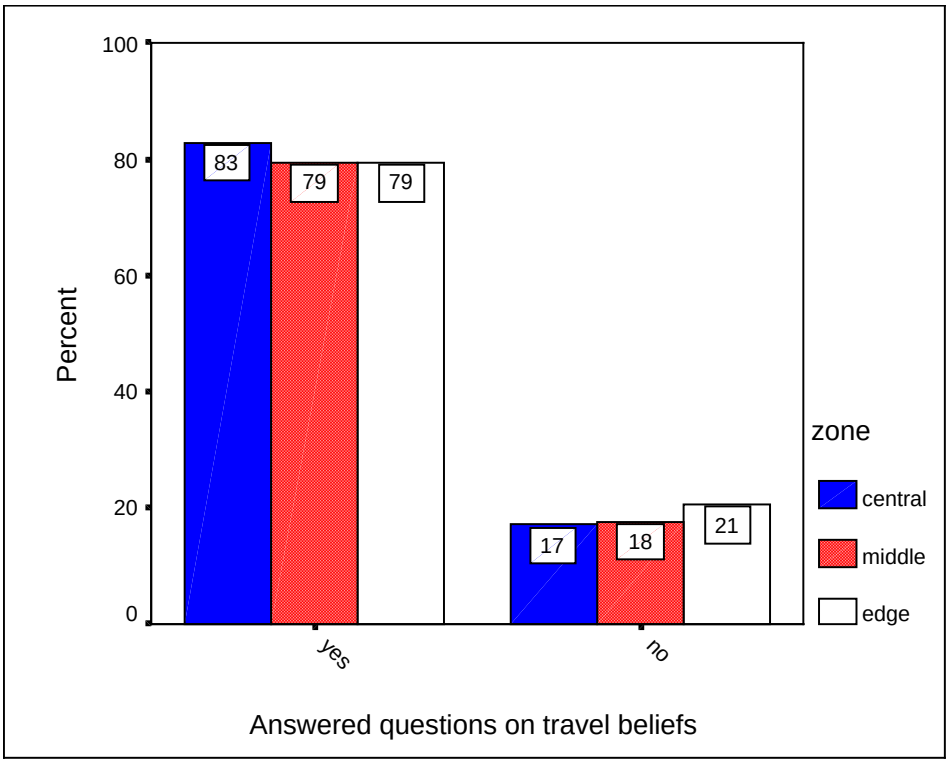
near-city fish breeding may mean a sustainable urban environment



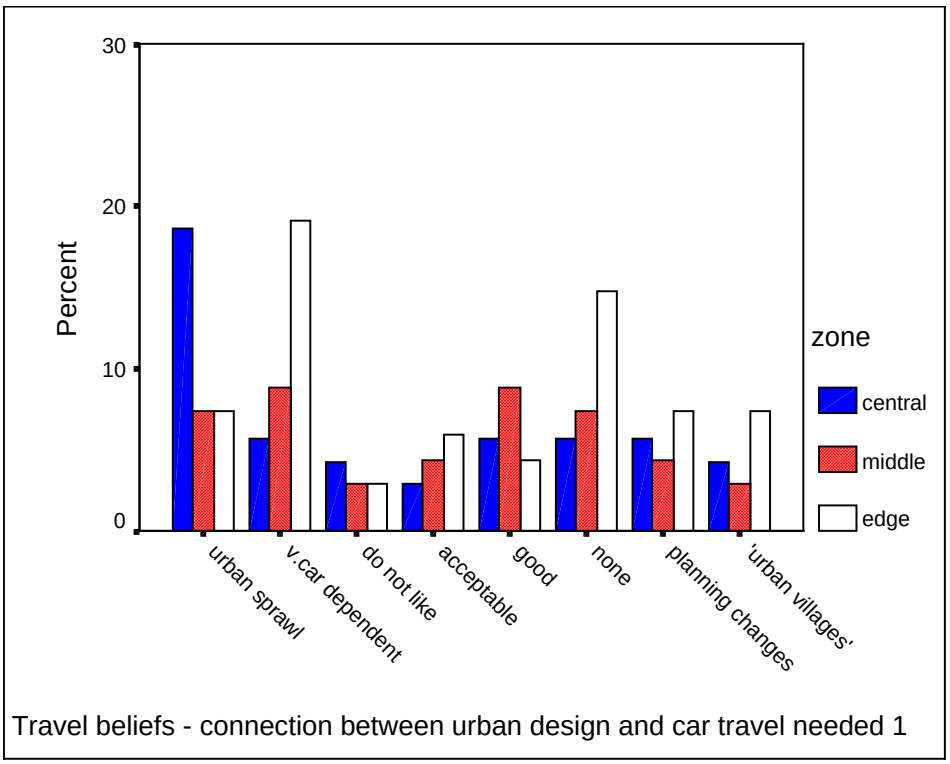
with technology, we can integrate with natural cycles


Percent
60
50
40
30
20
10
0
Missing
3
4
15
20
25
30
40
50
60
70
80
100
150
200
zone
central
middle
edge
How long do you think petroleum will last?

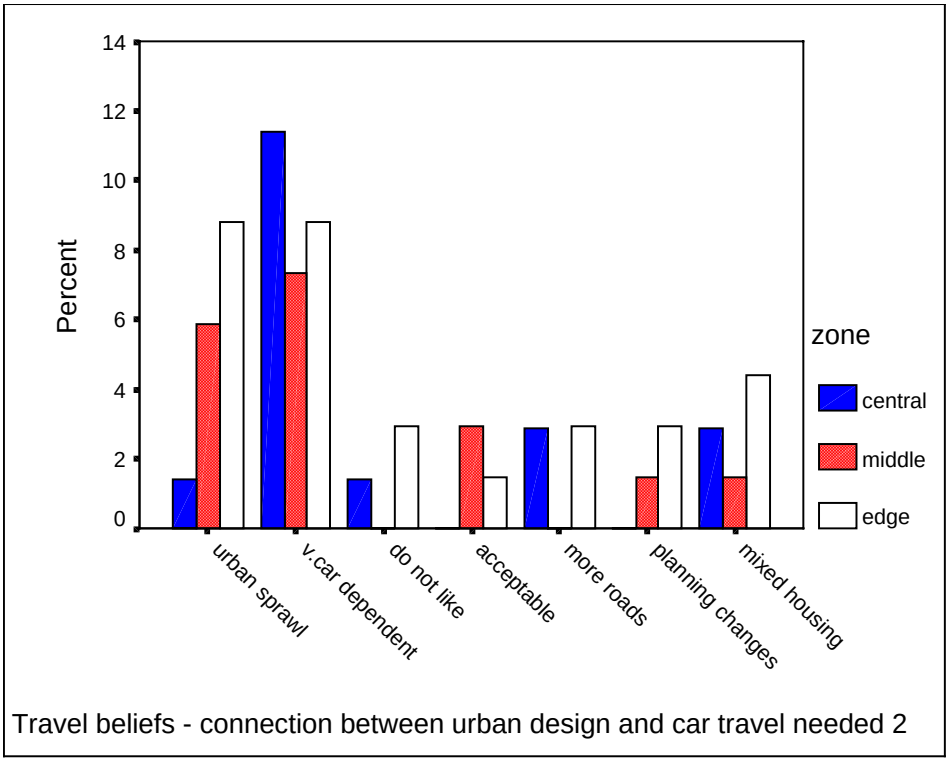
Appendix 14
Townsville attitude, demography and travel charts



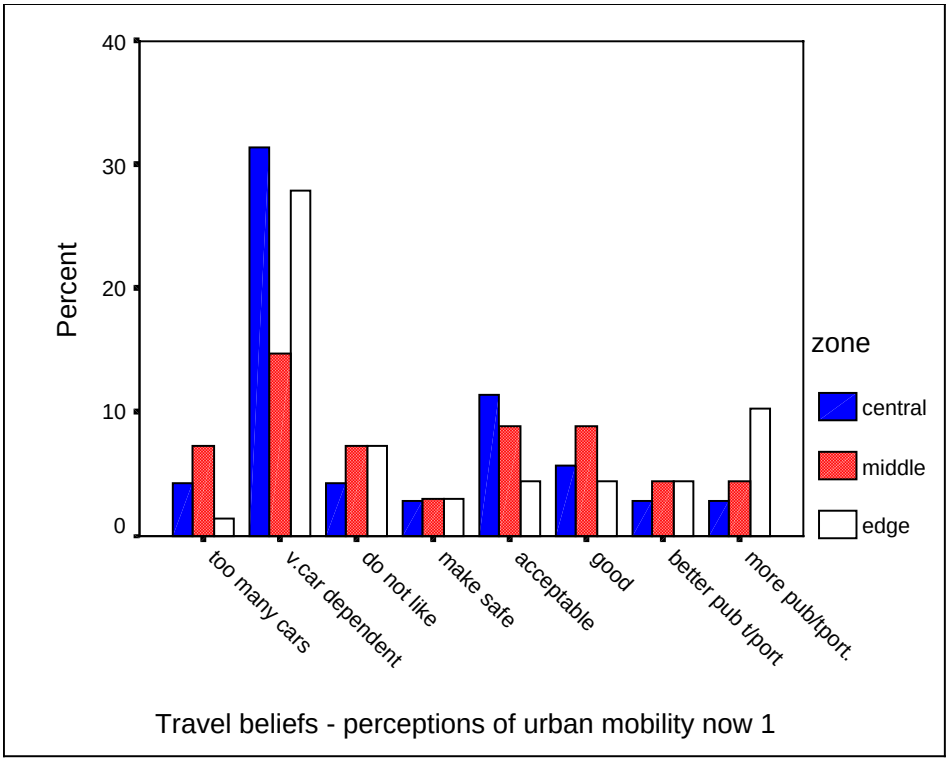
Answered questions on travel beliefs



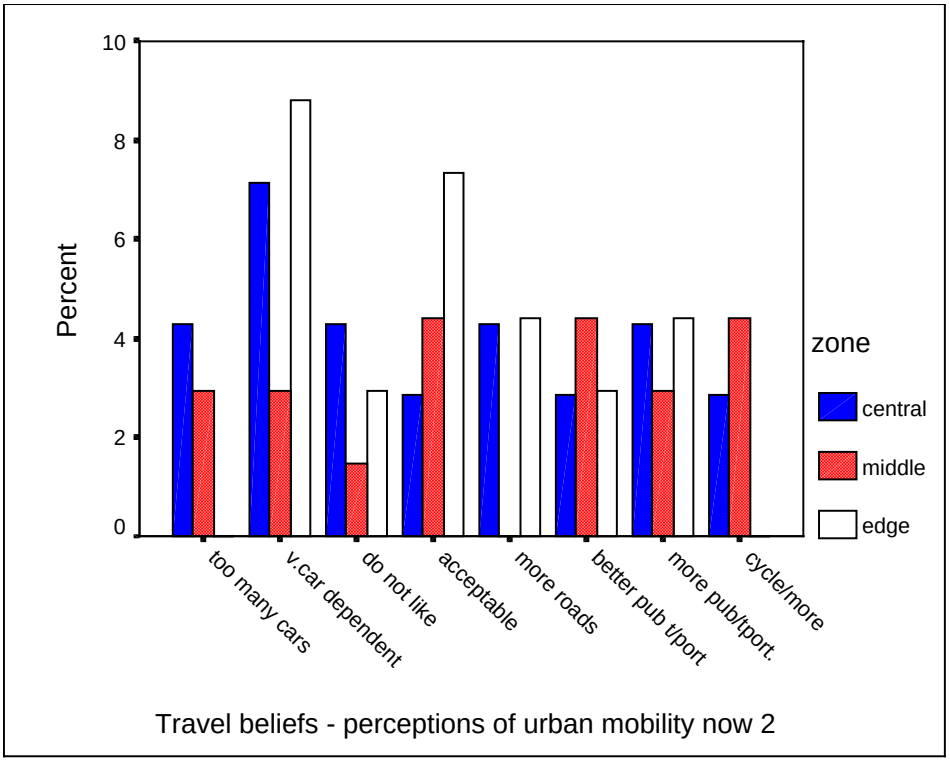
Travel beliefs - connection between urban design and car travel needed 1



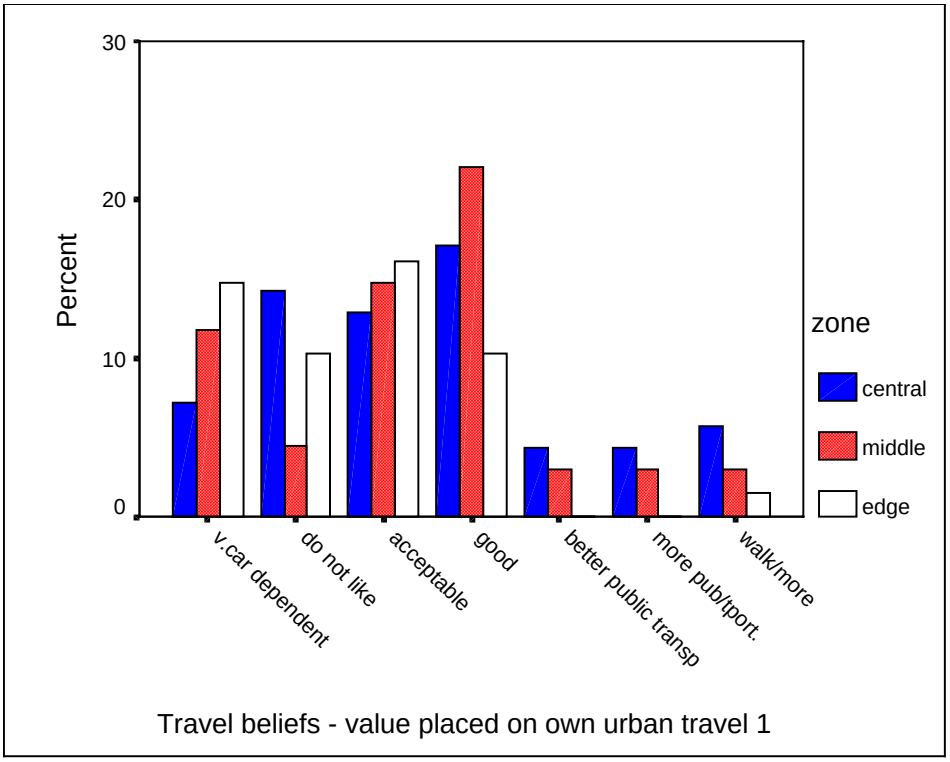
Travel beliefs - connection between urban design and car travel needed 2



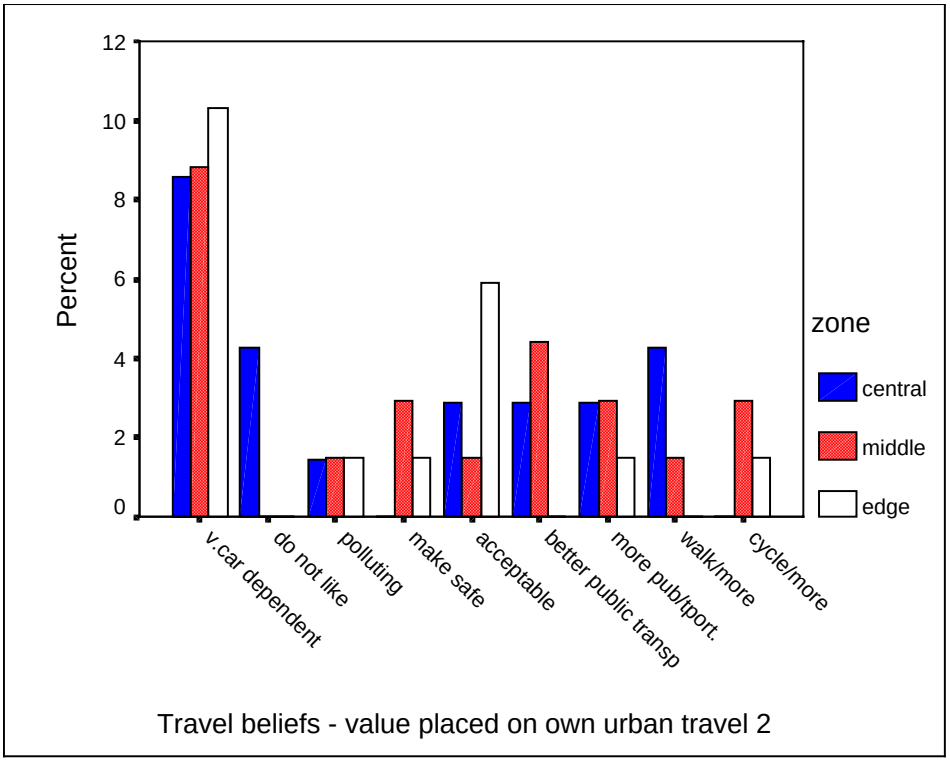
Travel beliefs - perceptions of urban mobility now 1



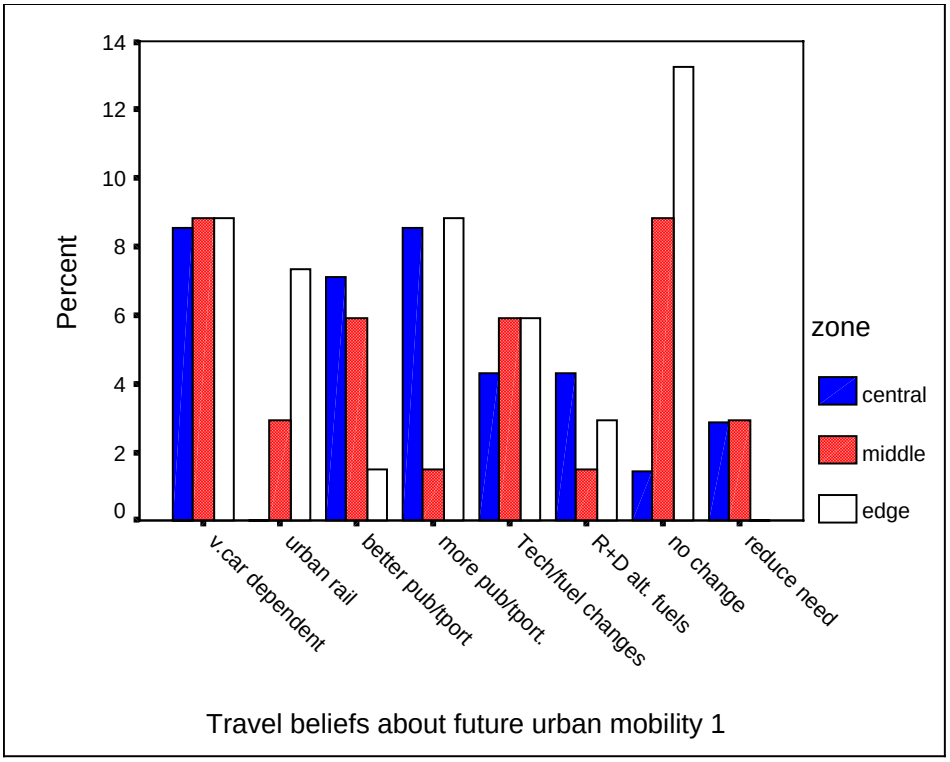
Travel beliefs - perceptions of urban mobility now 2



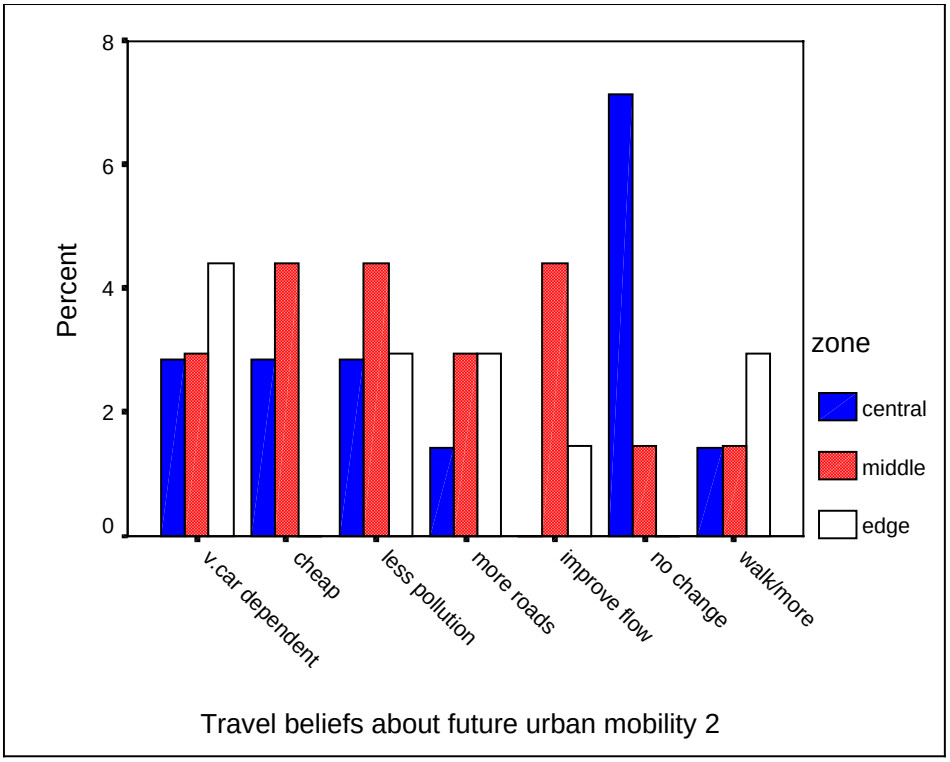
Travel beliefs - value placed on own urban travel 1



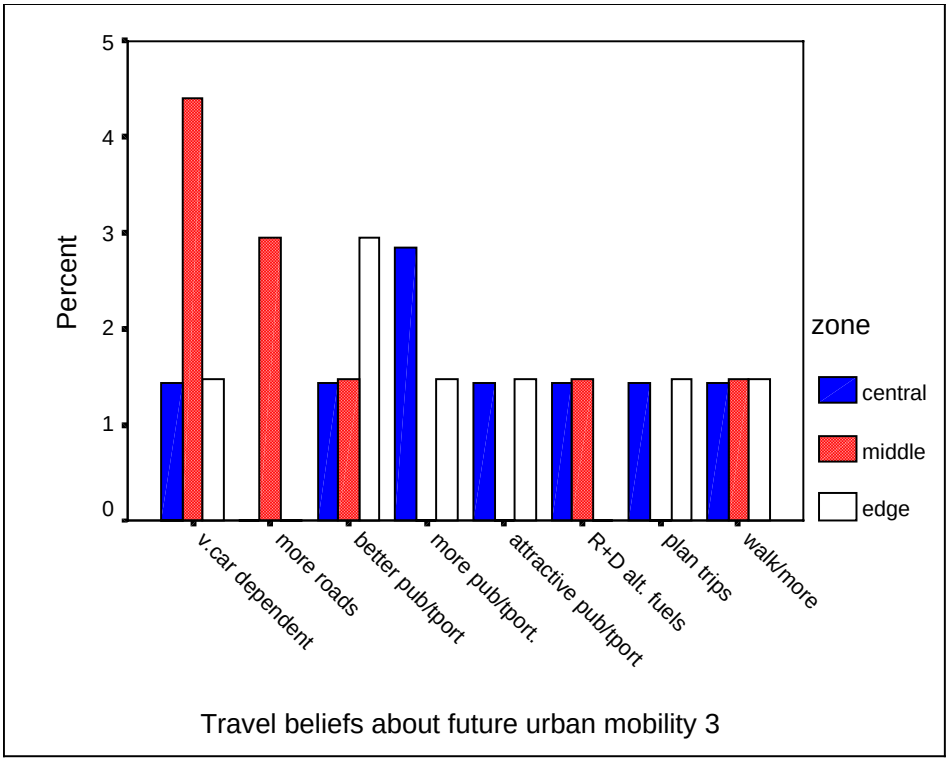
Travel beliefs - value placed on own urban travel 2



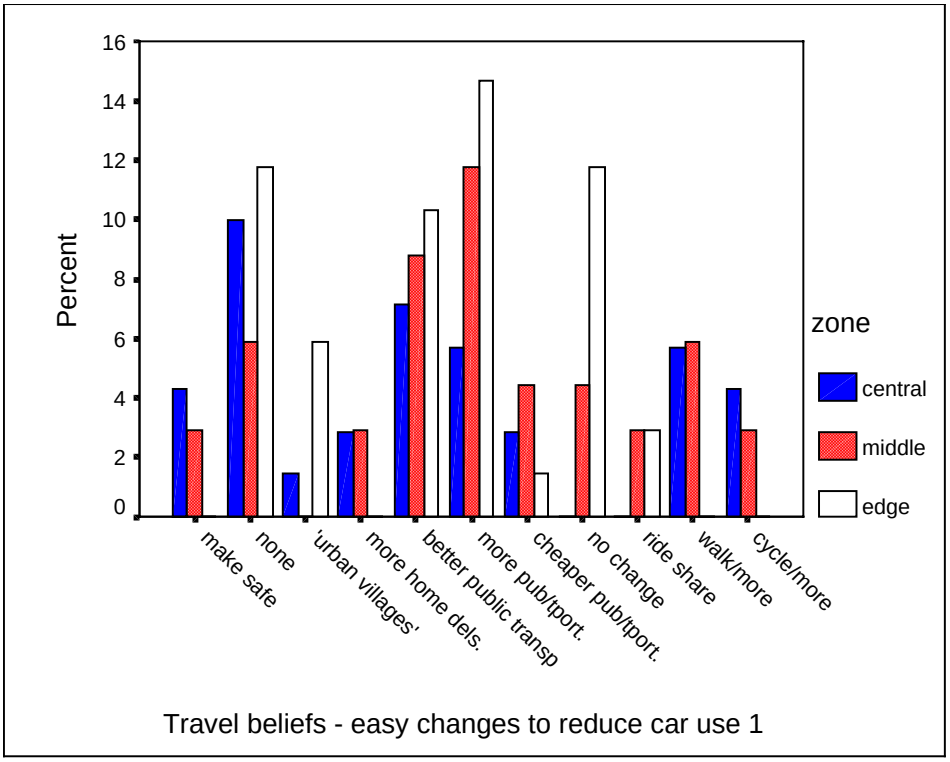
Travel beliefs about future urban mobility 1



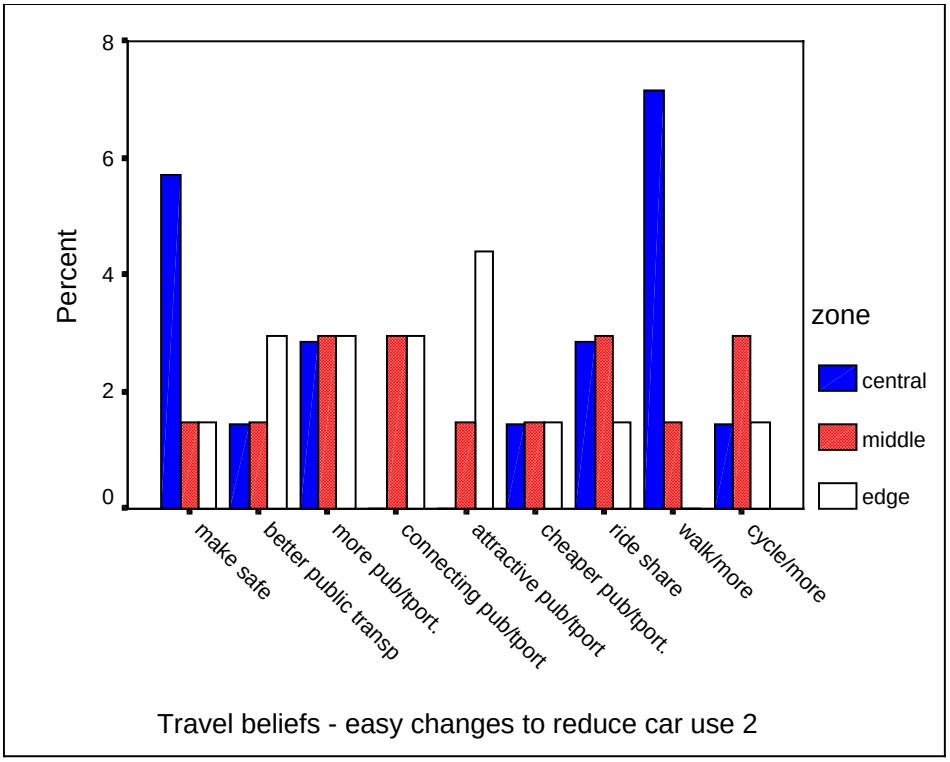
Travel beliefs about future urban mobility 2



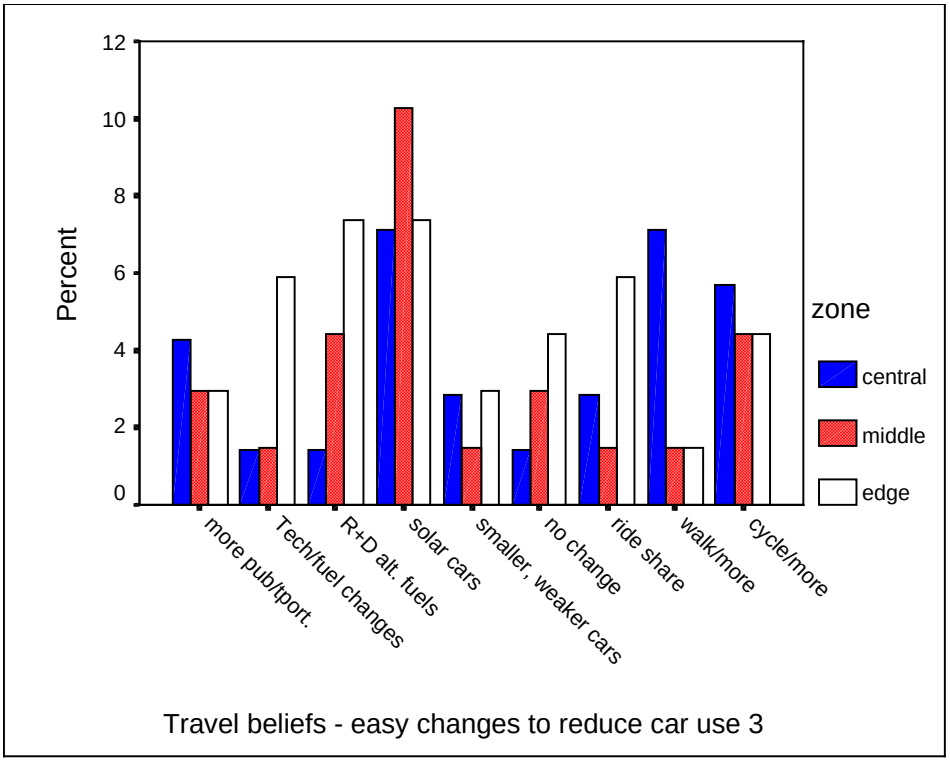
Travel beliefs about future urban mobility 3



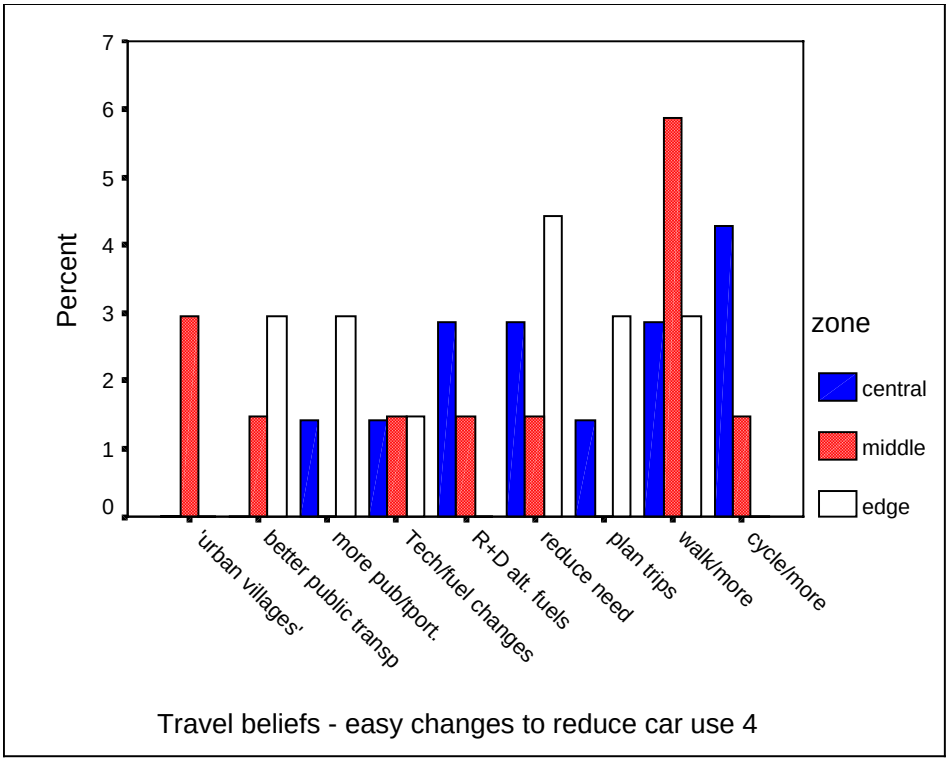
Travel beliefs - easy changes to reduce car use 1



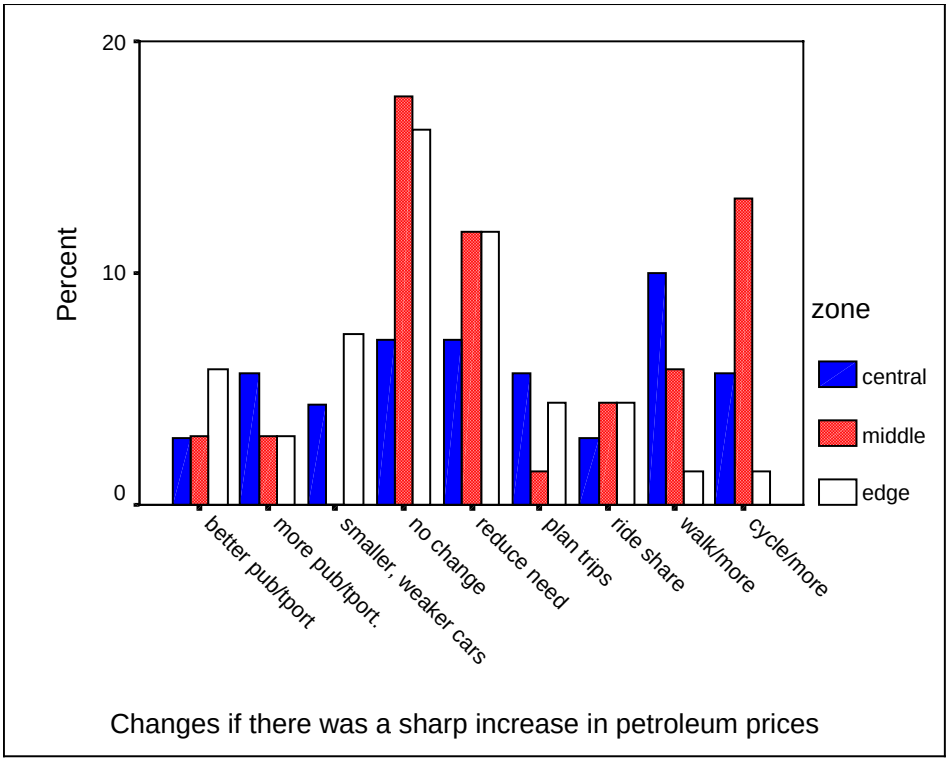
Travel beliefs - easy changes to reduce car use 2



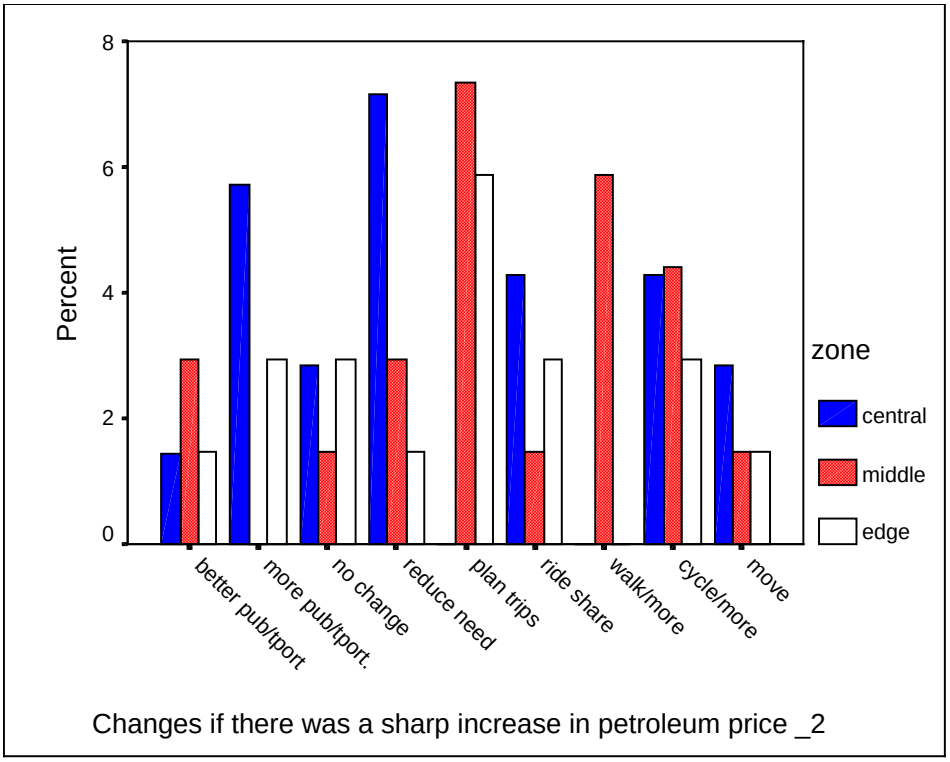
Travel beliefs - easy changes to reduce car use 3



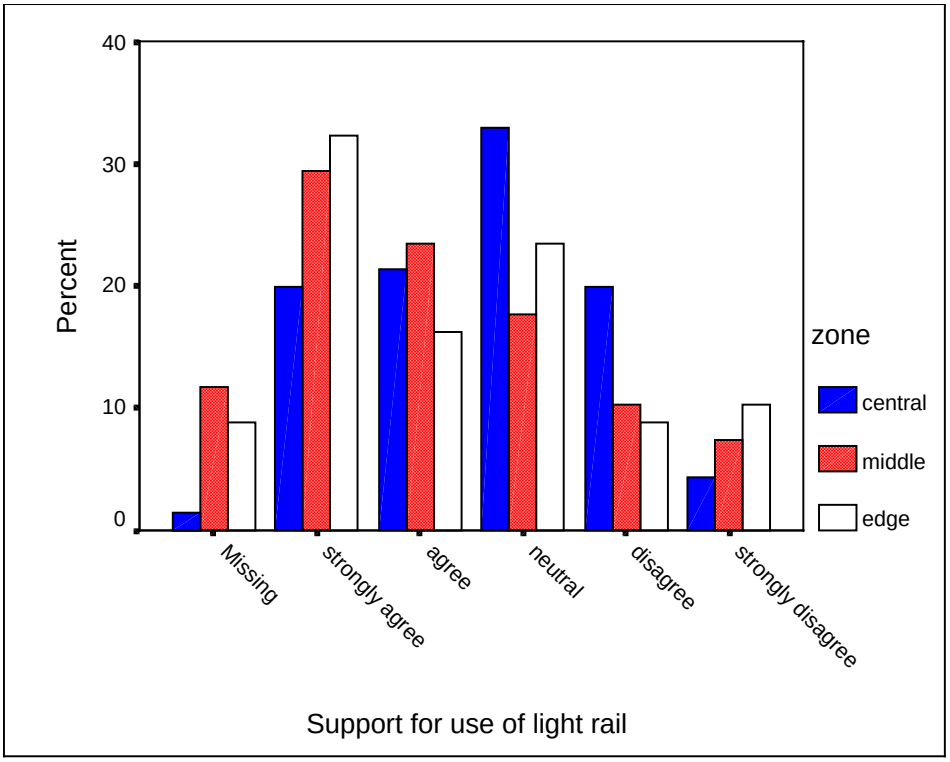
Travel beliefs - easy changes to reduce car use 4



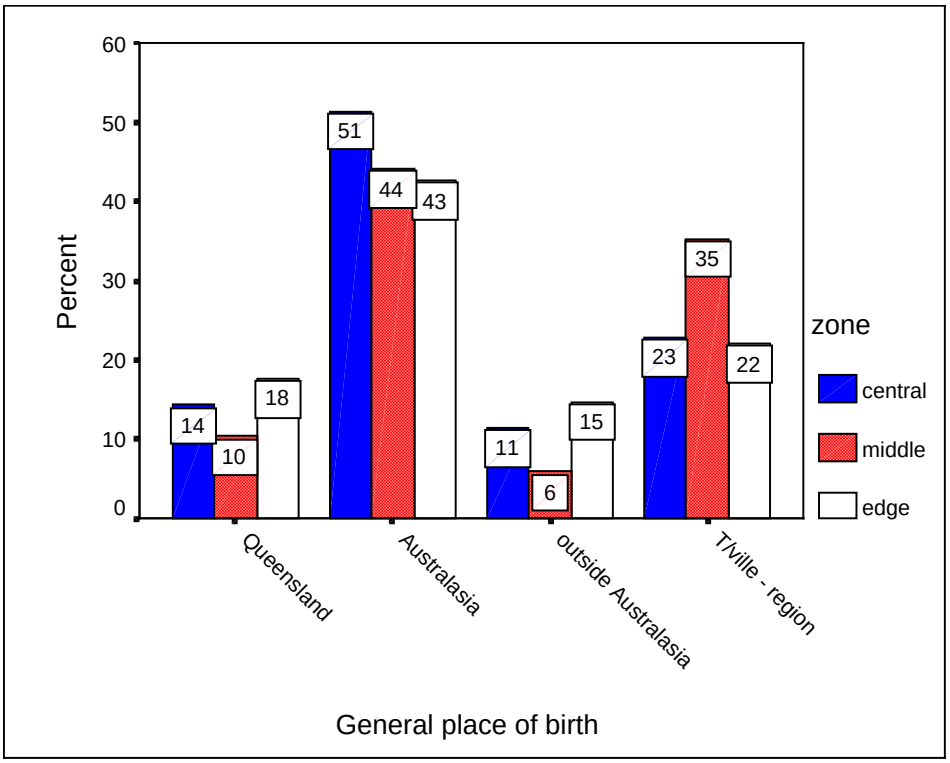
Changes if there was a sharp increase in petroleum prices

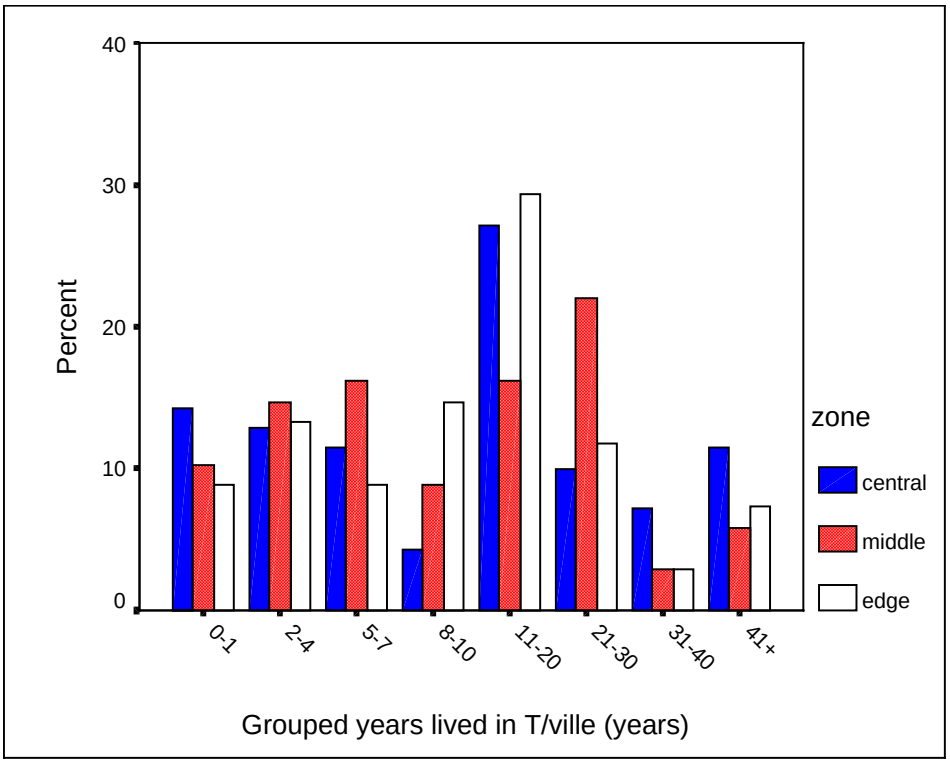


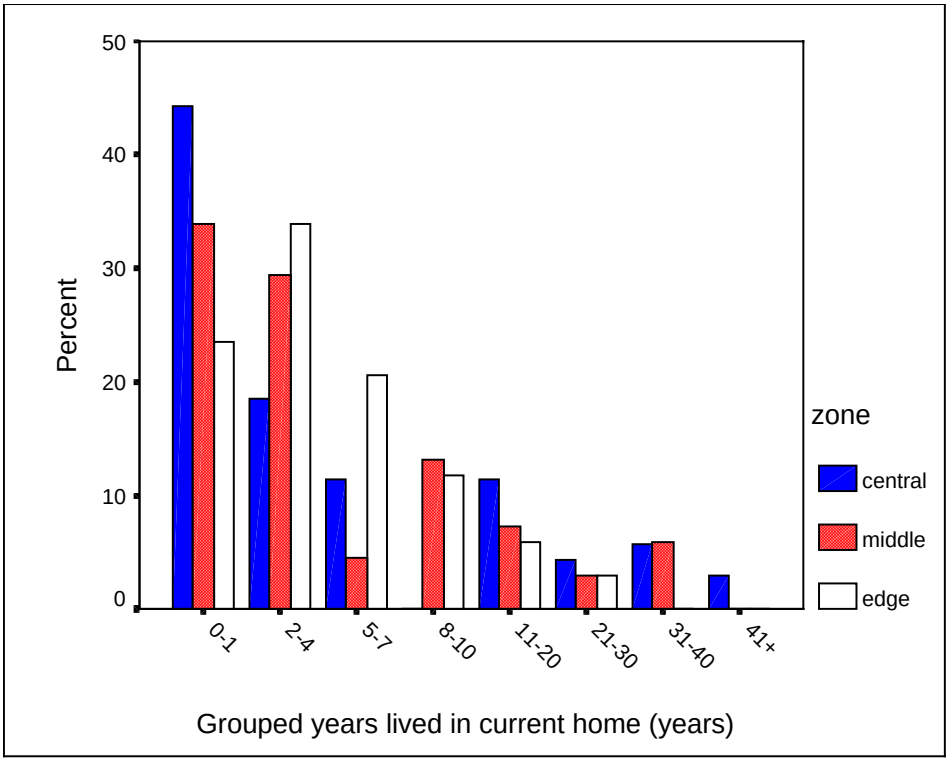
Changes if there was a sharp increase in petroleum price _2


40
30
20
10
0
Percent
zone
central
middle
edge
Missing
strongly agree
agree
neutral
disagree
strongly disagree
Support for use of light rail

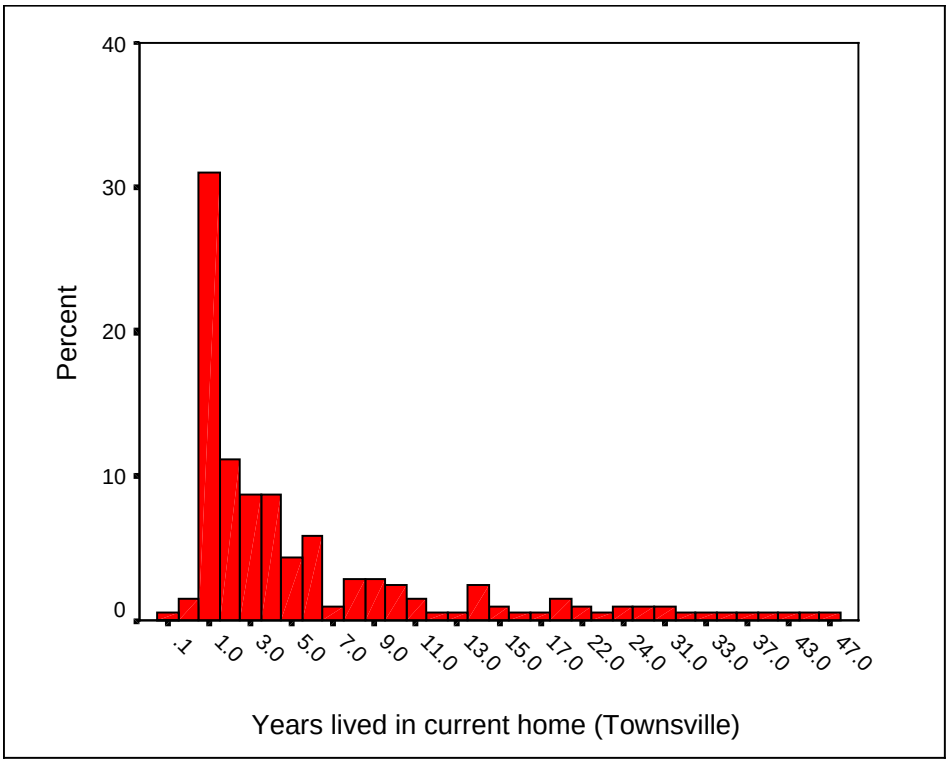
Demography


60
50
40
30
20
10
0
Percent
51
44
43
35
23
22
18
14
10
15
11
6
Queensland
Australasia
outside Australasia
T/ville - region
General place of birth
zone
central
middle
edge

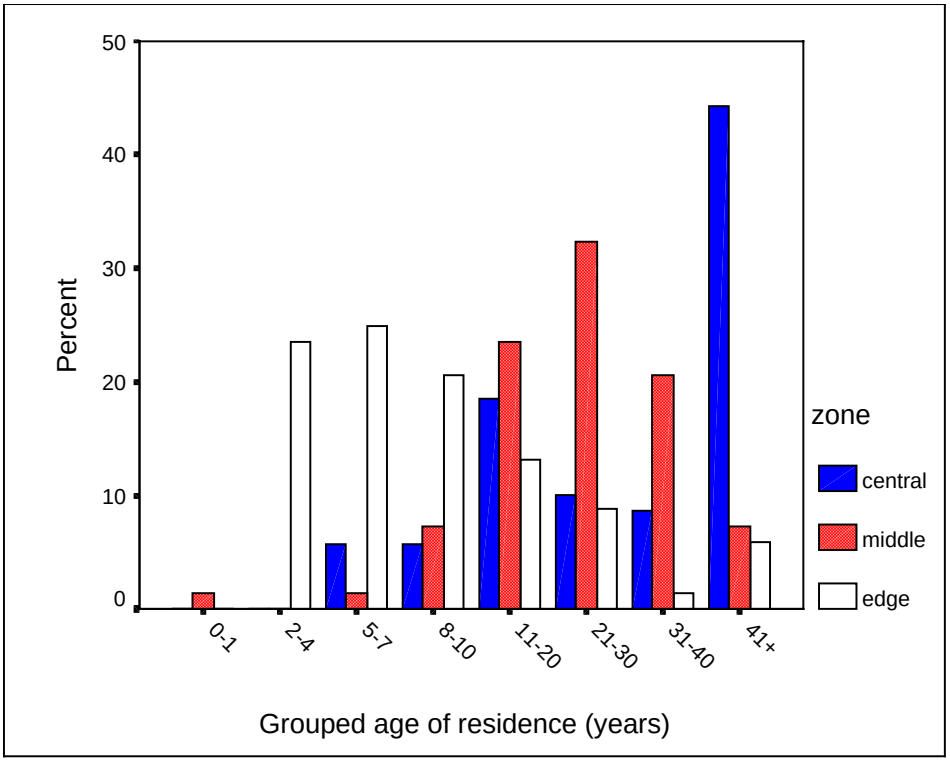

40
30
20
10
0
Percent
0-1
2-4
5-7
8-10
11-20
21-30
31-40
41+
Grouped years lived in T/ville (years)
zone
central
middle
edge

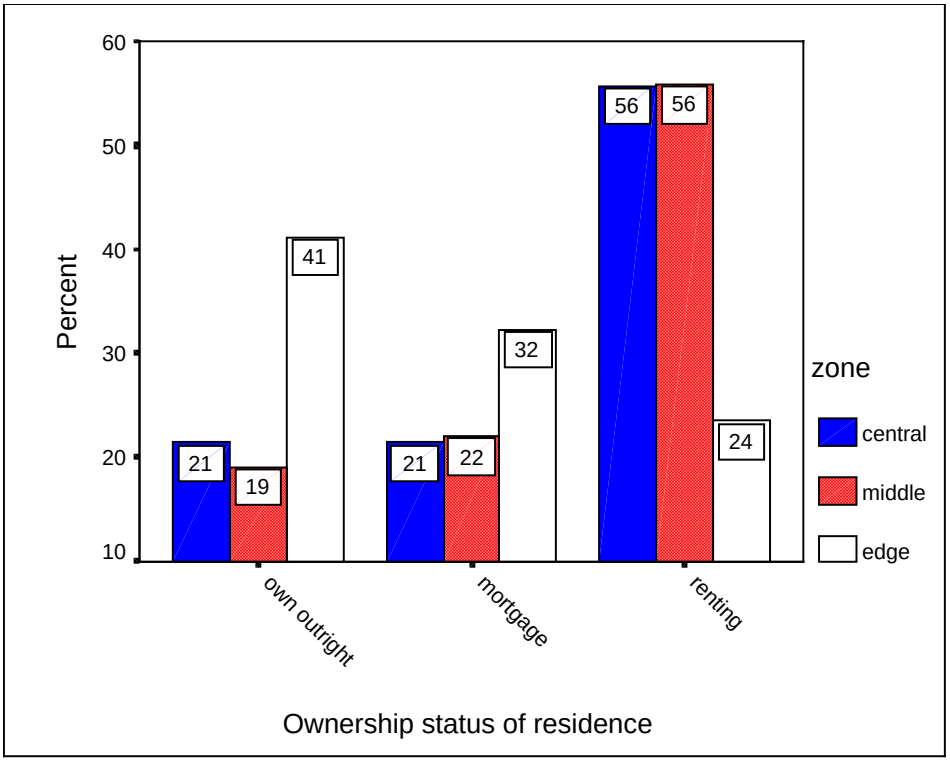


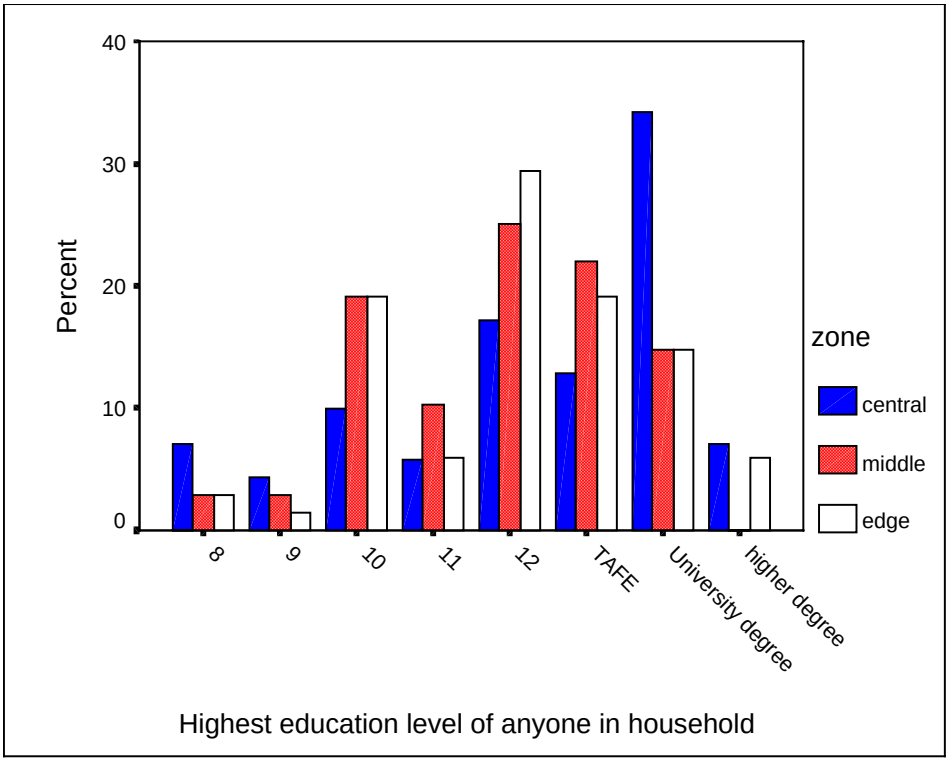
This rather remarkable indication of transience was graphed from the raw data:

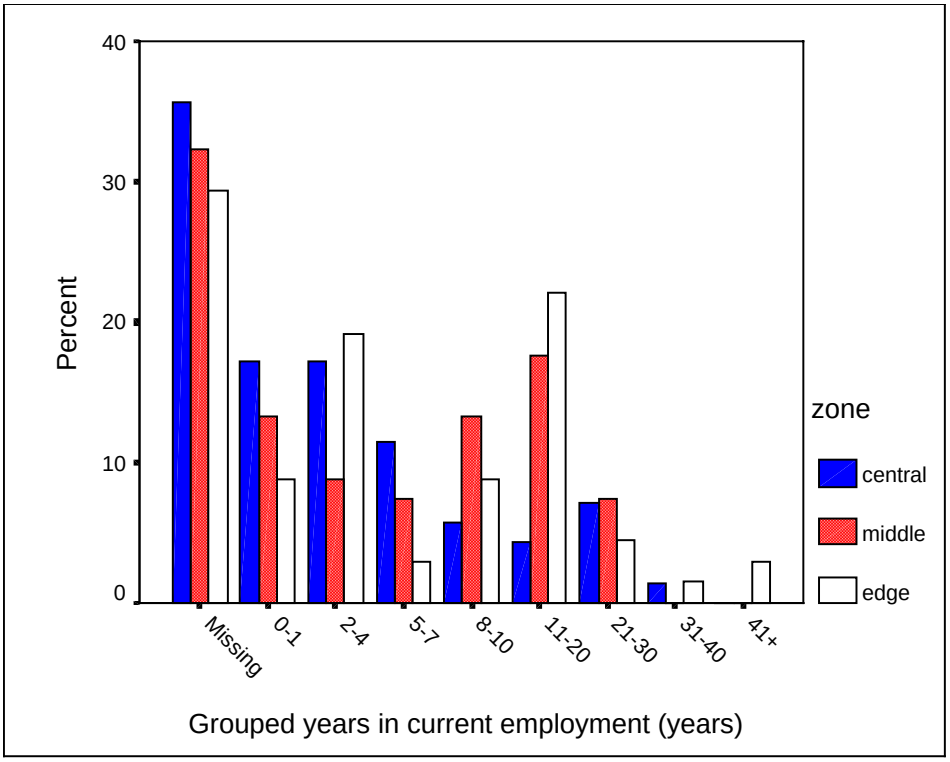


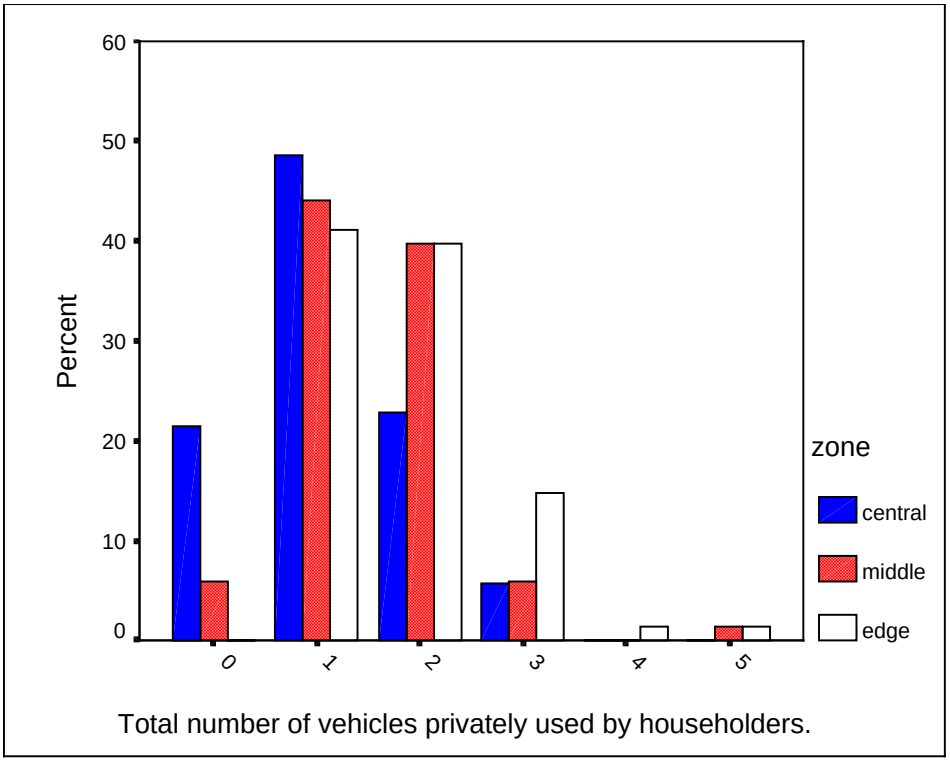
and from ABS data:

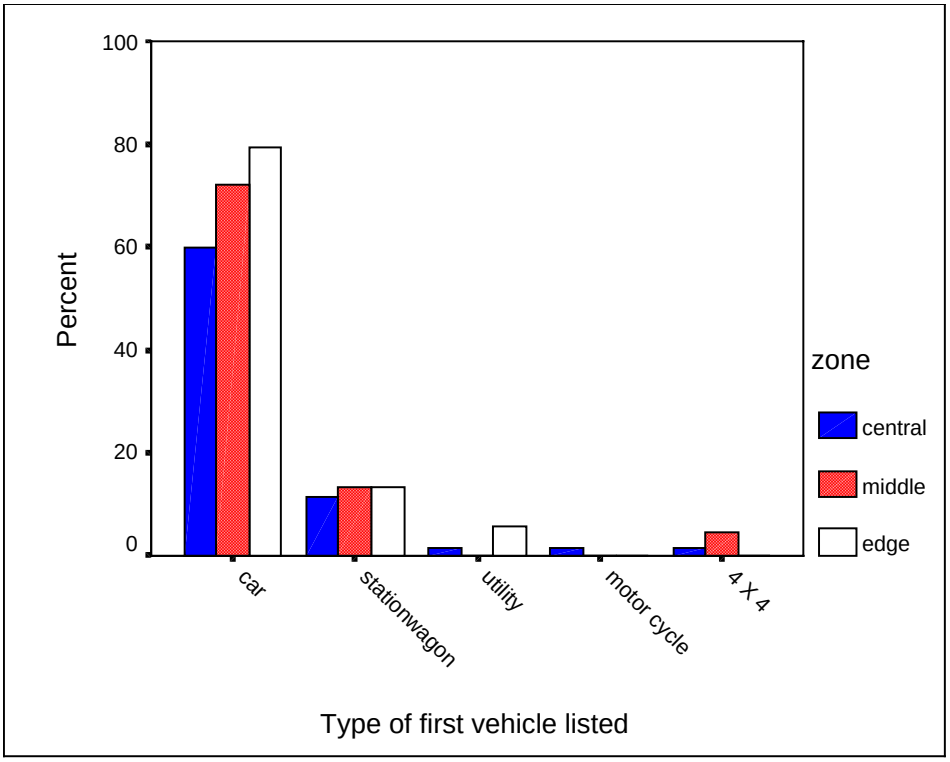

50
40
30
20
10
0
Percent
0-1
2-4
5-7
8-10
11-20
21-30
31-40
41+
Grouped age of residence (years)
zone
central
middle
edge

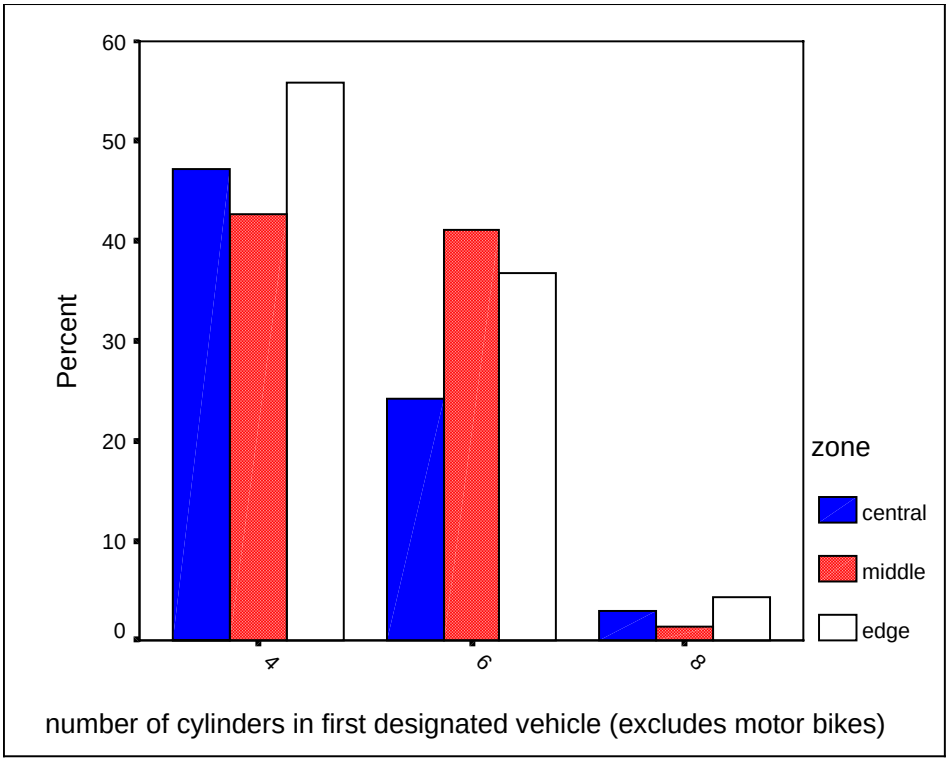

60
50
40
30
20
10
Percent
21
19
41
21
22
32
56
56
24
own outright
mortgage
renting
Ownership status of residence
zone
central
middle
edge

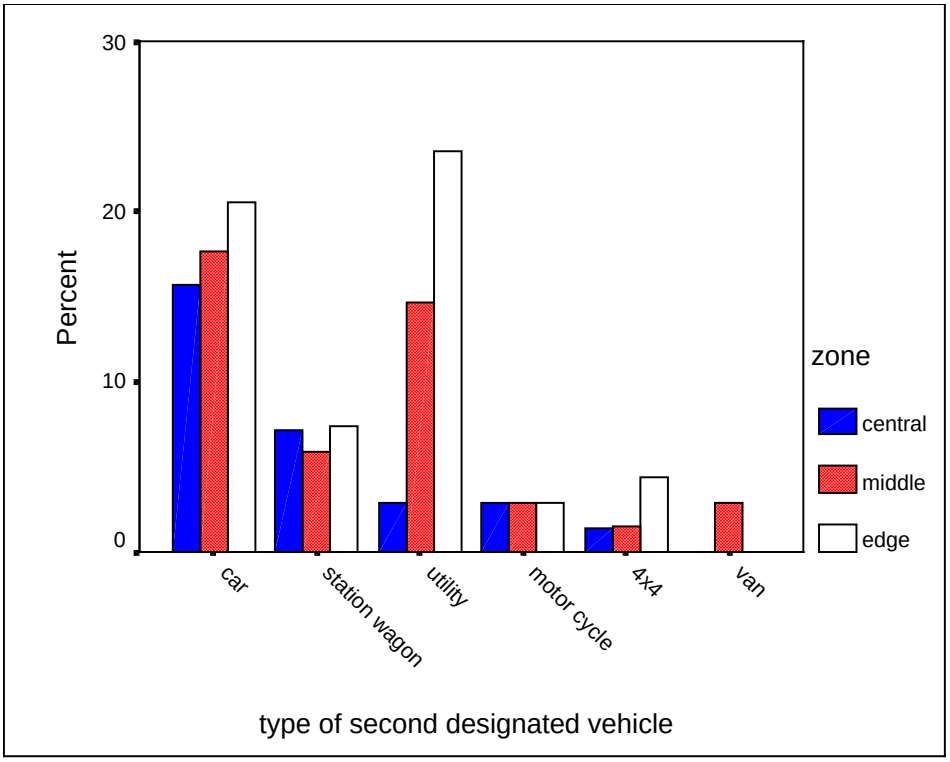

40
30
20
10
0
Percent
zone
central
middle
edge
8
9
10
11
12
TAFE
University degree
higher degree
Highest education level of anyone in household

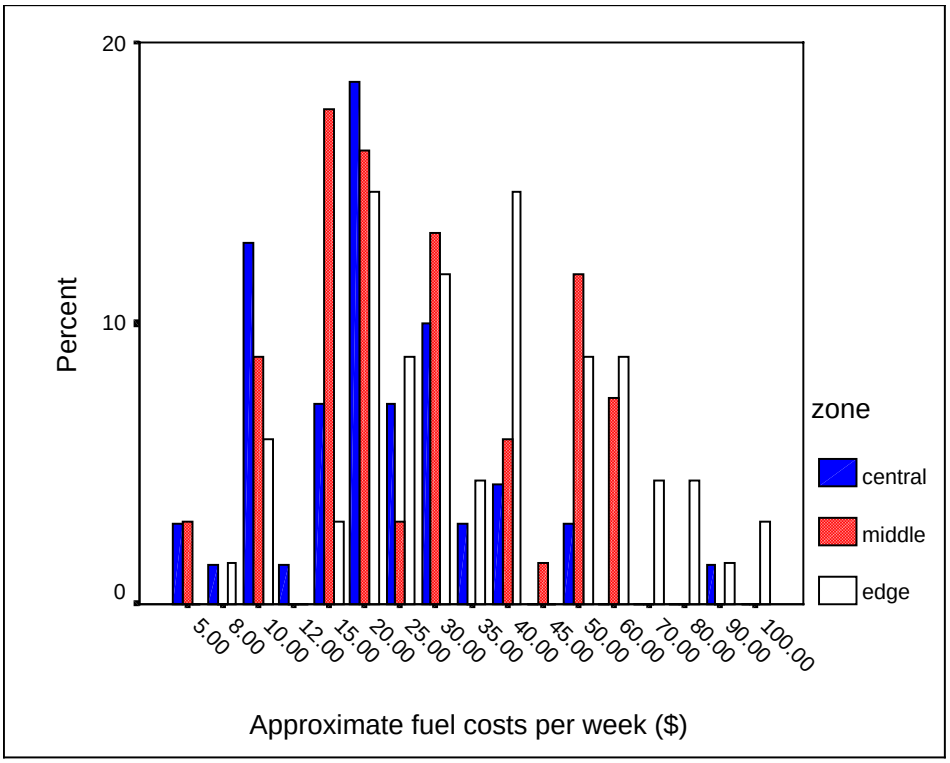

40
30
20
10
0
Percent
zone
central
middle
edge
Missing
0-1
2-4
5-7
8-10
11-20
21-30
31-40
41+
Grouped years in current employment (years)


60
50
40
30
20
10
0
Percent
0
1
2
3
4
5
zone
central
middle
edge
Total number of vehicles privately used by householders.

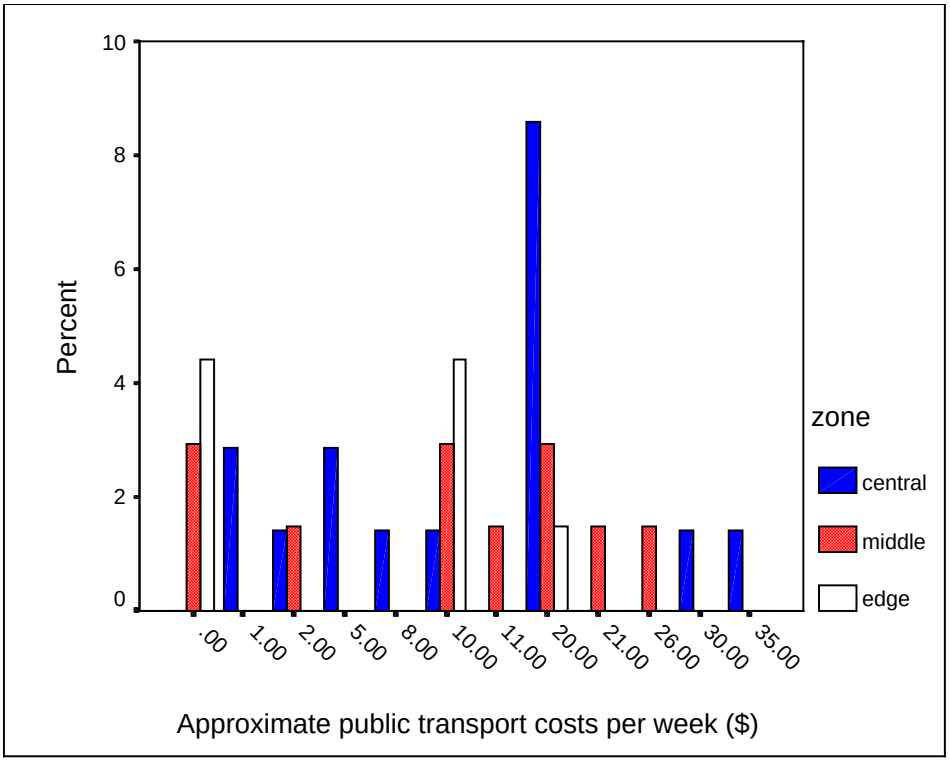

100
80
60
40
20
0
Percent
car
stationwagon
utility
motor cycle
4 X 4
zone
central
middle
edge
Type of first vehicle listed

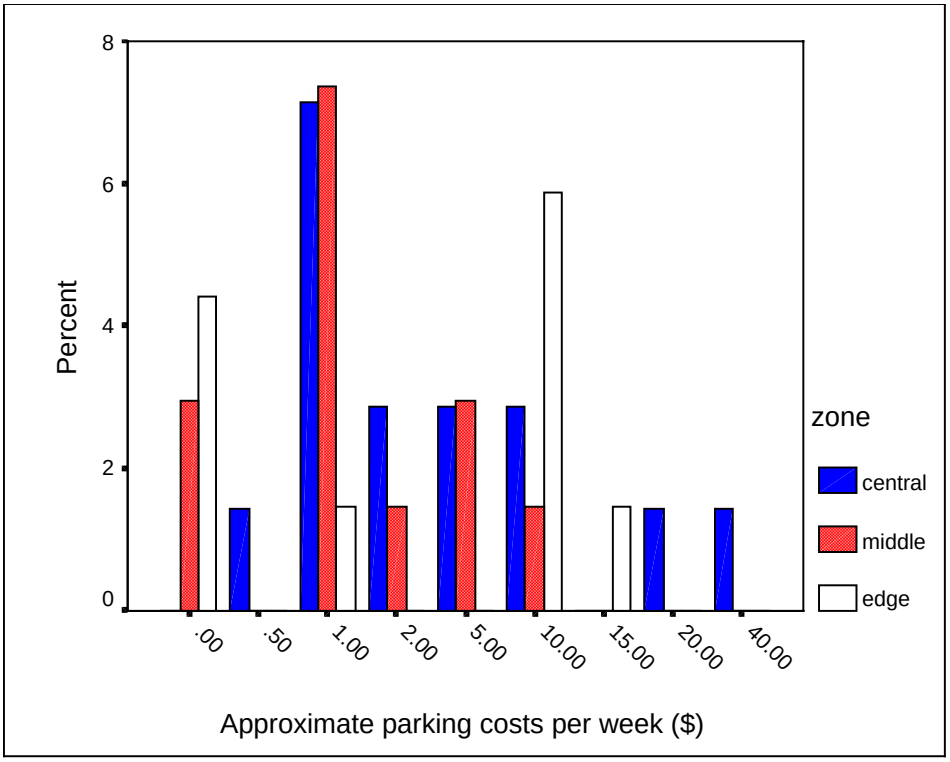

60
50
40
30
20
10
0
Percent
4
6
8
zone
central
middle
edge
number of cylinders in first designated vehicle (excludes motor bikes)

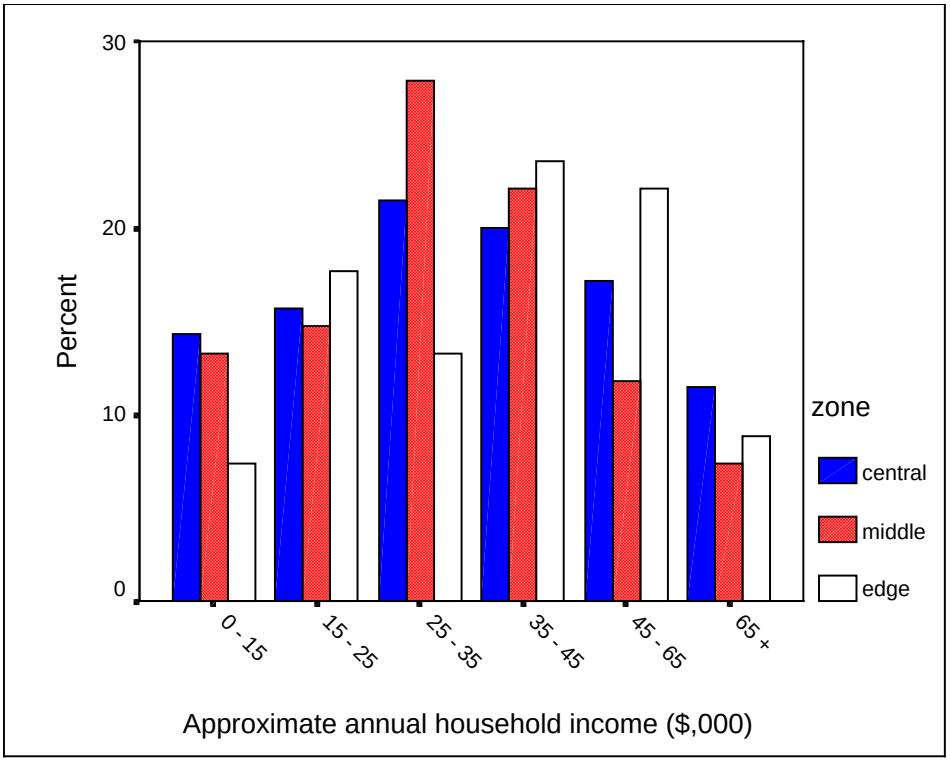

30
20
10
0
Percent
car
station wagon
utility
motor cycle
4x4
van
zone
central
middle
edge
type of second designated vehicle

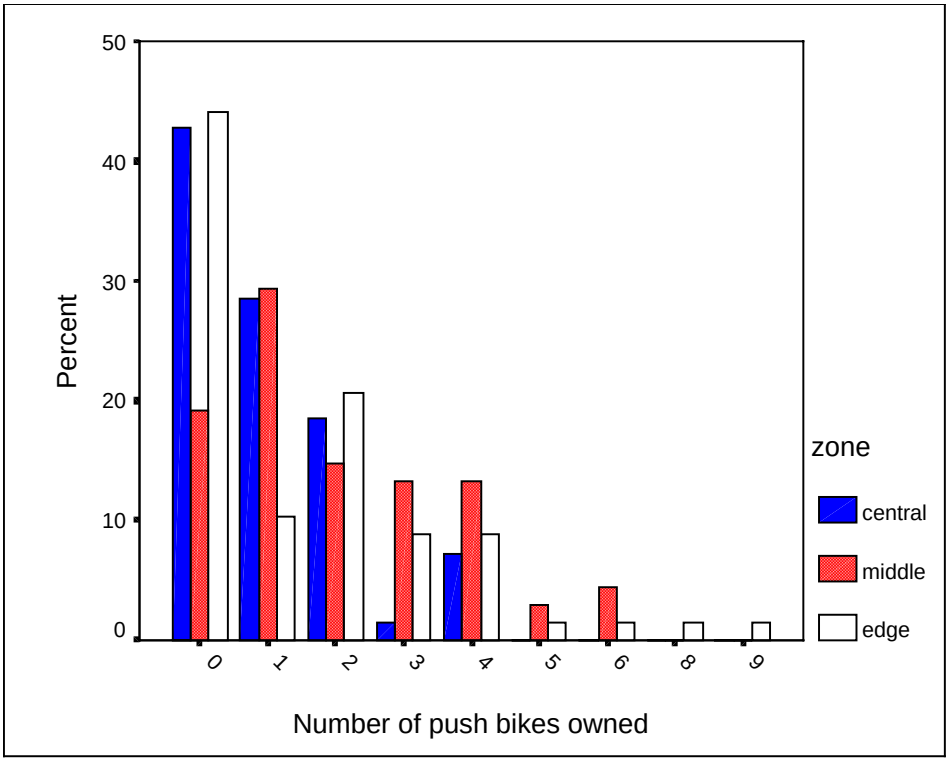


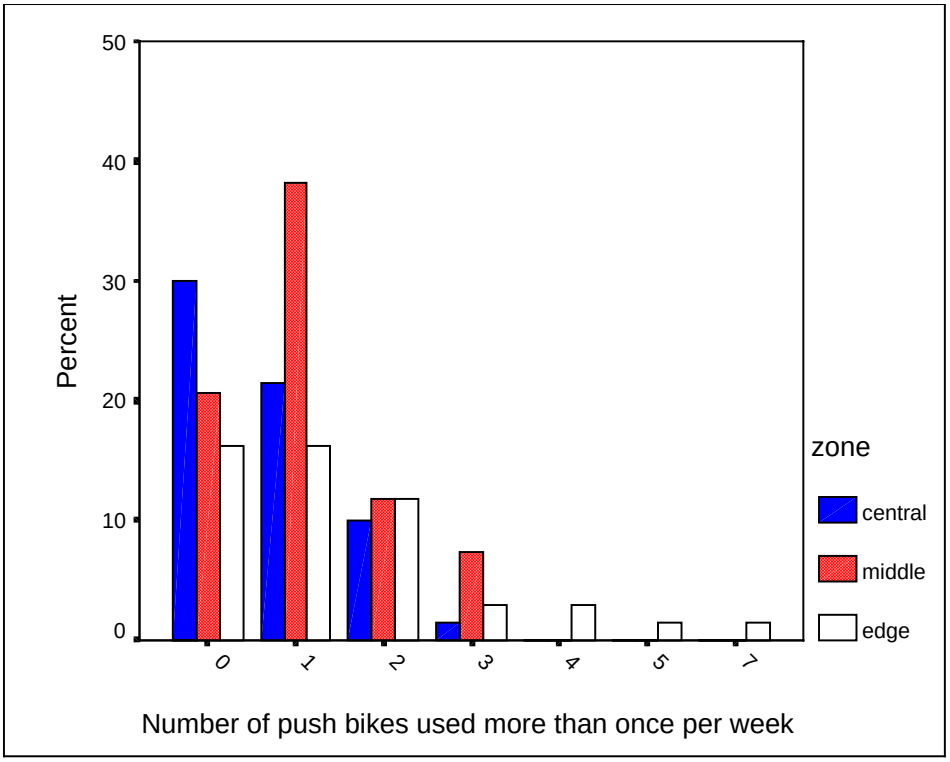
Note: missing, zero spent on fuel, and one middle suburb value of $65/wk have been omited

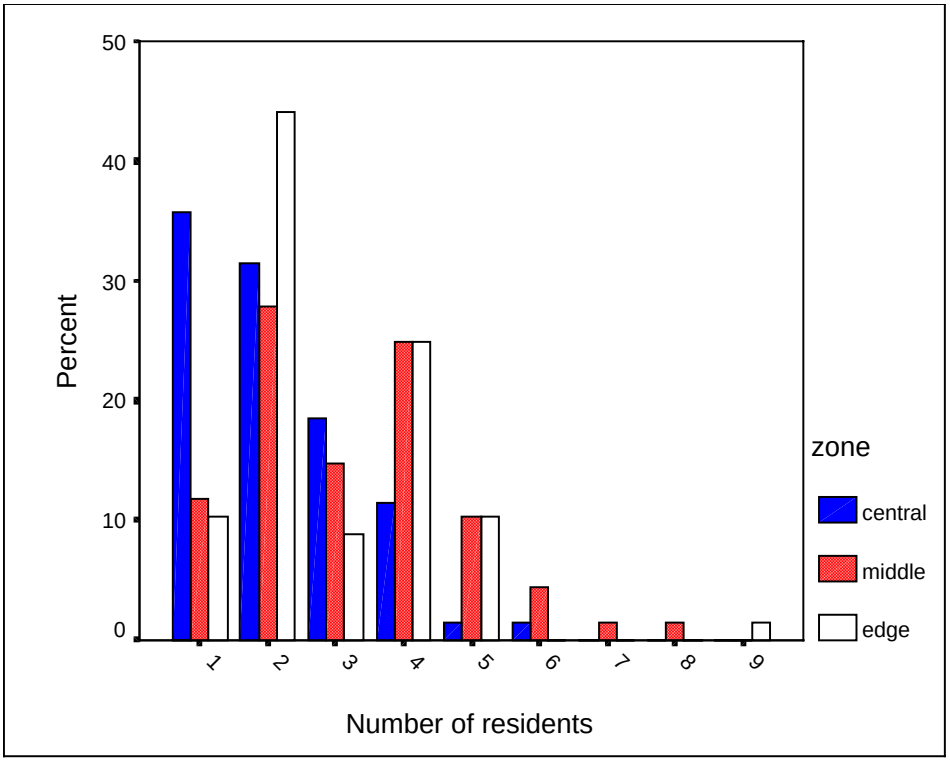

Percent
10
8
6
4
2
0
.00
1.00
2.00
5.00
8.00
10.00
11.00
20.00
21.00
26.00
30.00
35.00
zone
central
middle
edge
Approximate public transport costs per week ($)

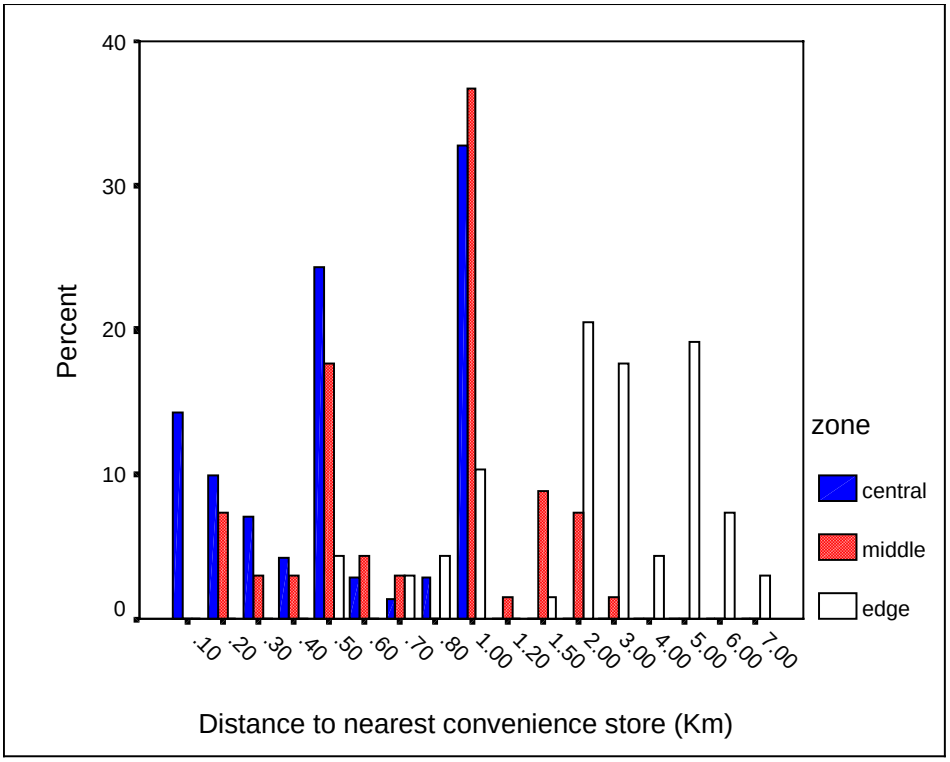

Percent
8
6
4
2
0
.00
.50
1.00
2.00
5.00
10.00
15.00
20.00
40.00
zone
central
middle
edge
Approximate parking costs per week ($)

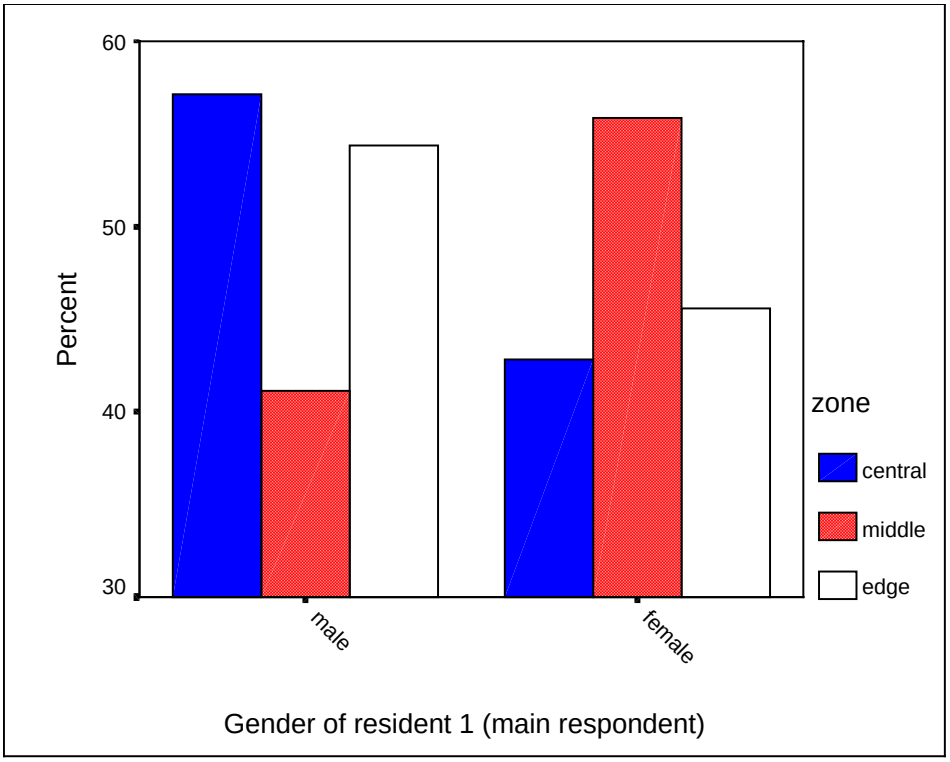

30
20
10
0
Percent
0 - 15
15 - 25
25 - 35
35 - 45
45 - 65
65 +
Approximate annual household income ($,000)
zone
central
middle
edge


50
40
30
20
10
0
Percent
0
1
2
3
4
5
6
8
9
Number of push bikes owned
zone
central
middle
edge

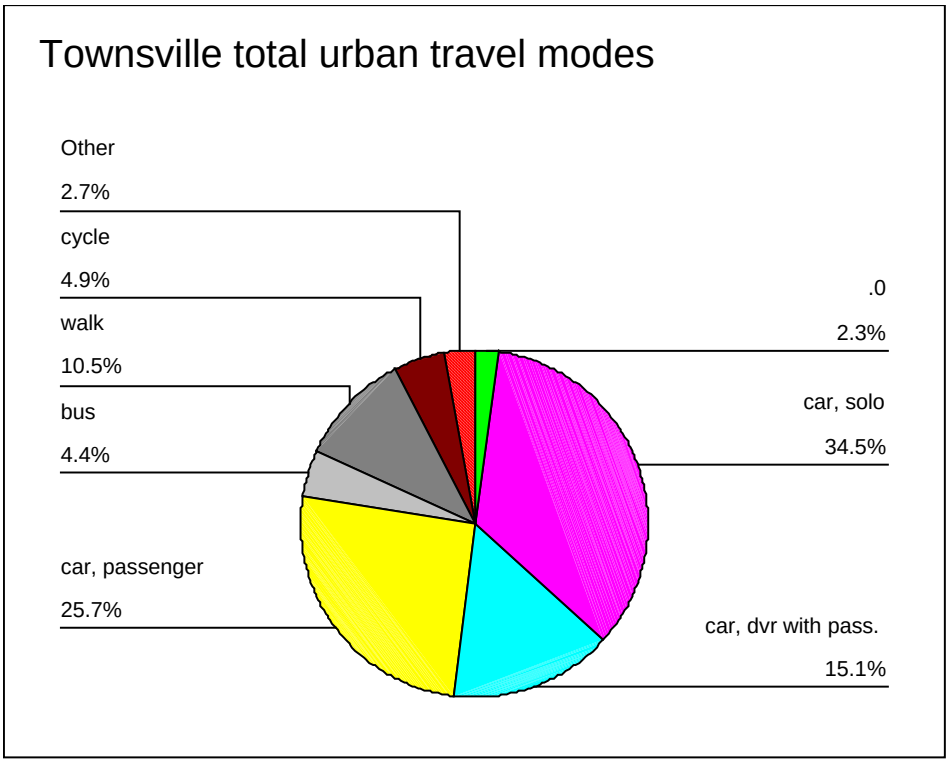

50
40
30
20
10
0
Percent
0
1
2
3
4
5
7
zone
central
middle
edge
Number of push bikes used more than once per week


50
40
30
20
10
0
Percent
1
2
3
4
5
6
7
8
9
zone
central
middle
edge
Number of residents


40
30
20
10
0
Percent
.10
.20
.30
.40
.50
.60
.70
.80
1.00
1.20
1.50
2.00
3.00
4.00
5.00
6.00
7.00
zone
central
middle
edge
Distance to nearest convenience store (Km)


60
50
40
30
Percent
male
female
zone
central
middle
edge
Gender of resident 1 (main respondent)

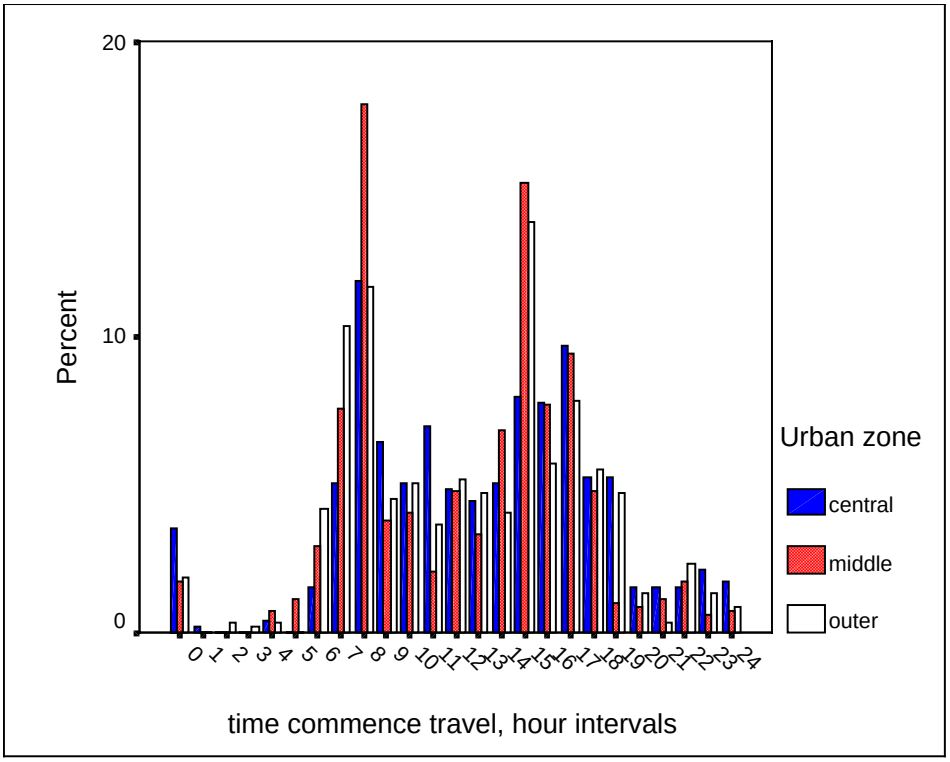
Townsville travel details

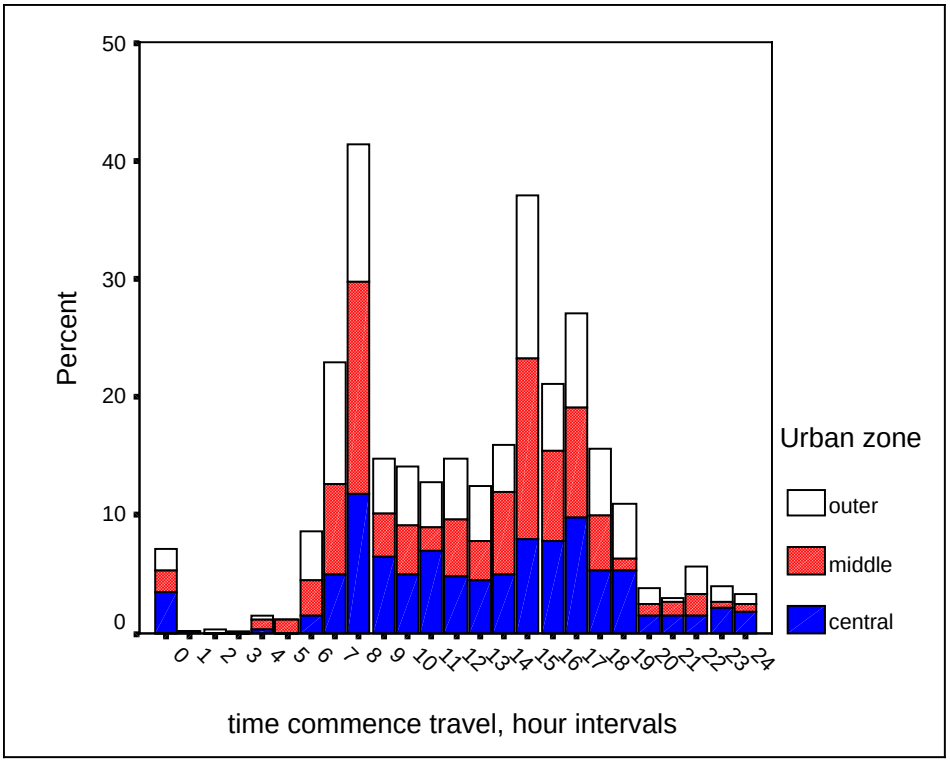


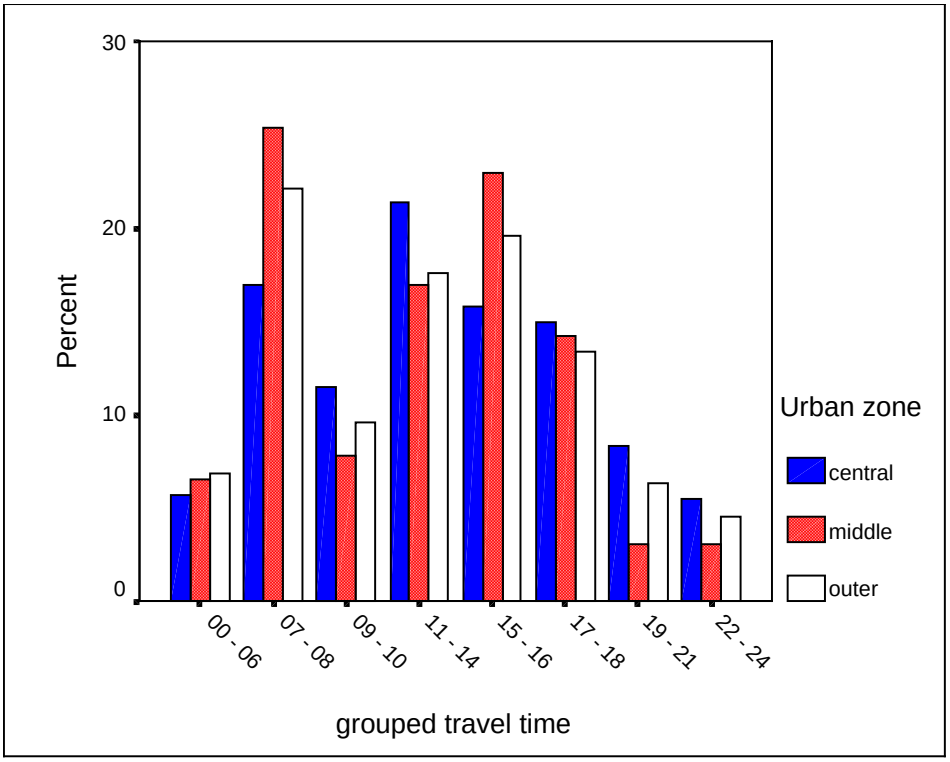
respondents: male 45%, female 55%

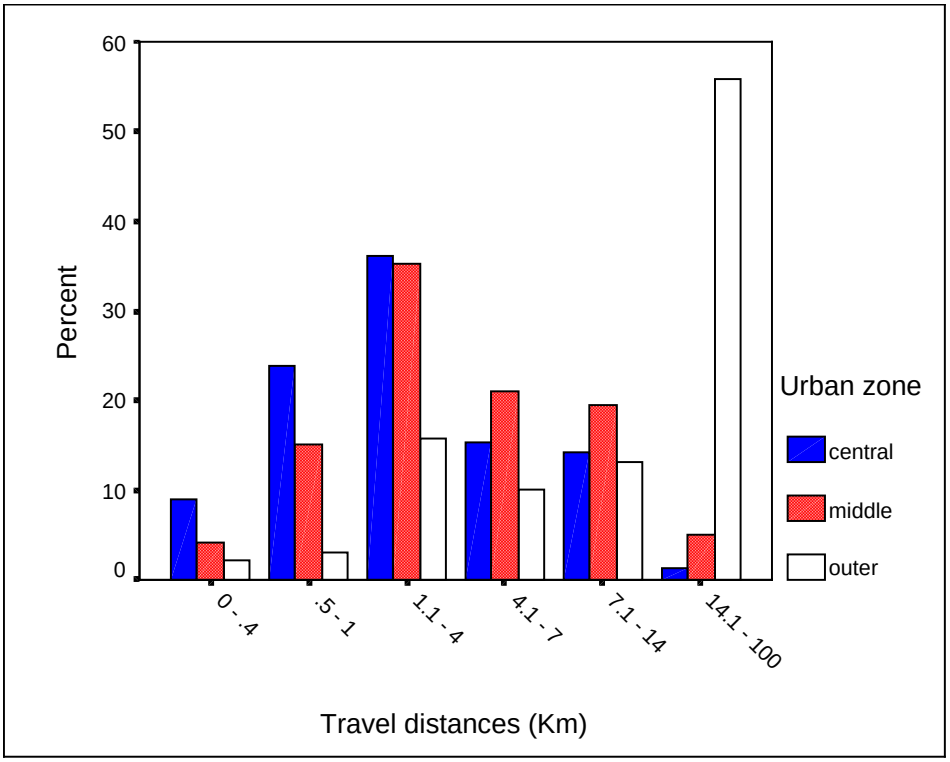
Statistics

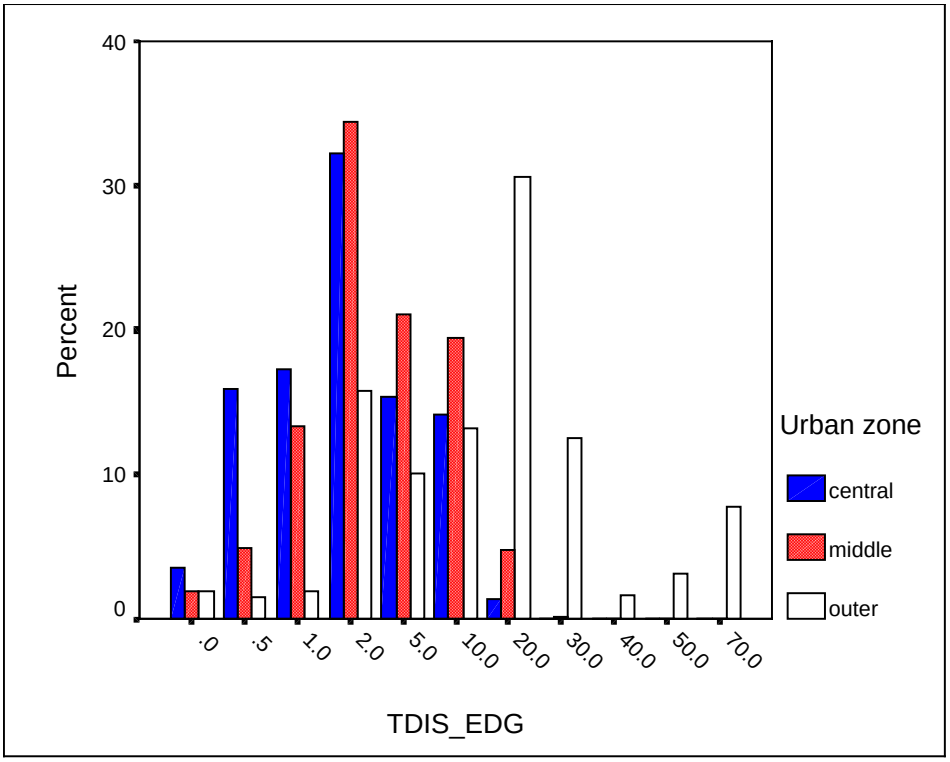
		GENDER	AGE	TTIME	TDISTT
N	Valid	1799	1799	1798	1798
	Missing	1	1	2	2
Mean		1.57	**32.25**	12.69	**9.325**
Std. Error of Mean		1.63E-02	.40	.12	.293
Std. Deviation		.69	17.13	4.94	12.417
Sum		2816	58017	22818	**16766.5**

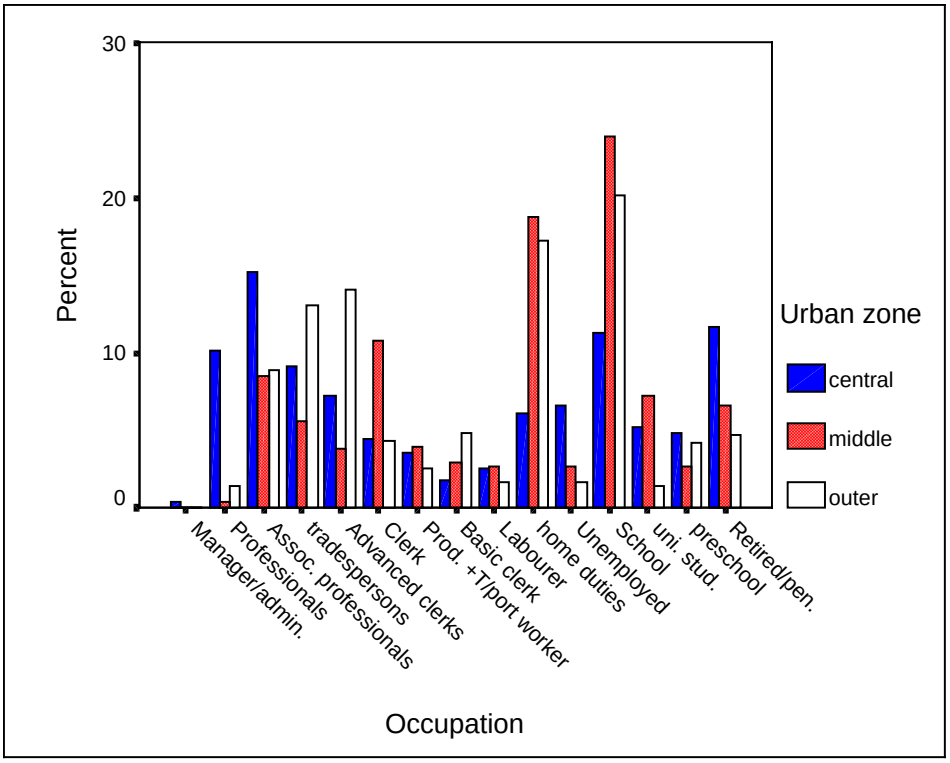

20
10
0
Percent
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
time commence travel, hour intervals
Urban zone
central
middle
outer

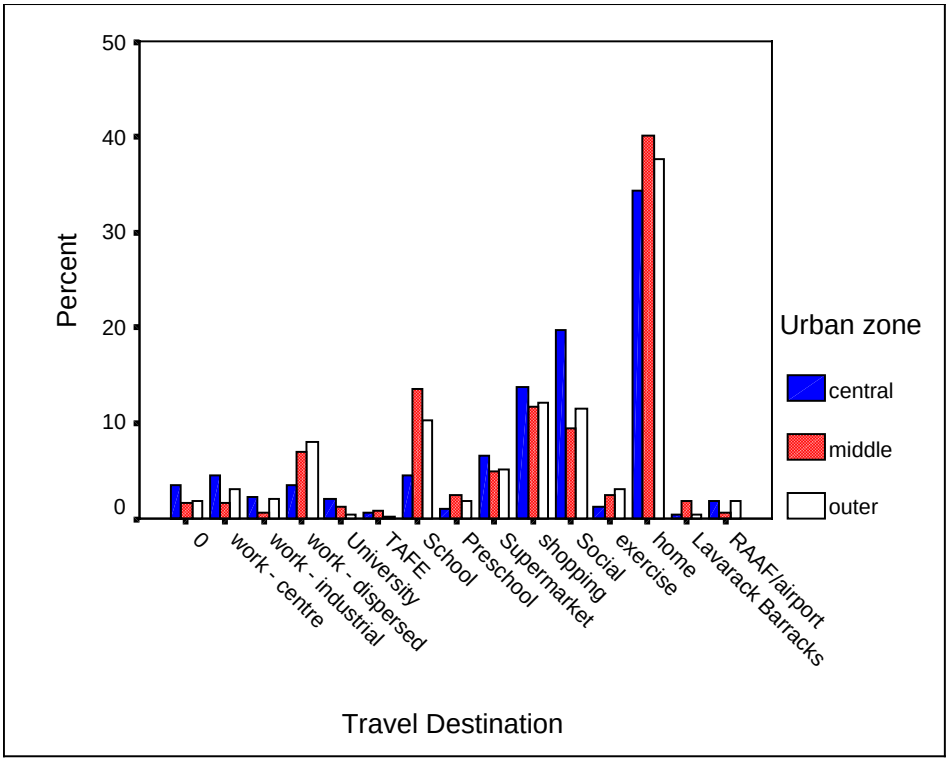

50
40
30
20
10
0
Percent
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
time commence travel, hour intervals
Urban zone
outer
middle
central


30
20
10
0
Percent
00 - 06
07 - 08
09 - 10
11 - 14
15 - 16
17 - 18
19 - 21
22 - 24
grouped travel time
Urban zone
central
middle
outer

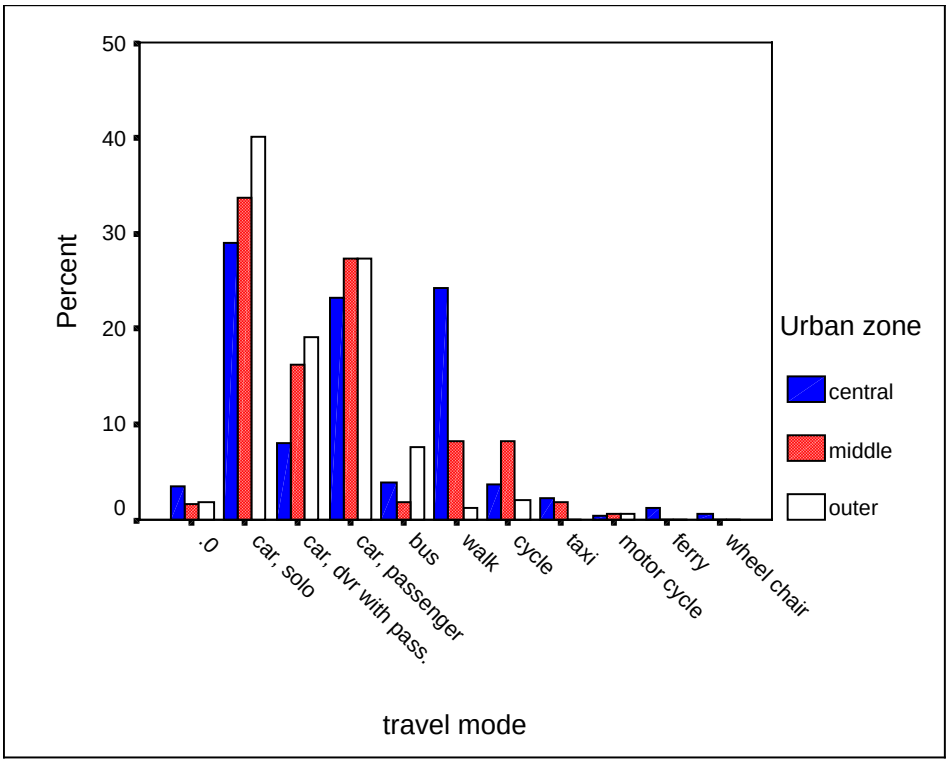

60
50
40
30
20
10
0
Percent
0 - .4
.5 - 1
1.1 - 4
4.1 - 7
7.1 - 14
14.1 - 100
Travel distances (Km)
Urban zone
central
middle
outer

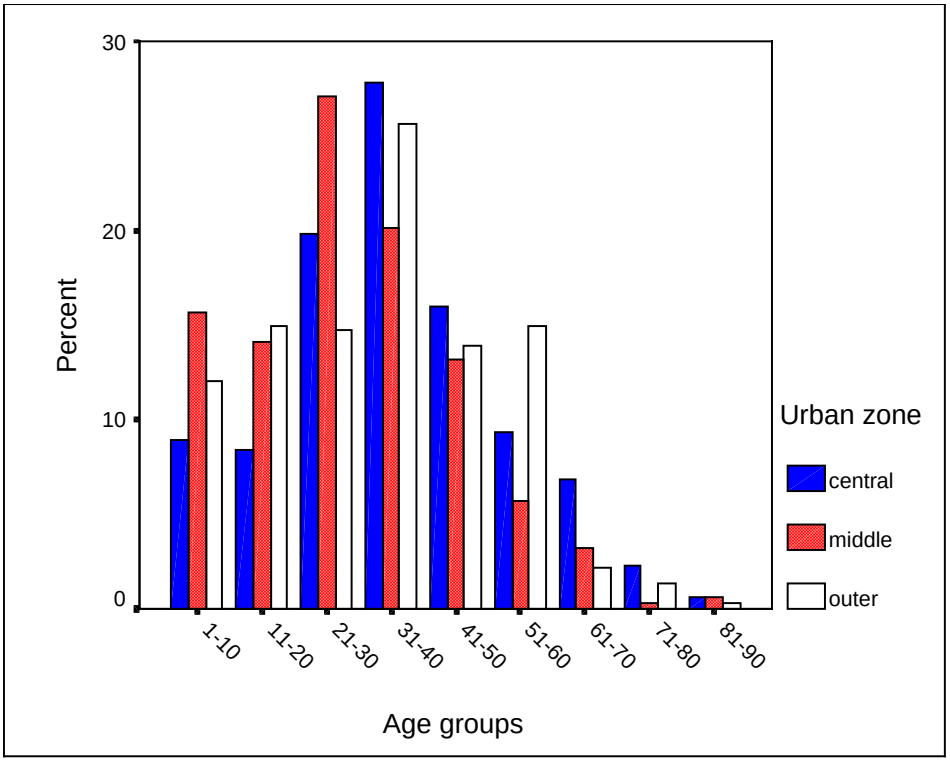

Percent
40
30
20
10
0
.0
.5
1.0
2.0
5.0
10.0
20.0
30.0
40.0
50.0
70.0
TDIS_EDG
Urban zone
central
middle
outer


Percent
30
20
10
0
Manager/admin.
Professionals
Assoc. professionals
tradespersons
Advanced clerks
Clerk
Prod. +T/port worker
Basic clerk
Labourer
home duties
Unemployed
School
uni. stud.
preschool
Retired/pen.
Occupation
Urban zone
central
middle
outer



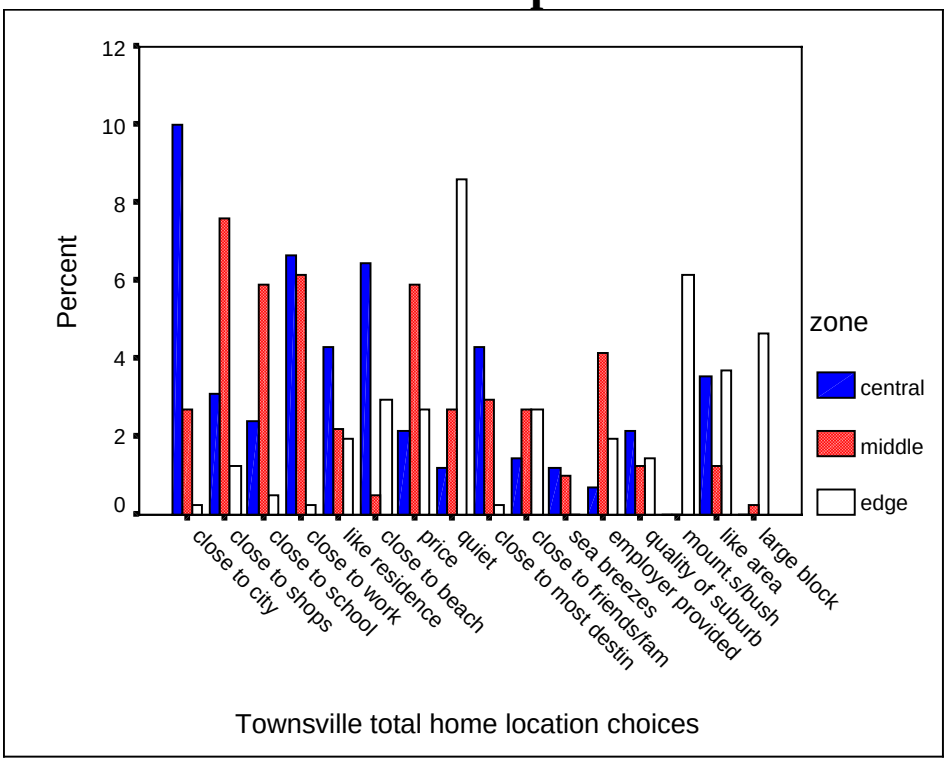
excludes ‘home’



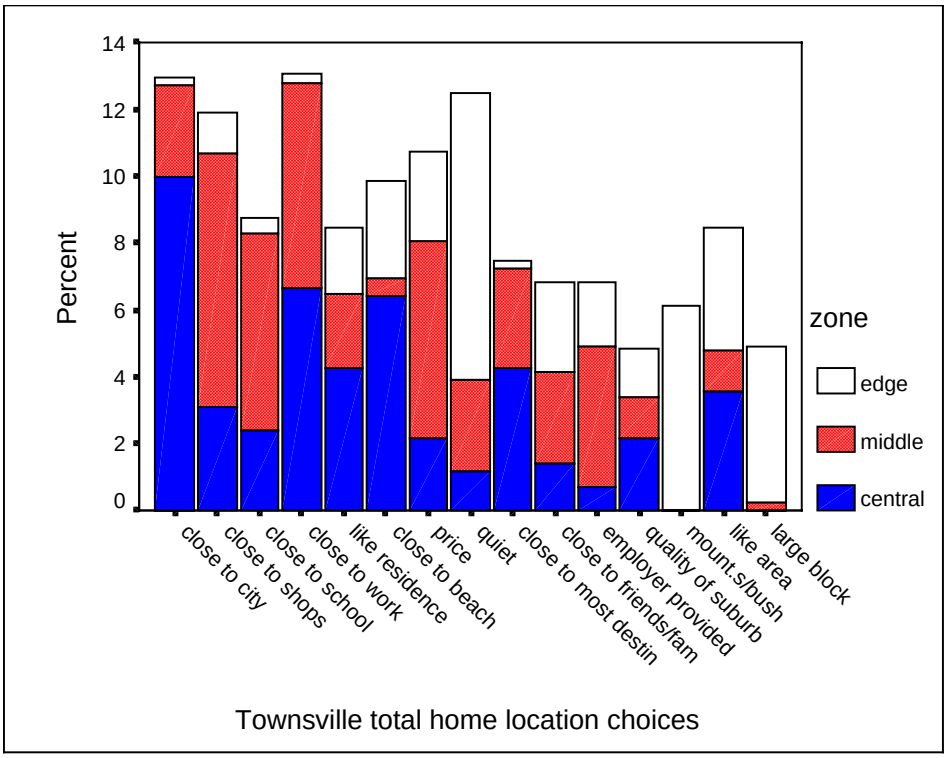

30
20
10
0
Percent
1-10
11-20
21-30
31-40
41-50
51-60
61-70
71-80
81-90
Age groups
Urban zone
central
middle
outer

Appendix 15

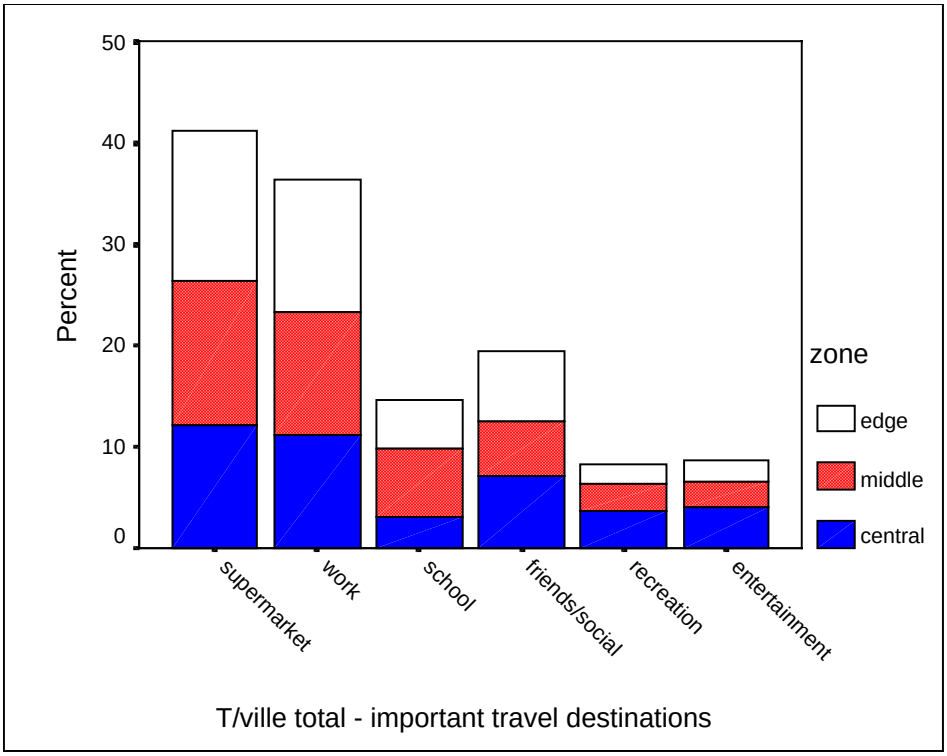
Townsville total and combination charts for multiple responses



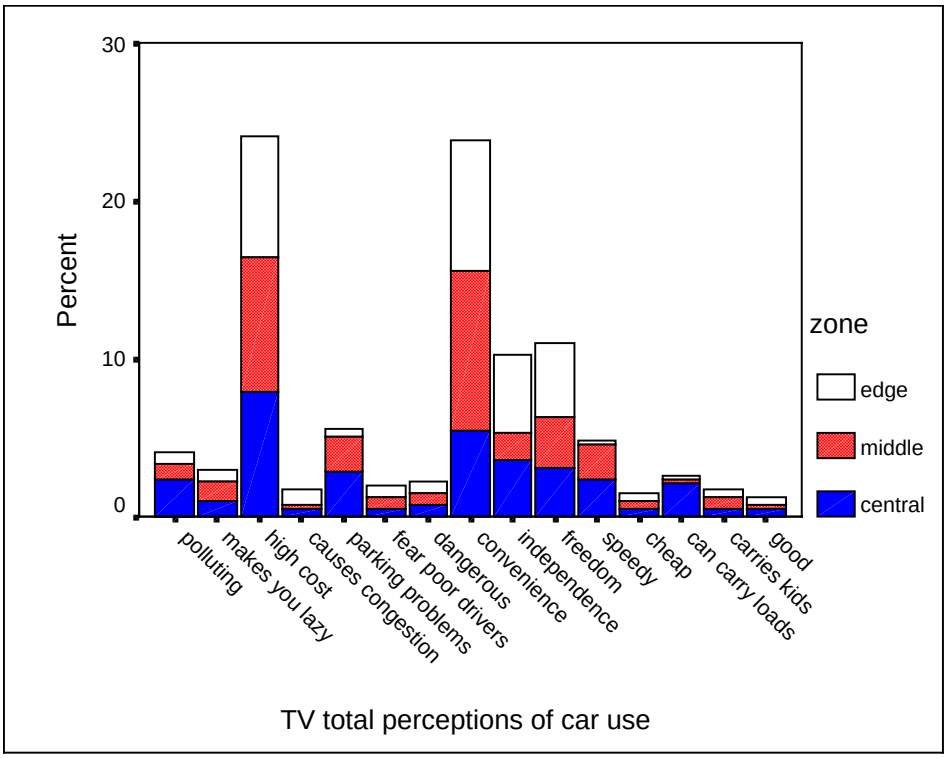
Townsville total home location choices



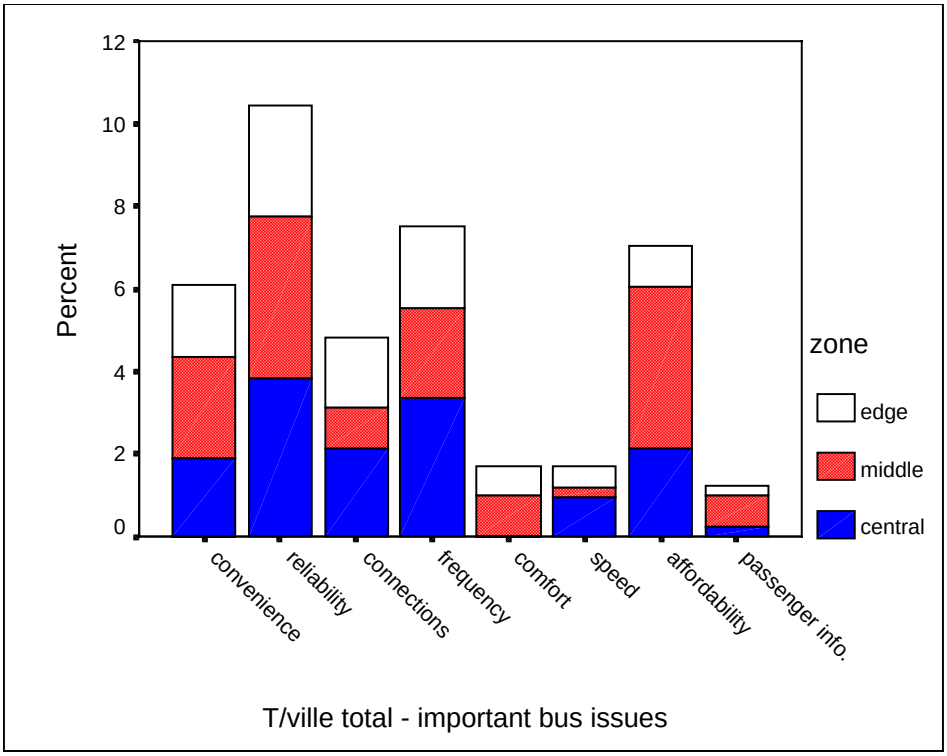
Townsville total home location choices



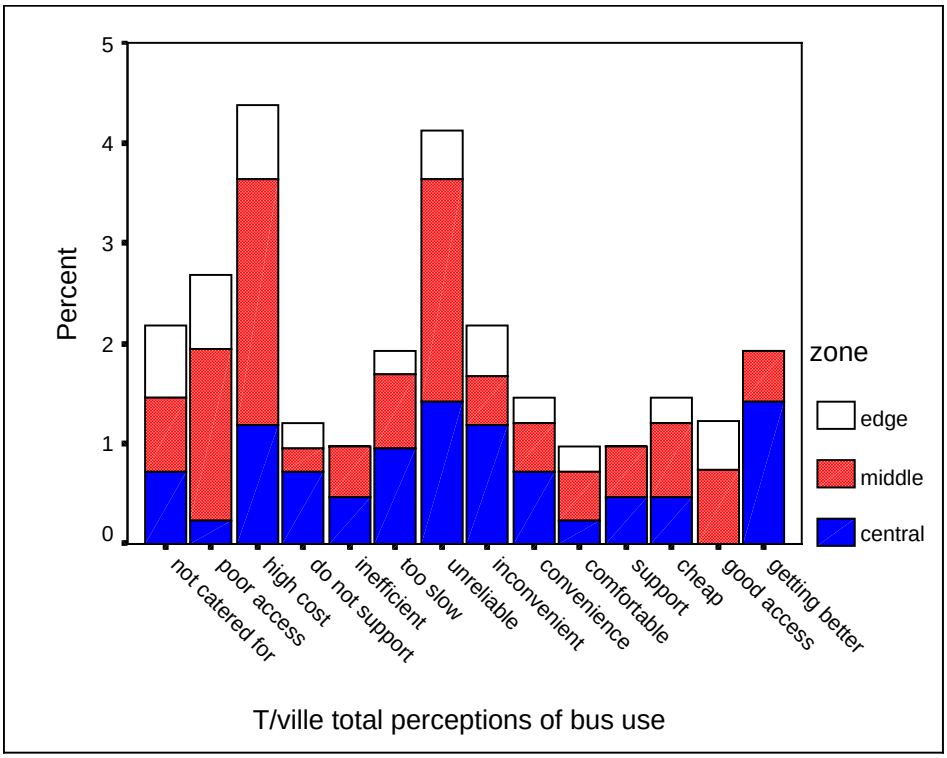
T/ville total - important travel destinations



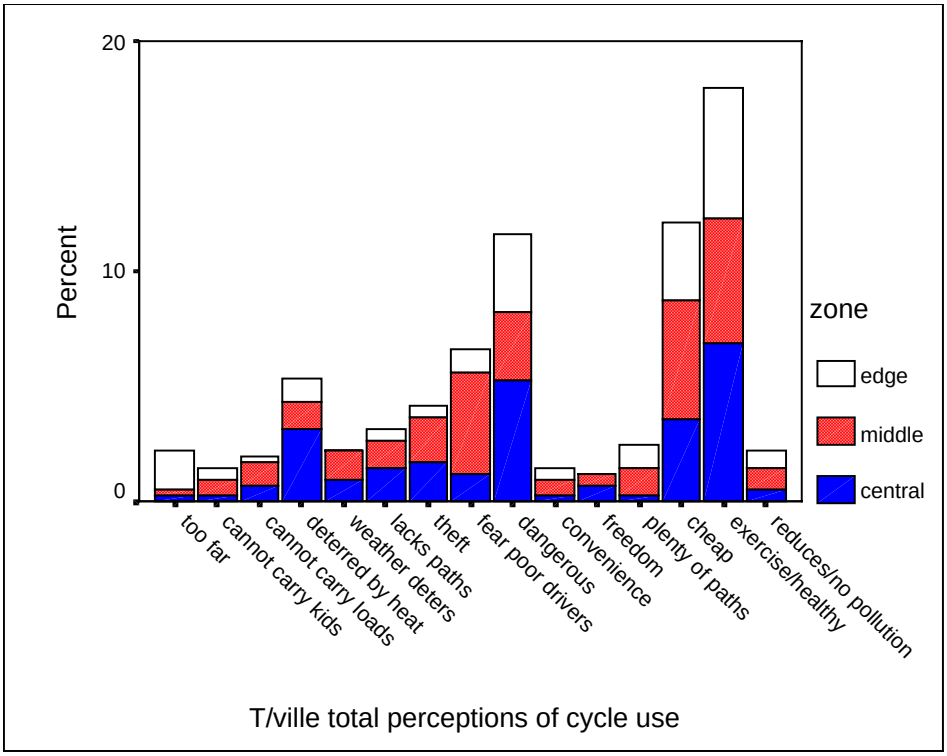
TV total perceptions of car use



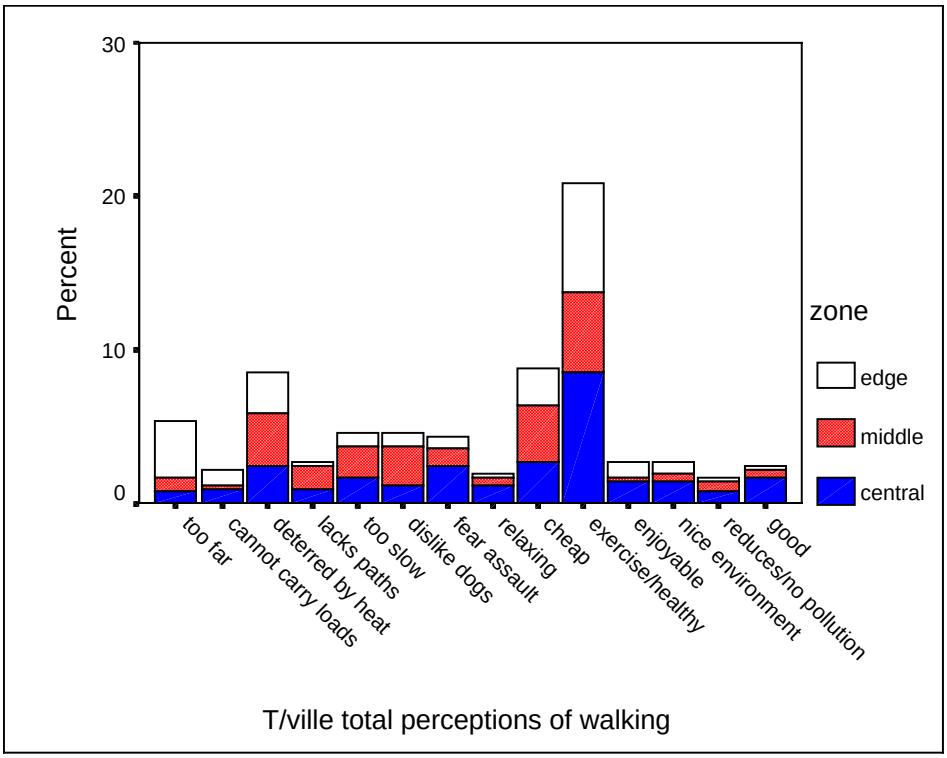
T/ville total - important bus issues



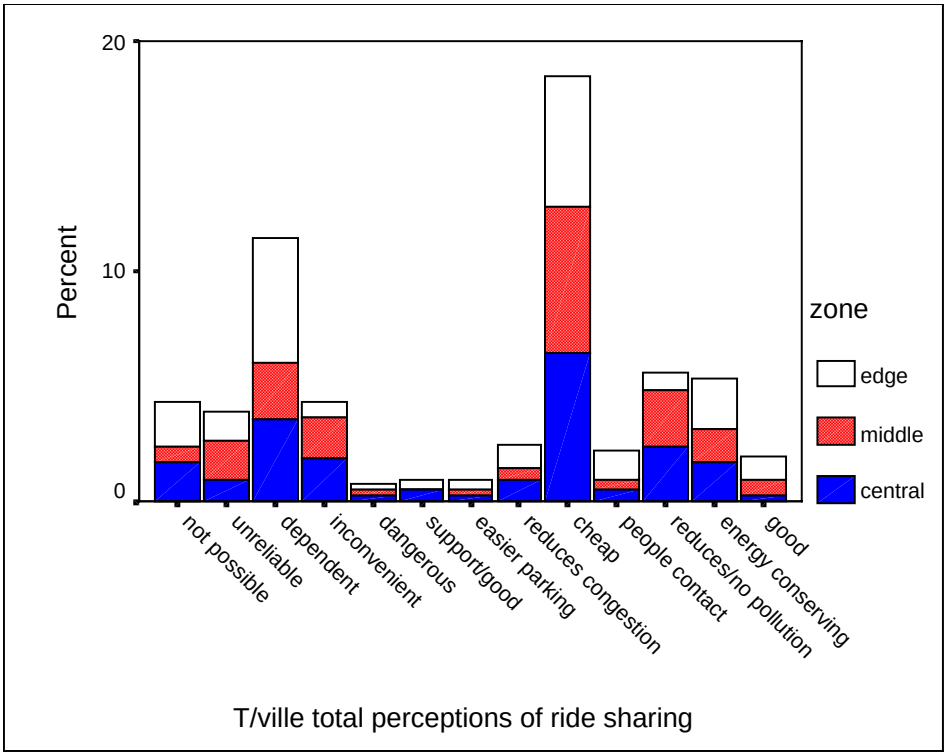
T/ville total perceptions of bus use



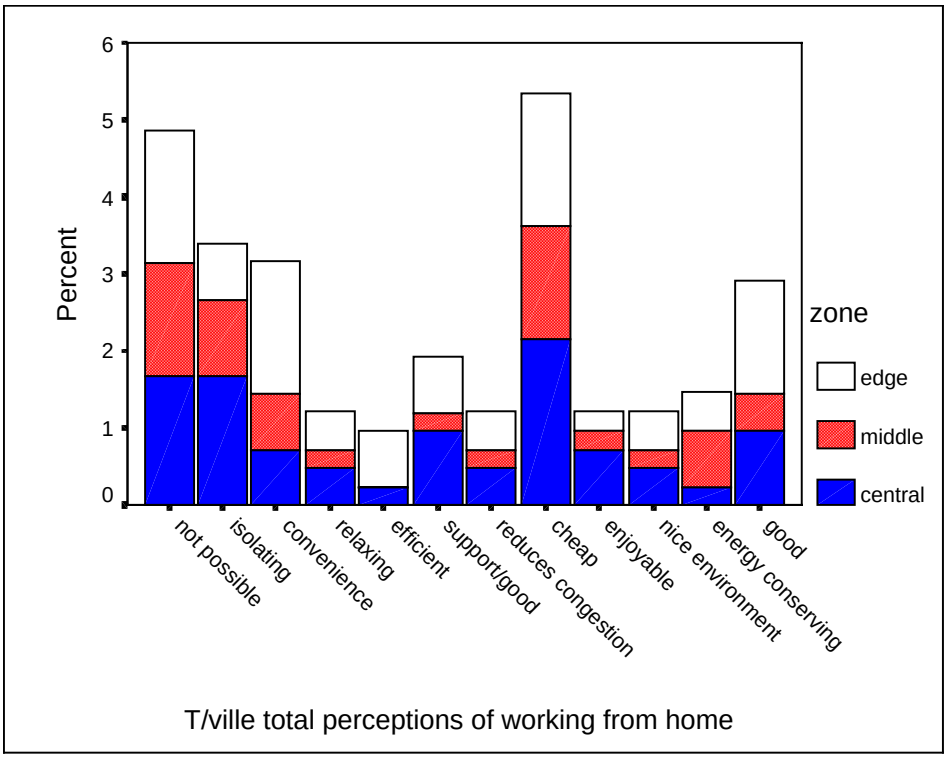
T/ville total perceptions of cycle use



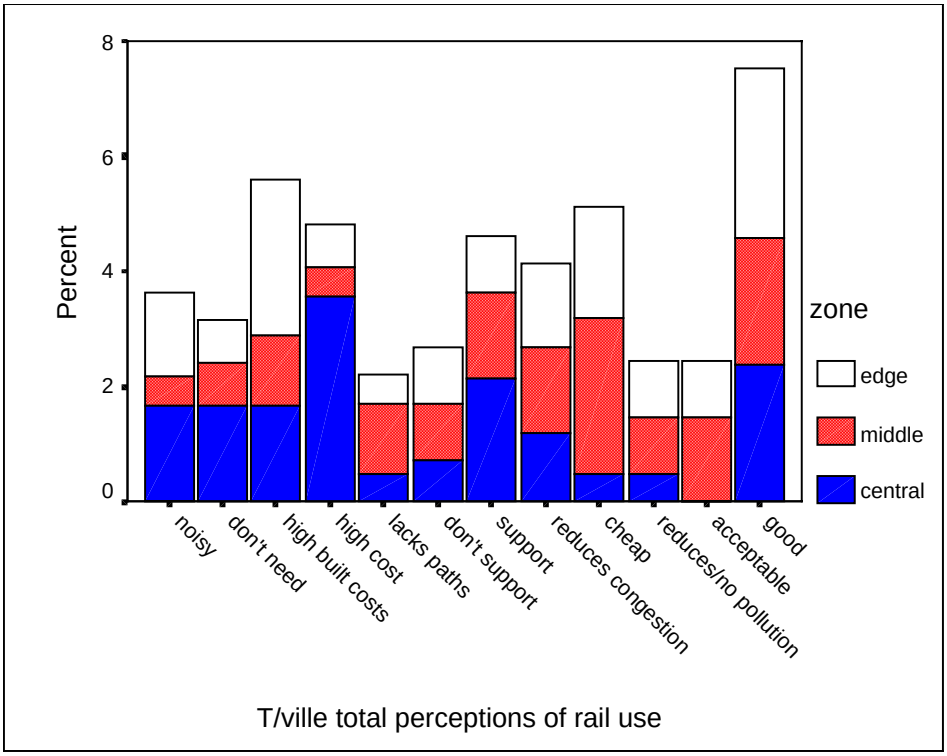
T/ville total perceptions of walking



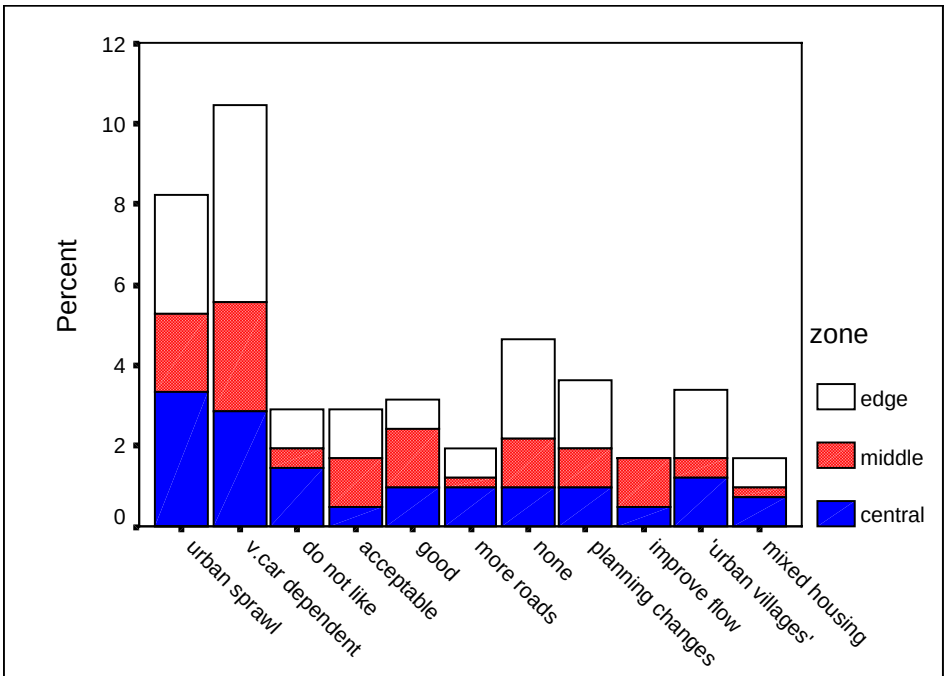
T/ville total perceptions of ride sharing



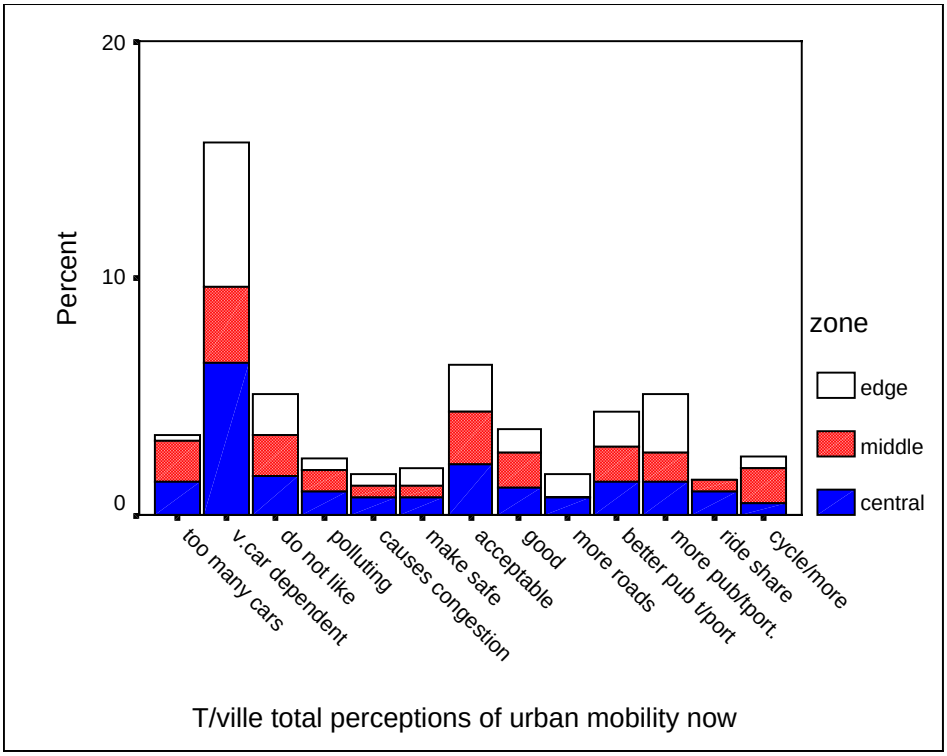
T/ville total perceptions of working from home



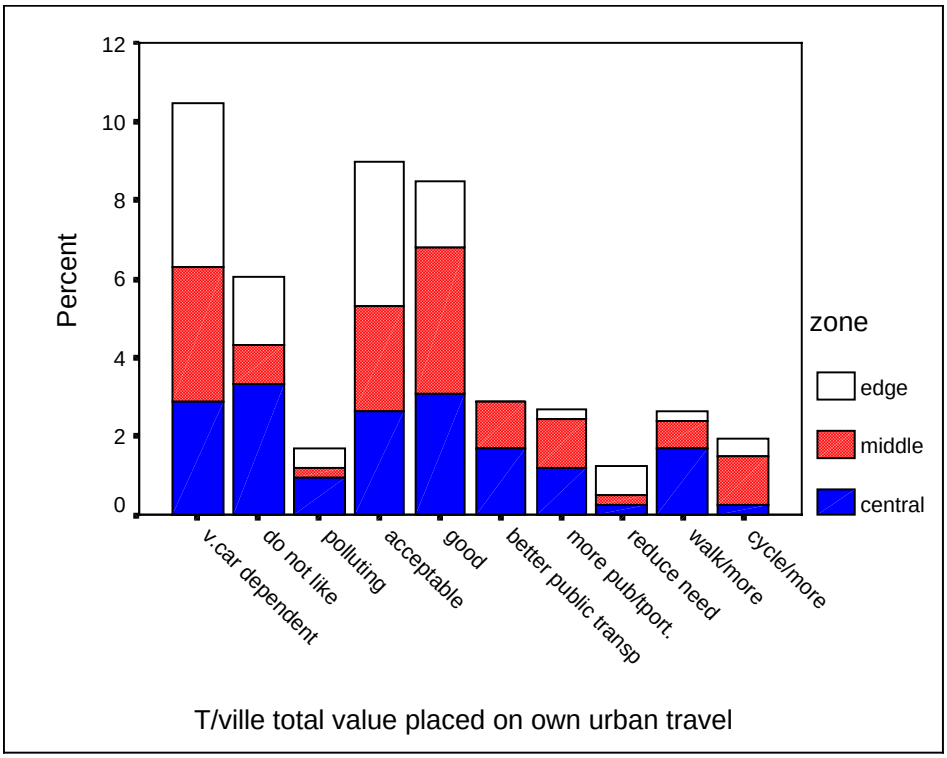
T/ville total perceptions of rail use



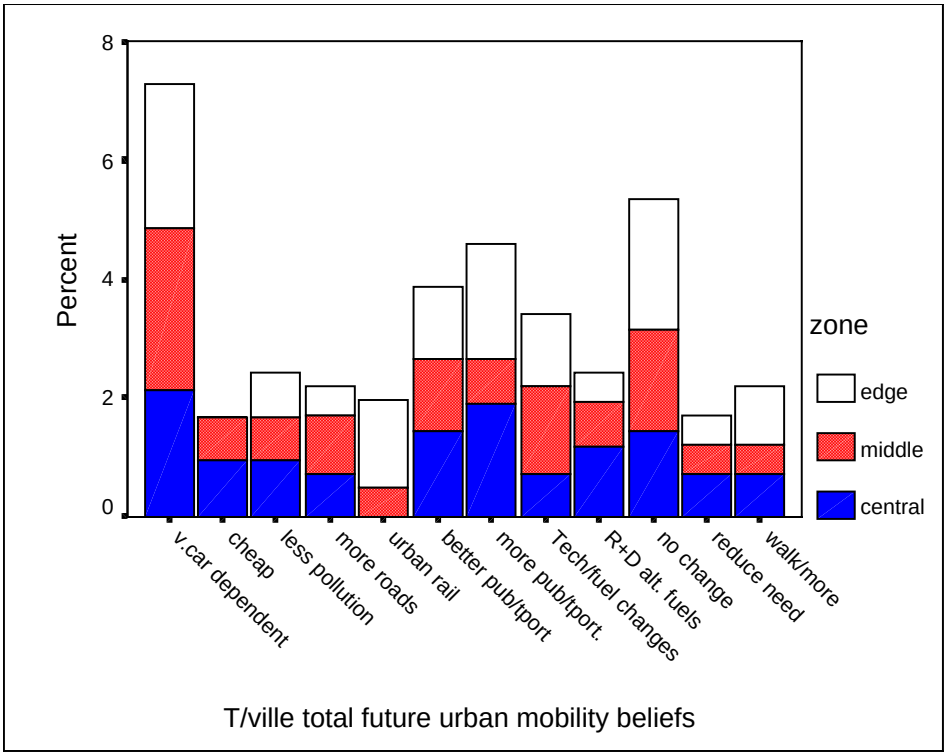
T/ville total connection between urban design and car travel needed



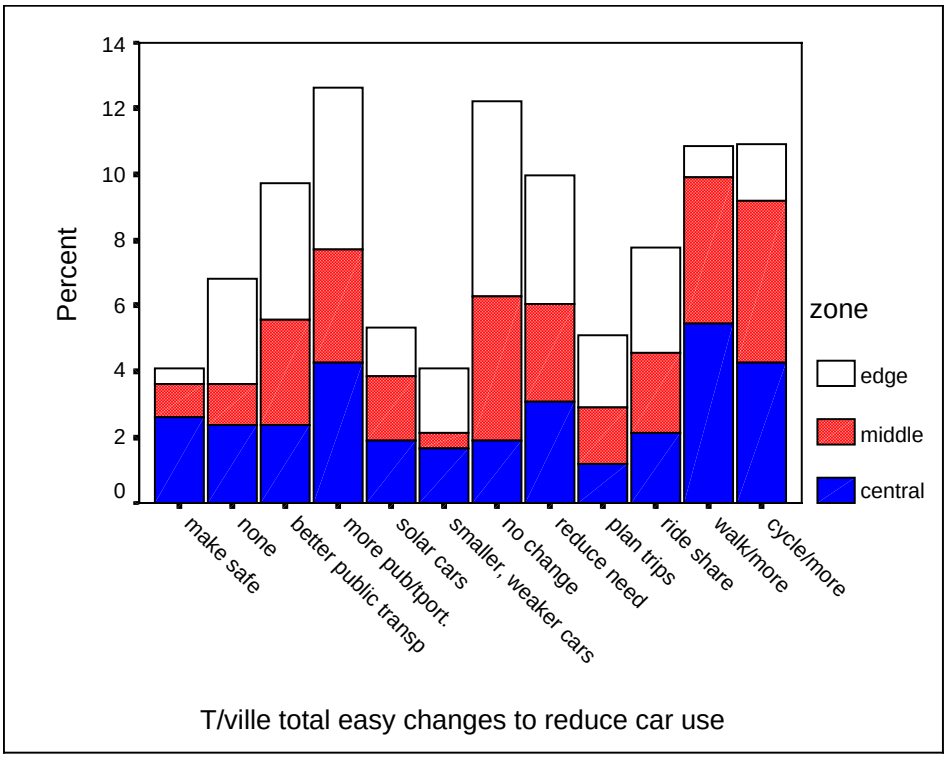
T/ville total perceptions of urban mobility now



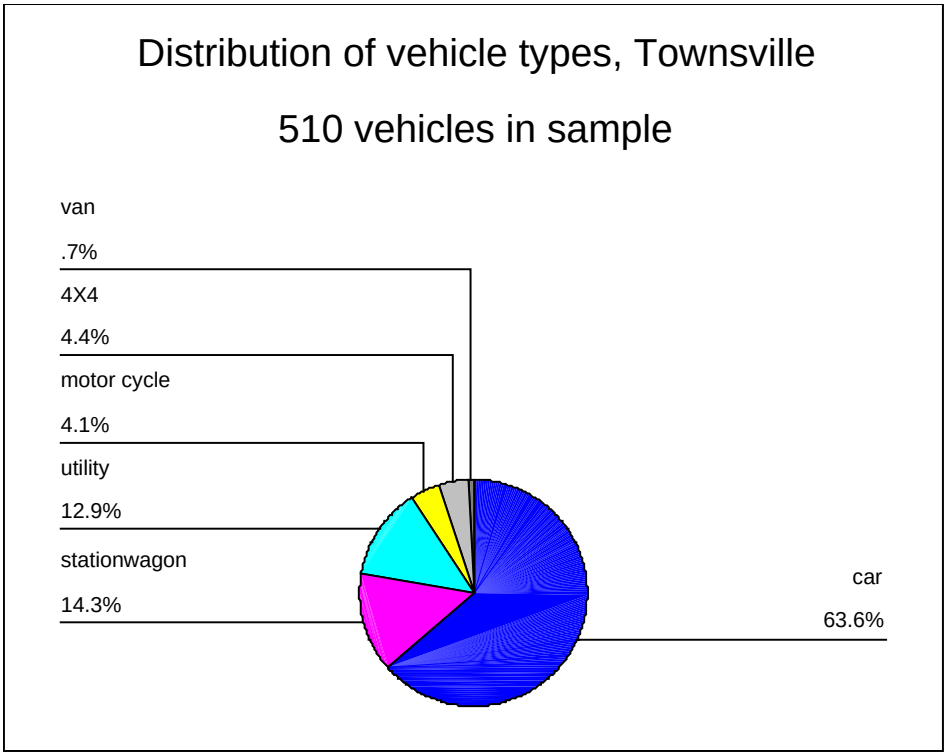
T/ville total value placed on own urban travel

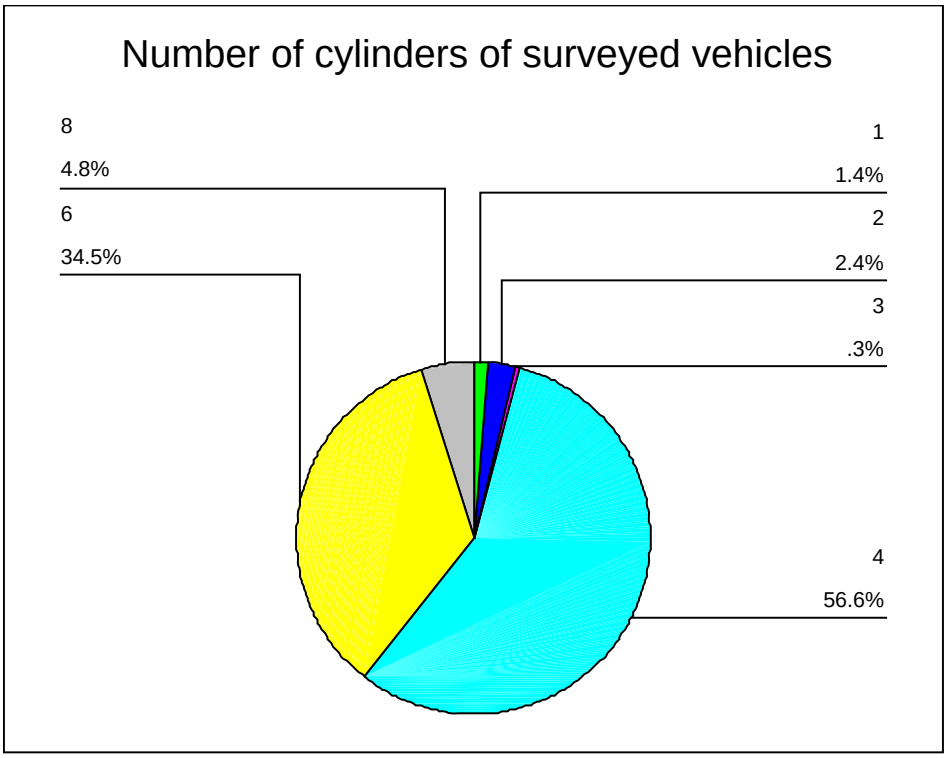


T/ville total future urban mobility beliefs

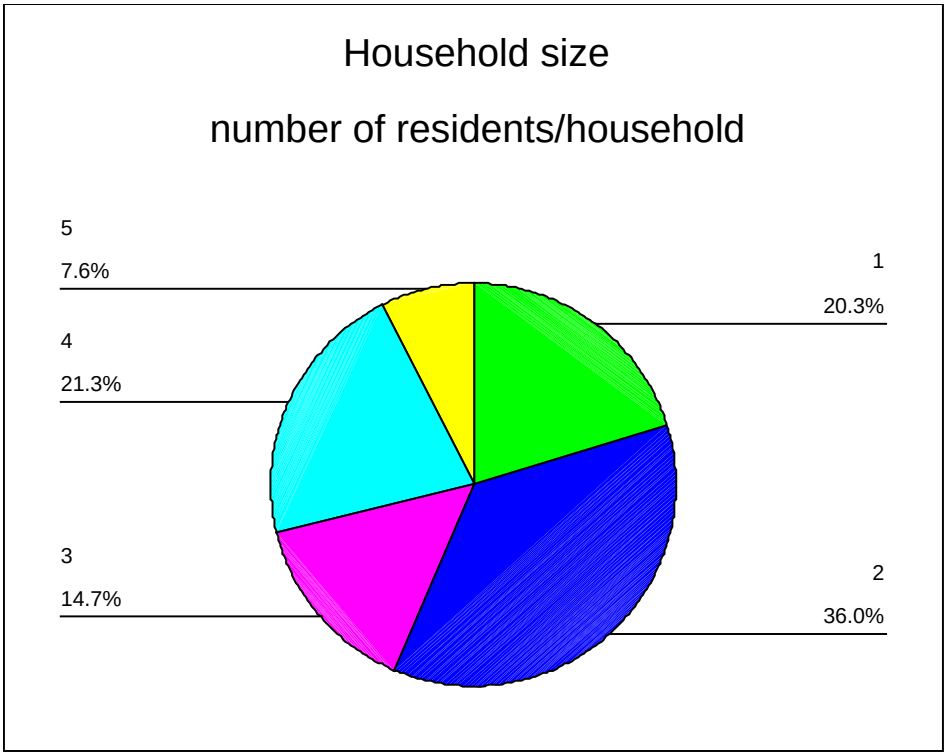


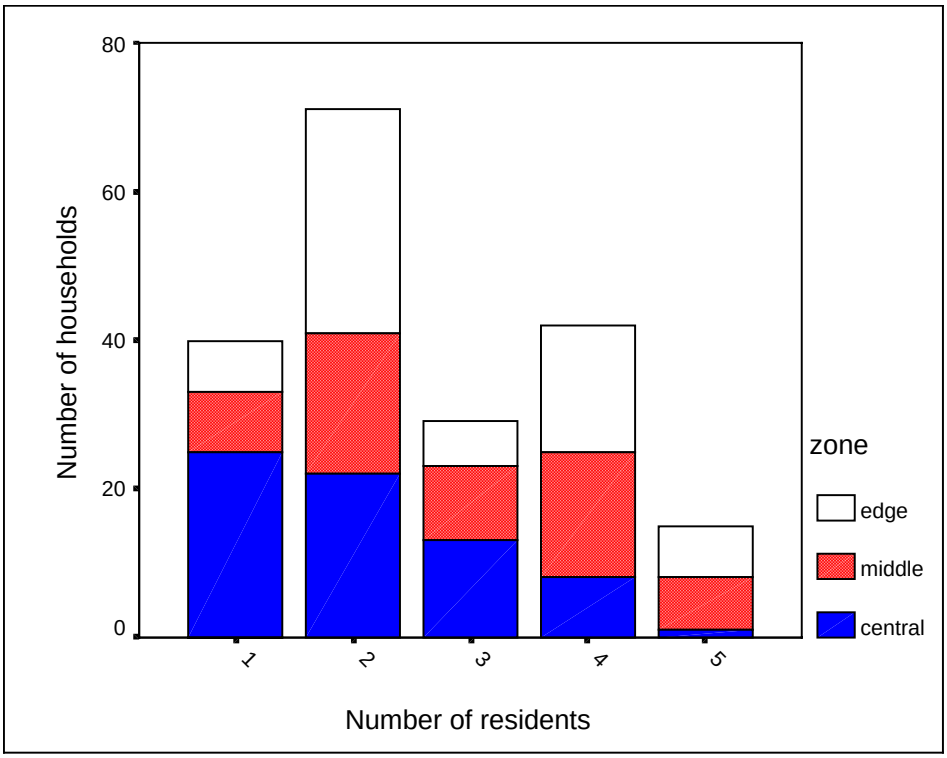
T/ville total easy changes to reduce car use

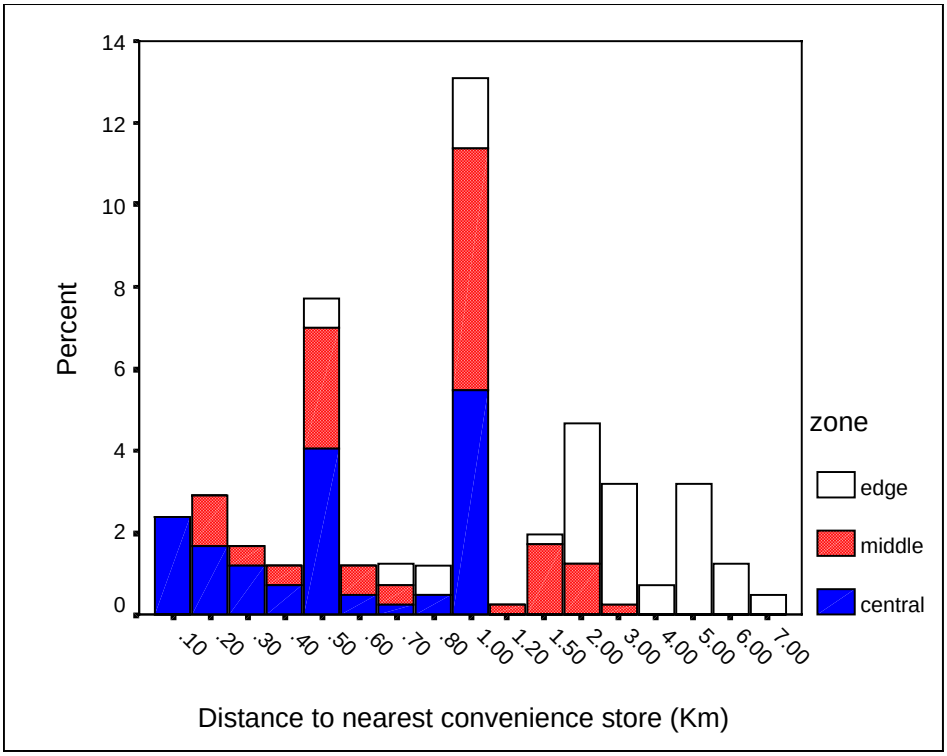


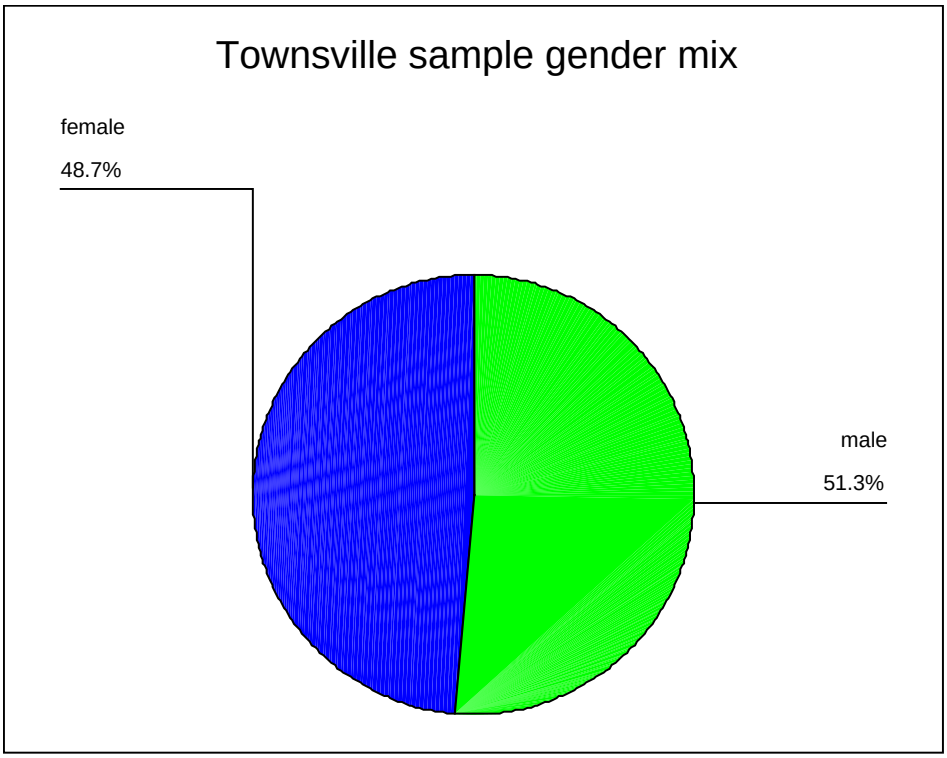


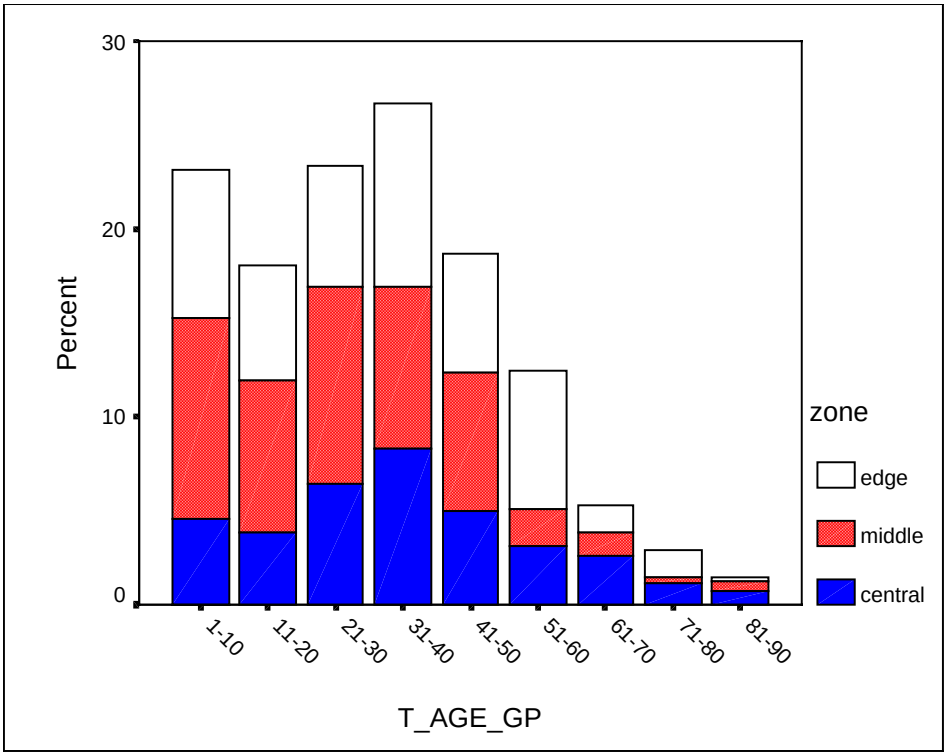
There are clear geographic and residential differences between the random CDs chosen from the three zones.

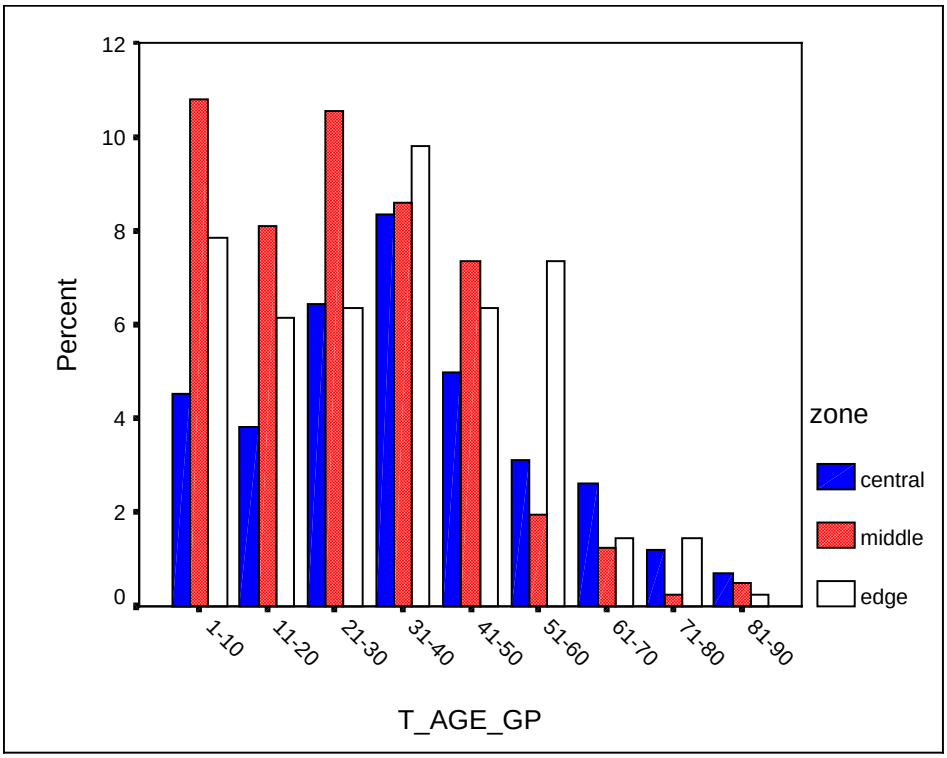

Household size
number of residents/household
5
7.6%
1
20.3%
4
21.3%
3
14.7%
2
36.0%

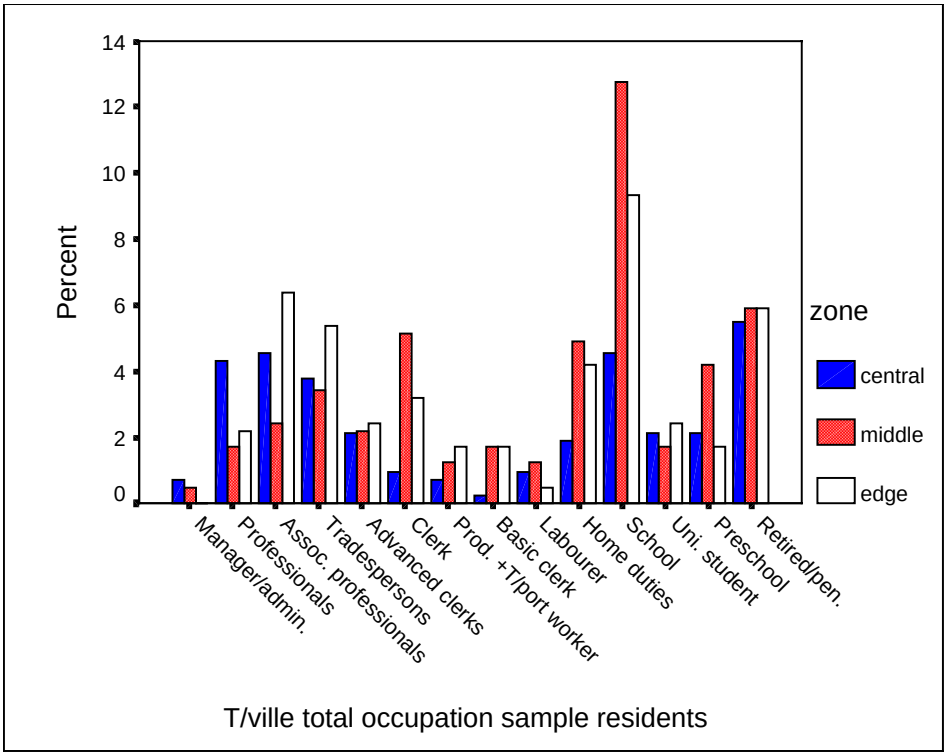

80
60
40
20
0
Number of households
1
2
3
4
5
Number of residents
zone
edge
middle
central


Percent
14
12
10
8
6
4
2
0
zone
edge
middle
central
.10
.20
.30
.40
.50
.60
.70
.80
1.00
1.20
1.50
2.00
3.00
4.00
5.00
6.00
7.00
Distance to nearest convenience store (Km)

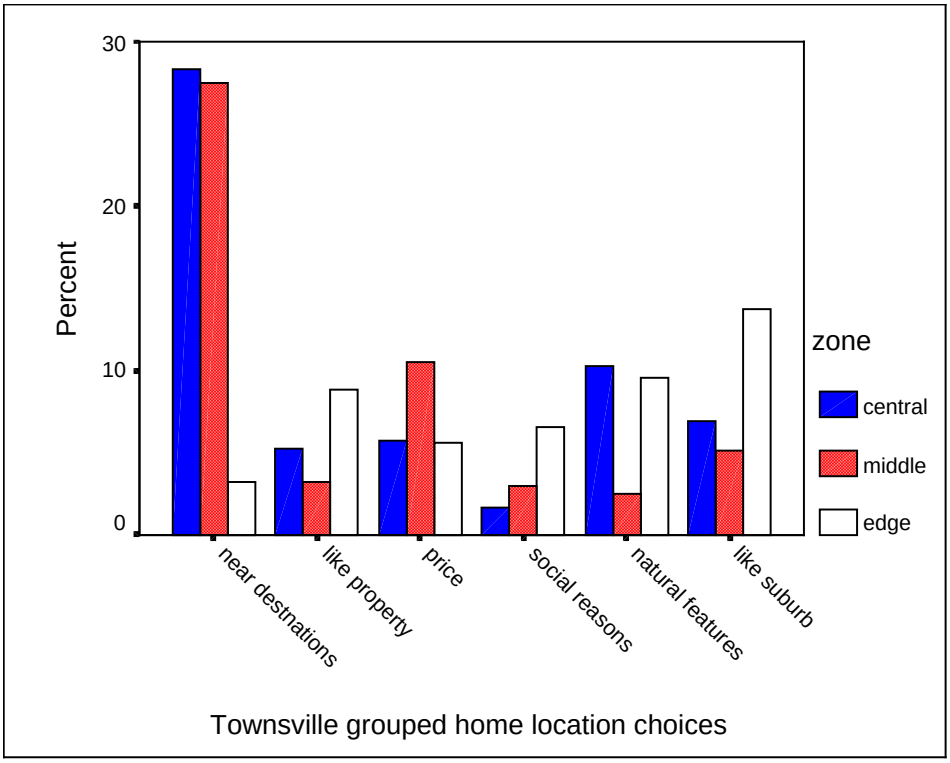

Townsville sample gender mix
female
48.7%
male
51.3%

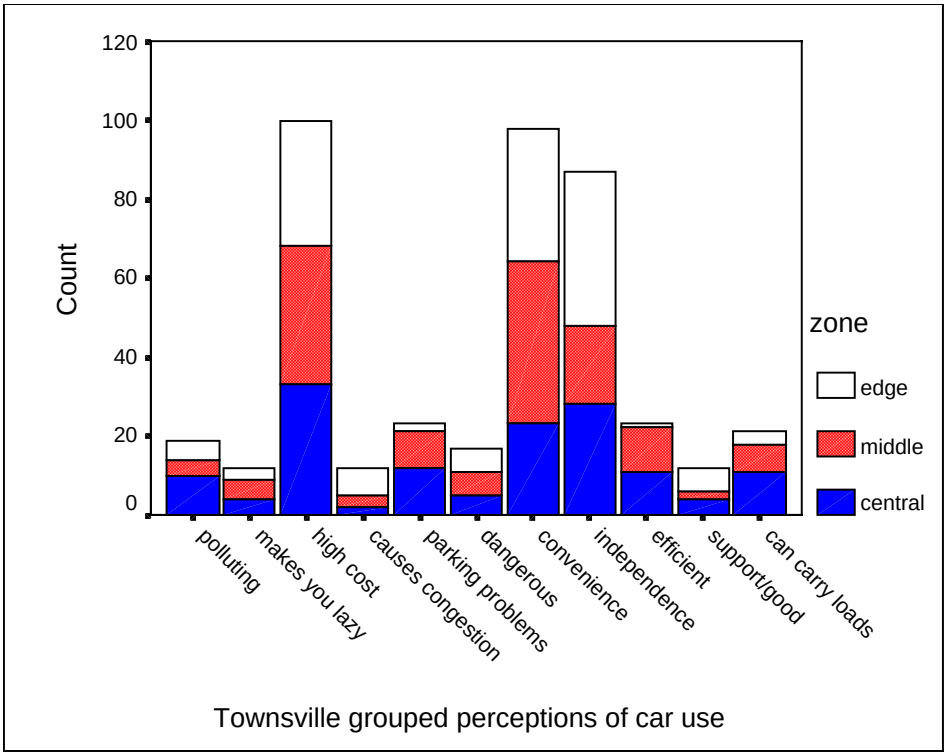

30
20
10
0
Percent
1-10
11-20
21-30
31-40
41-50
51-60
61-70
71-80
81-90
T_AGE_GP
zone
edge
middle
central


12
10
8
6
4
2
0
Percent
1-10
11-20
21-30
31-40
41-50
51-60
61-70
71-80
81-90
T_AGE_GP
zone
central
middle
edge

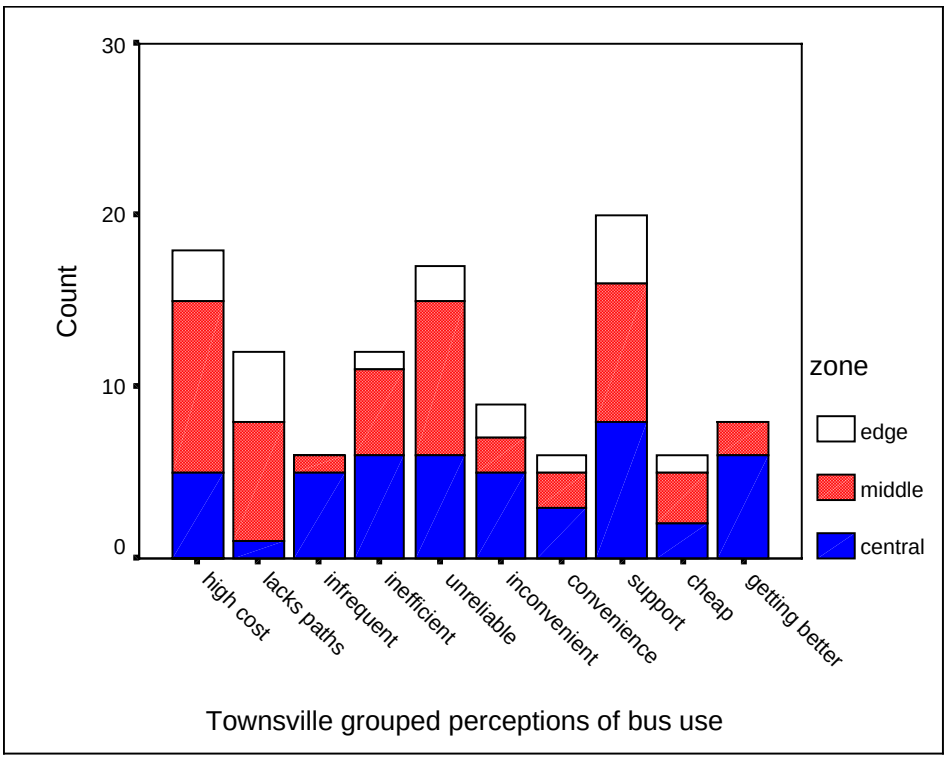


Composite charts

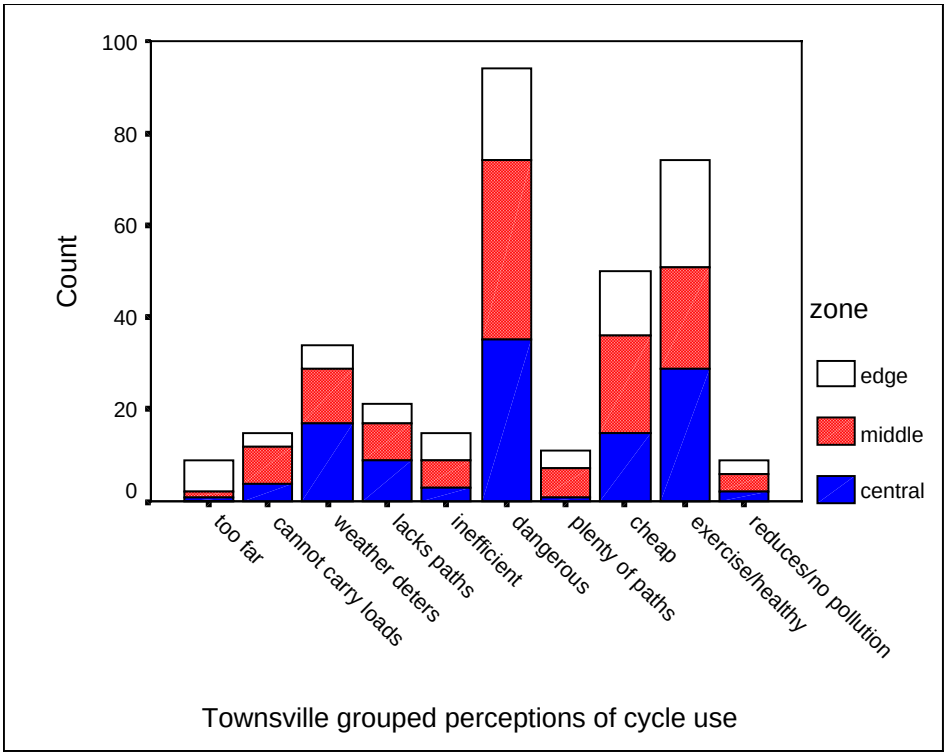




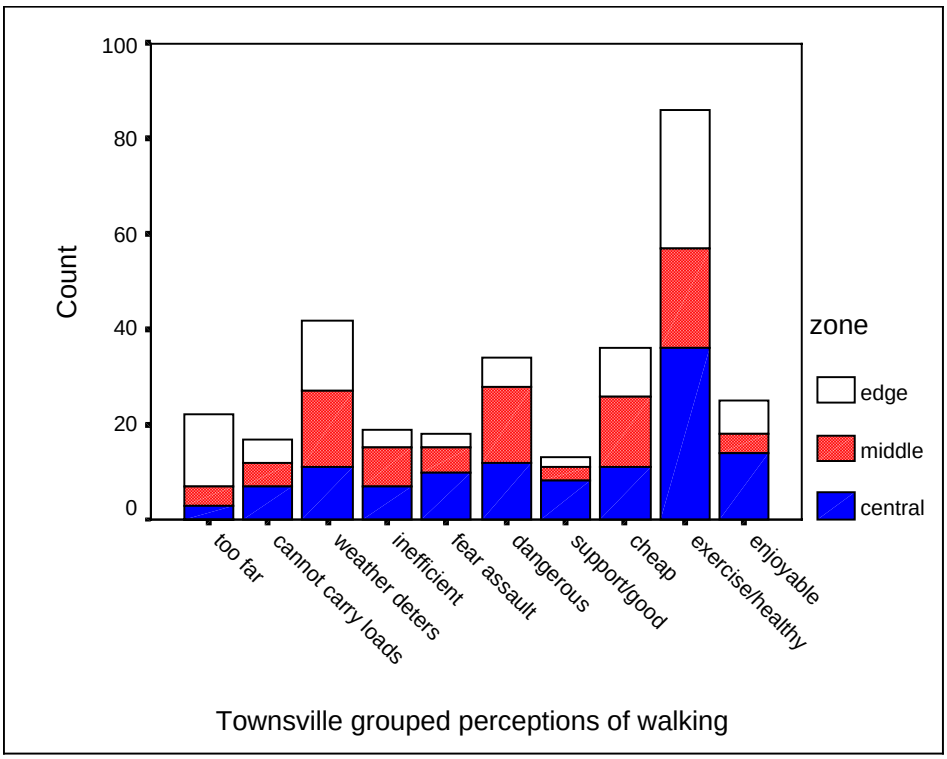
Townsville grouped perceptions of car use



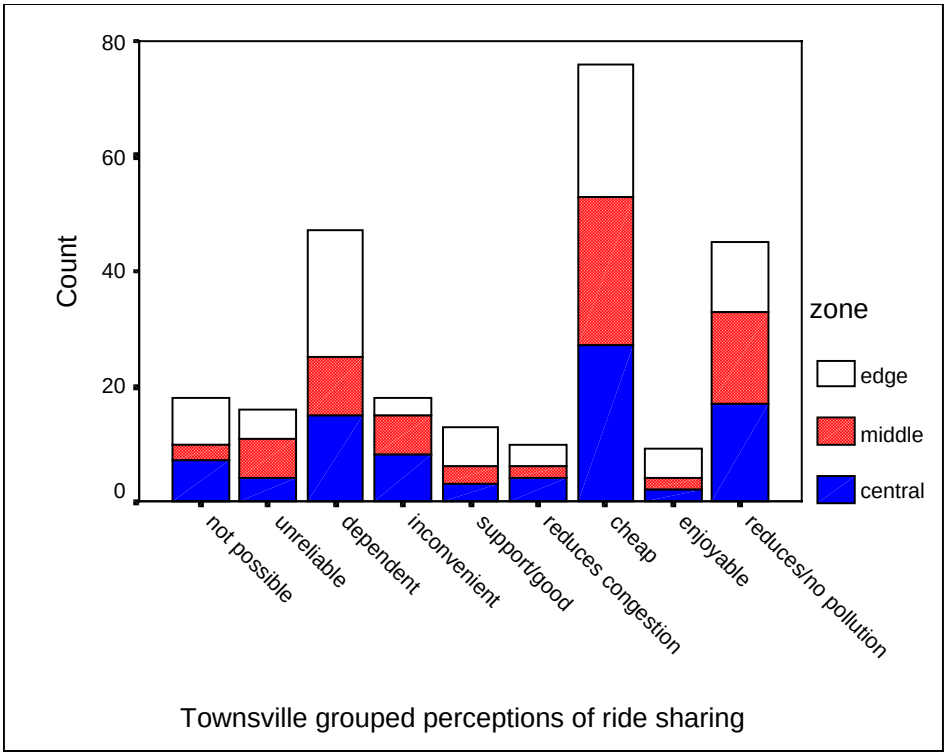
Townsville grouped perceptions of bus use



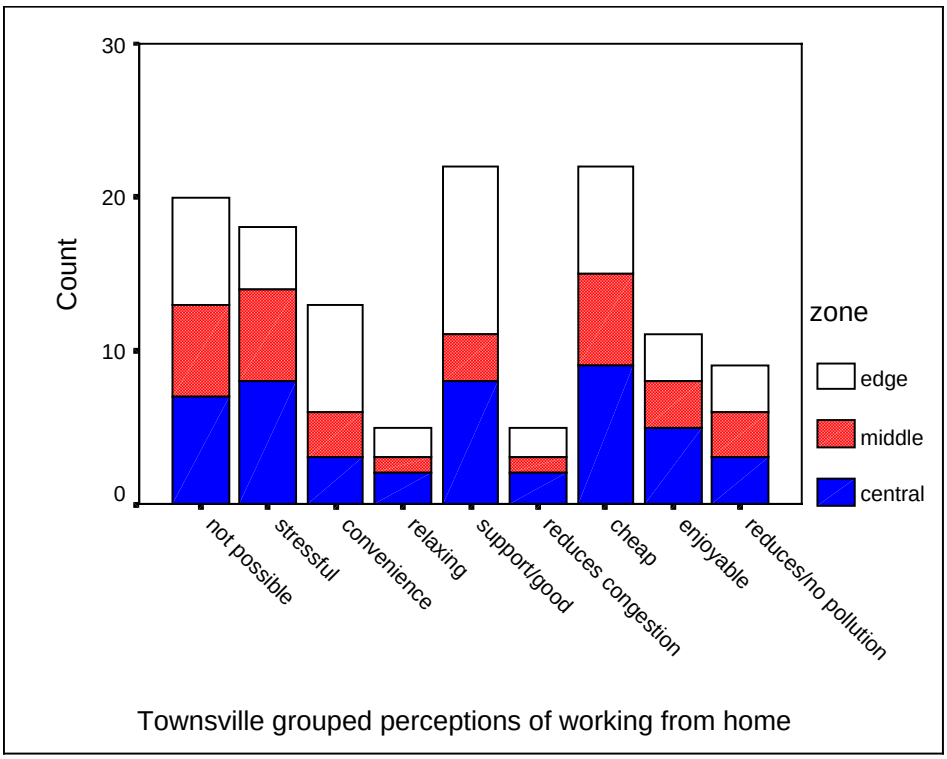
Townsville grouped perceptions of cycle use



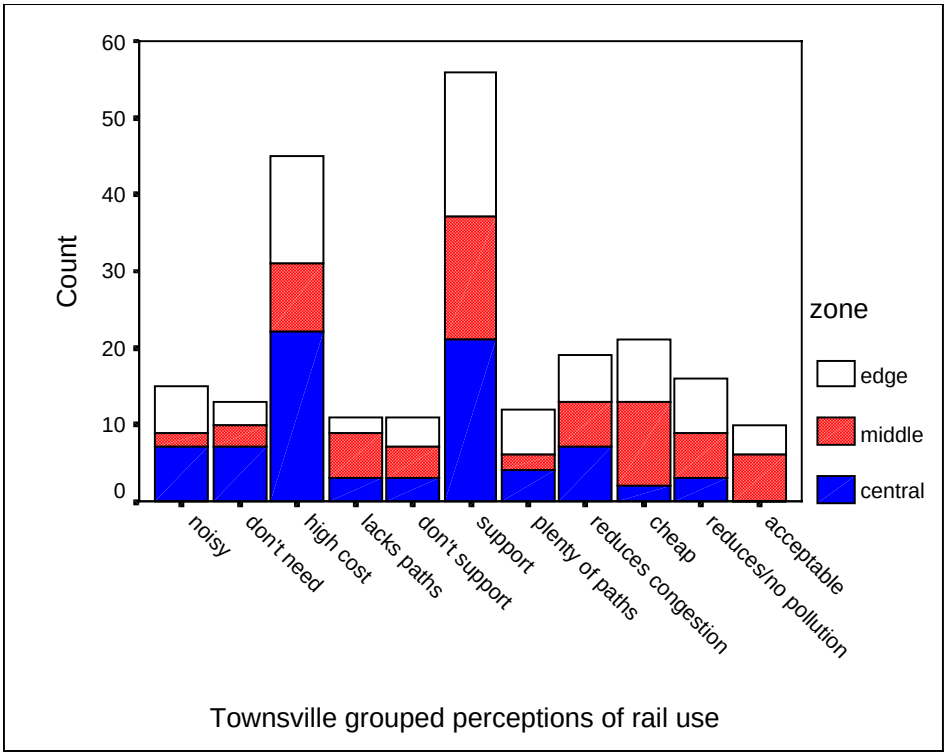
Townsville grouped perceptions of walking



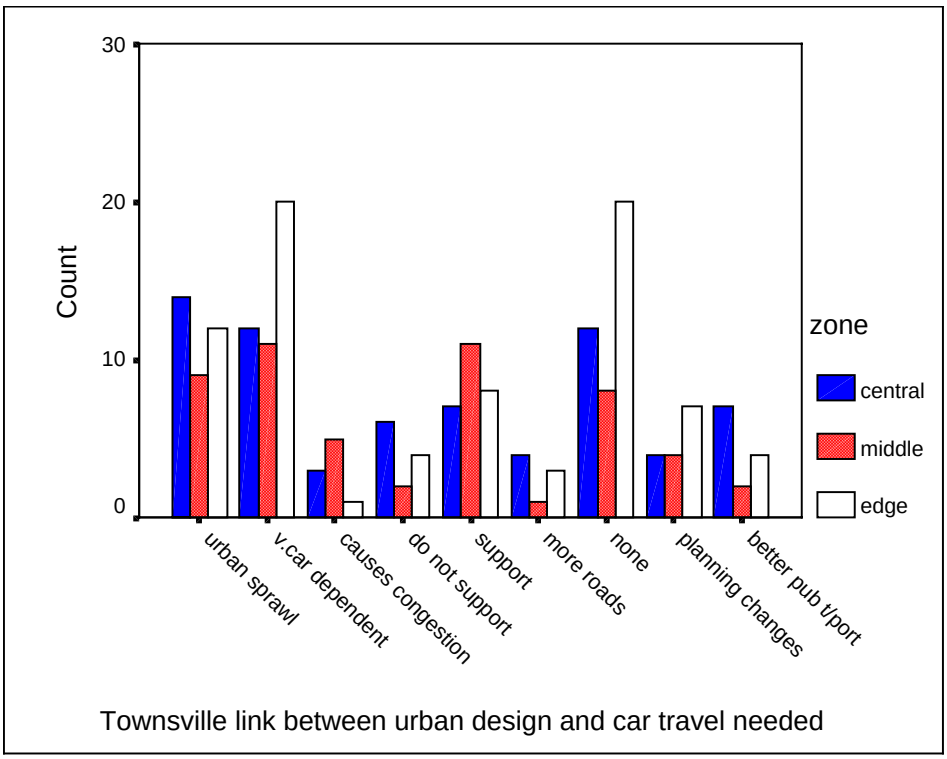
Townsville grouped perceptions of ride sharing



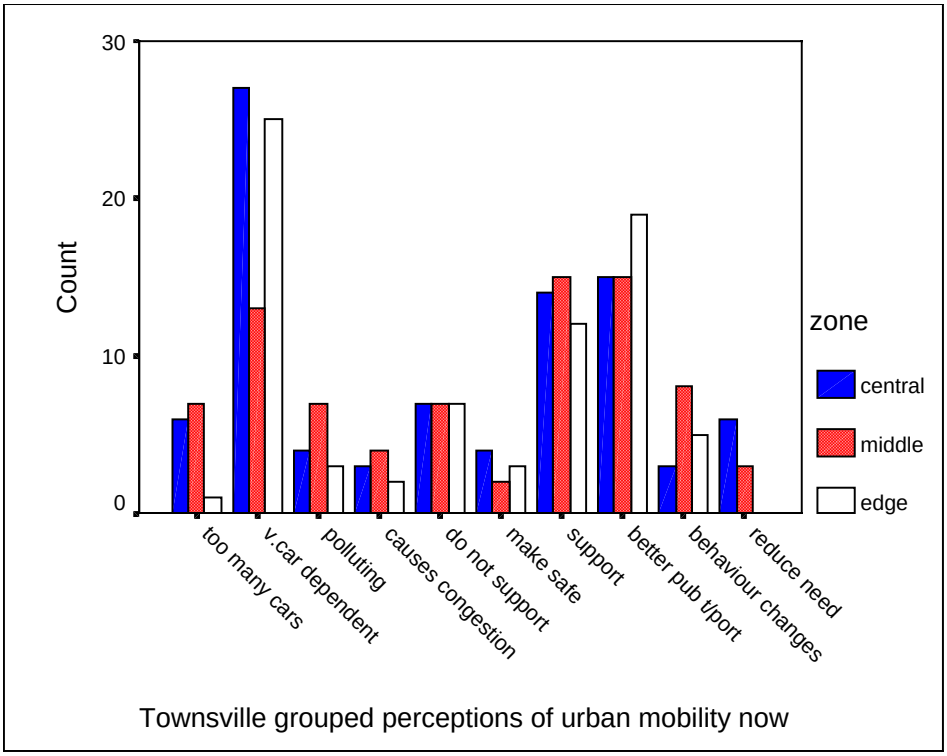
Townsville grouped perceptions of working from home



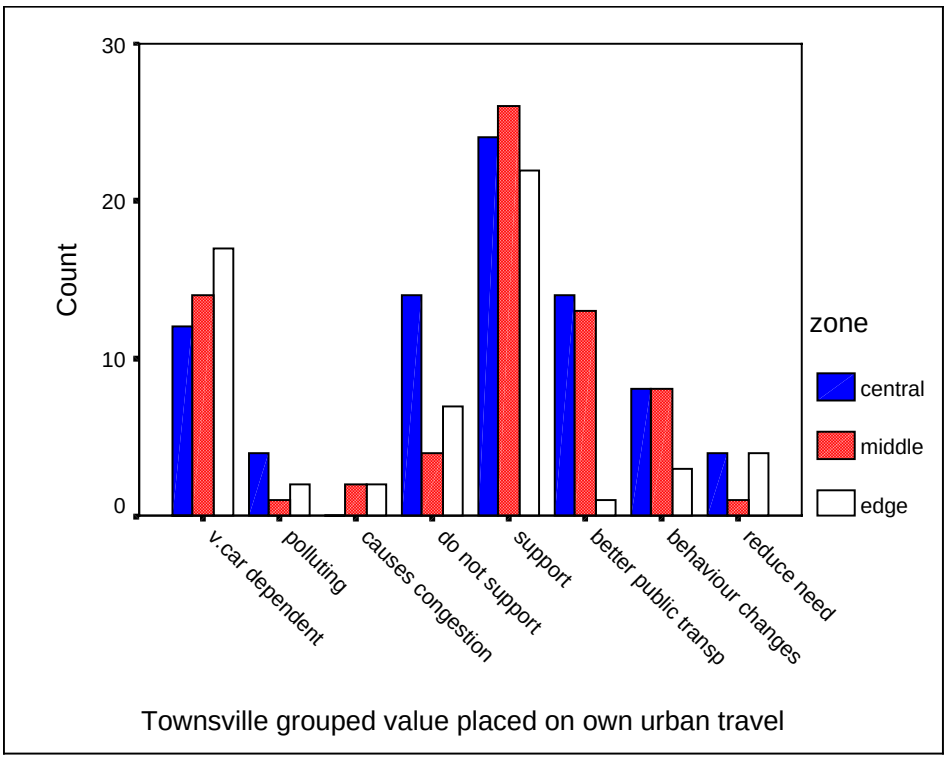
Townsville grouped perceptions of rail use



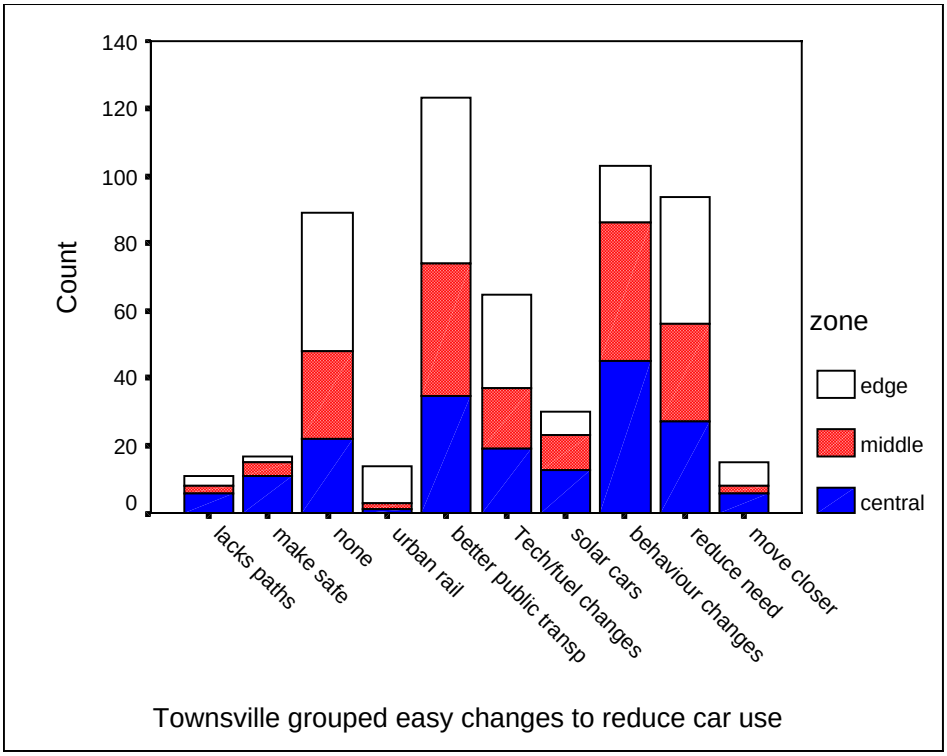
Townsville link between urban design and car travel needed



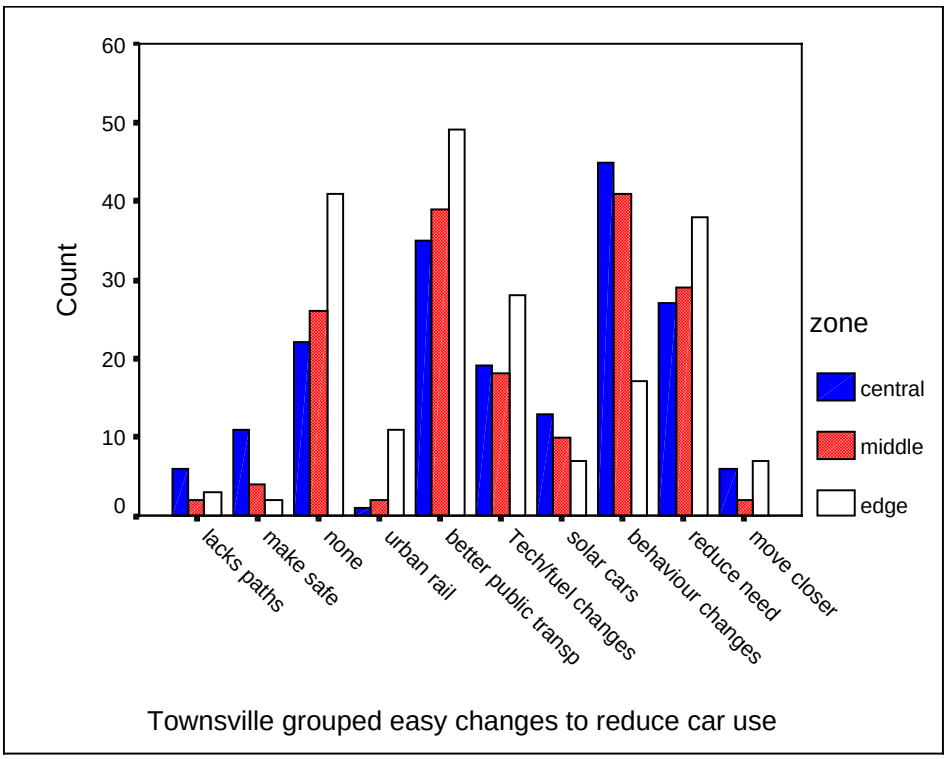
Townsville grouped perceptions of urban mobility now



Townsville grouped value placed on own urban travel

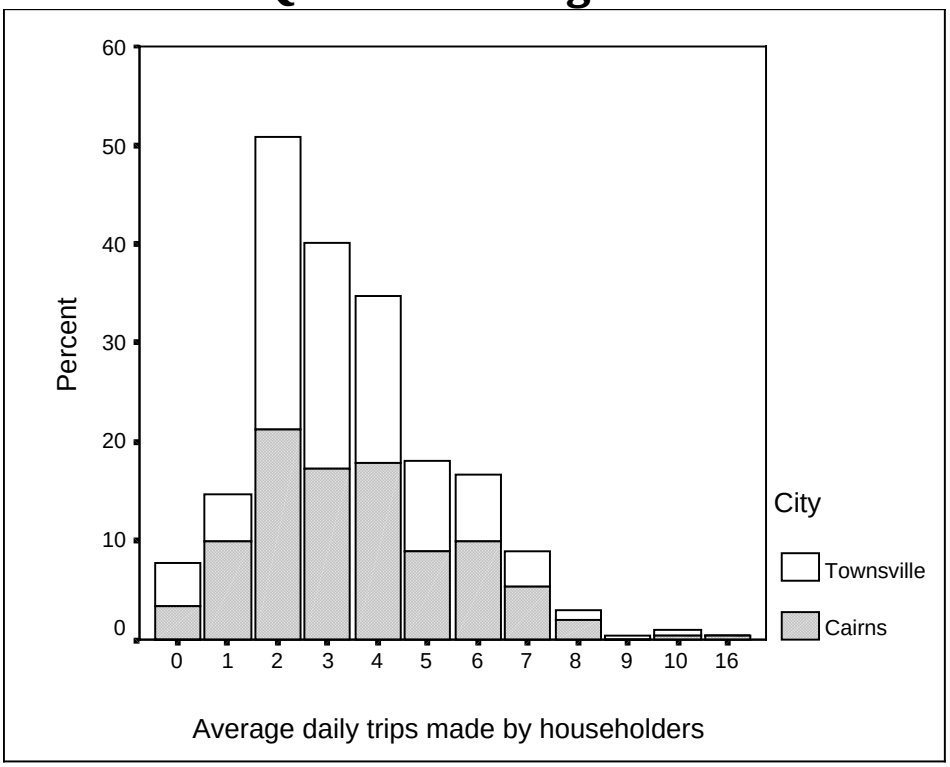


Townsville grouped easy changes to reduce car use

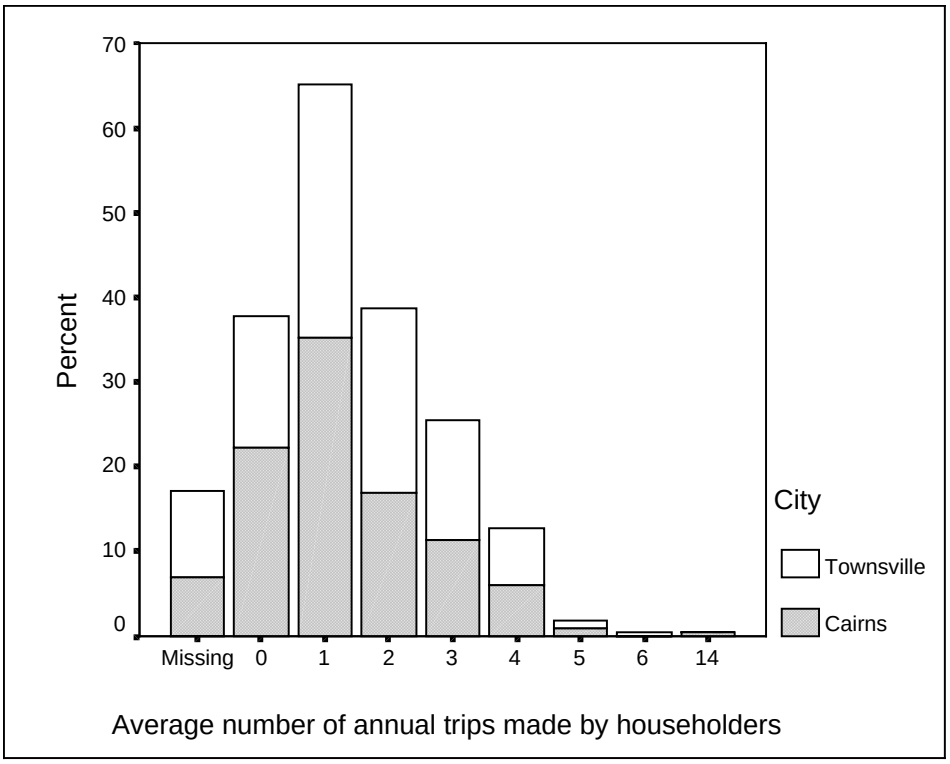


Townsville grouped easy changes to reduce car use

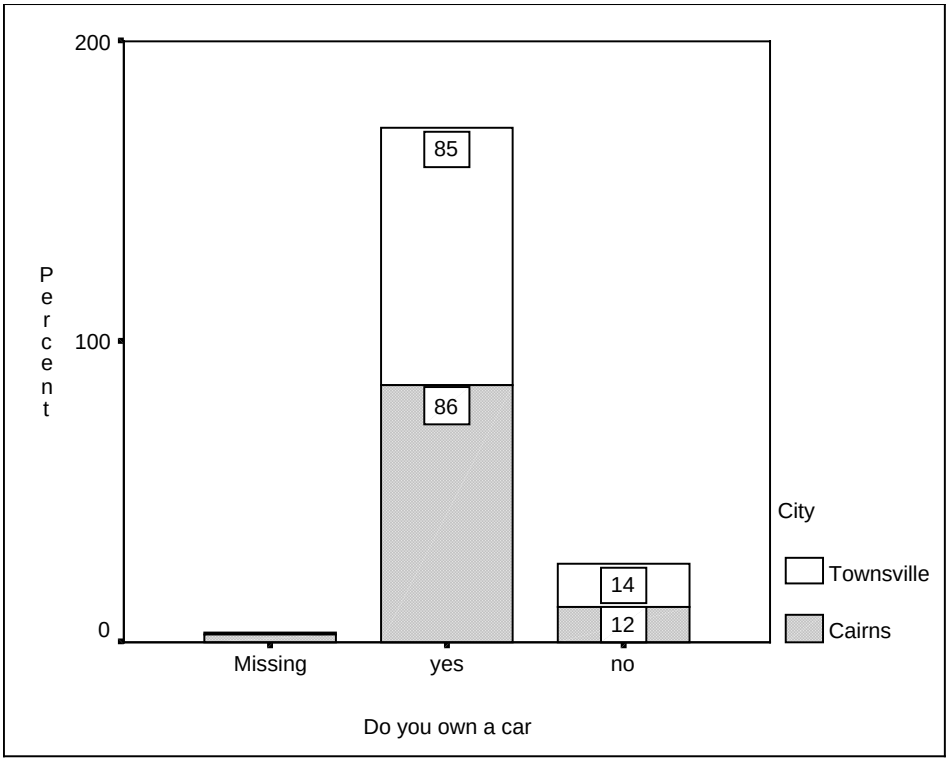
Appendix 16
North Queensland general data charts

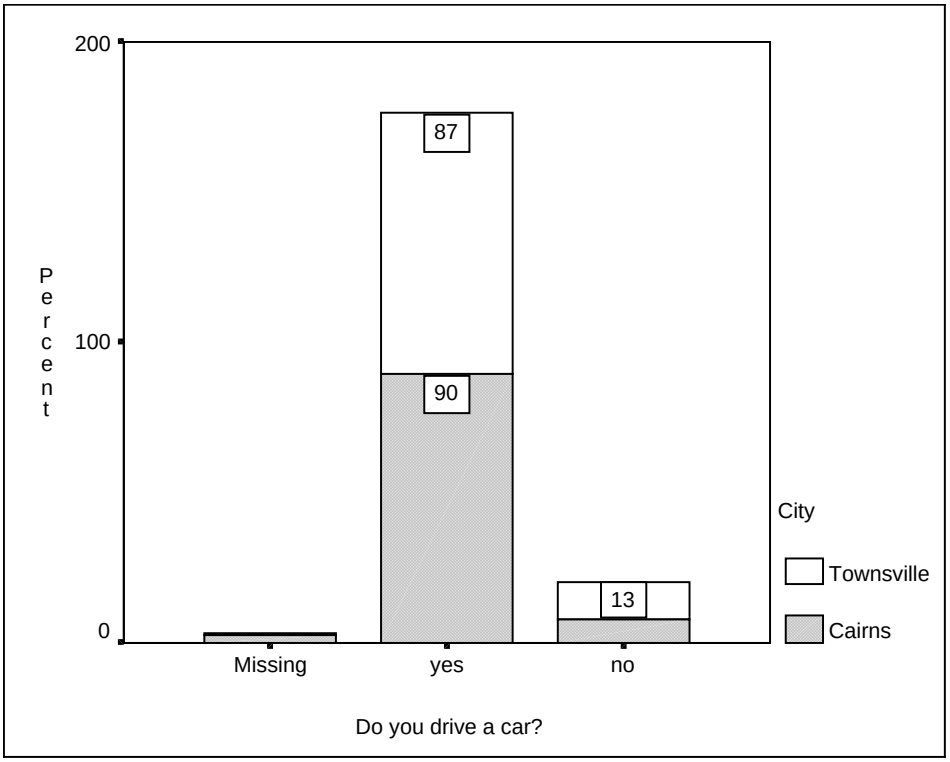


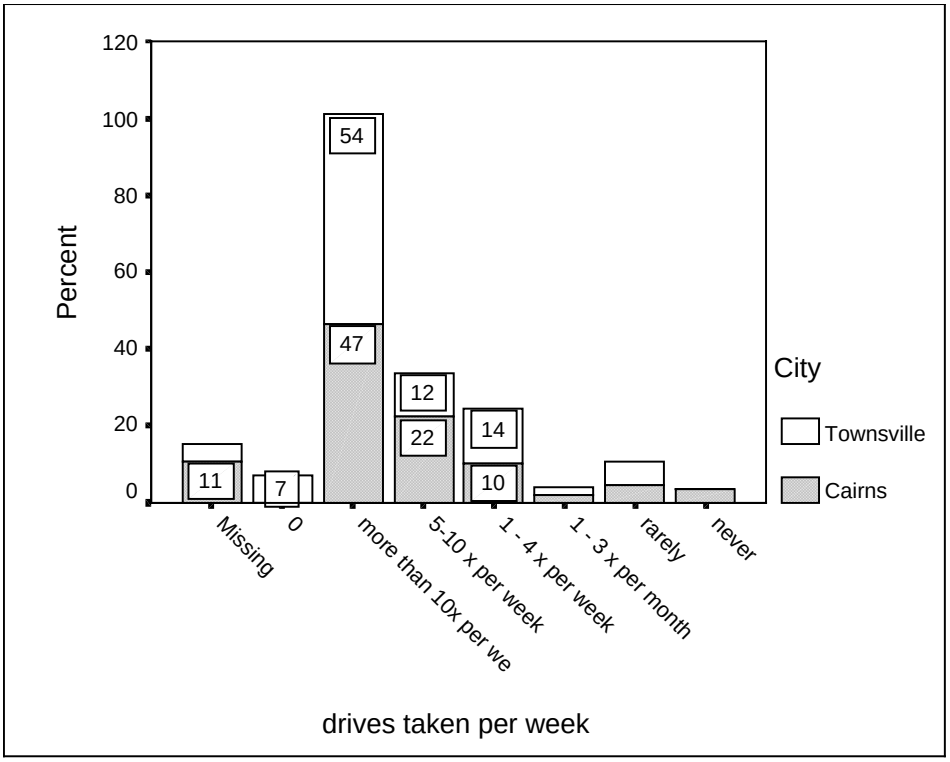
Average daily trips made by householders

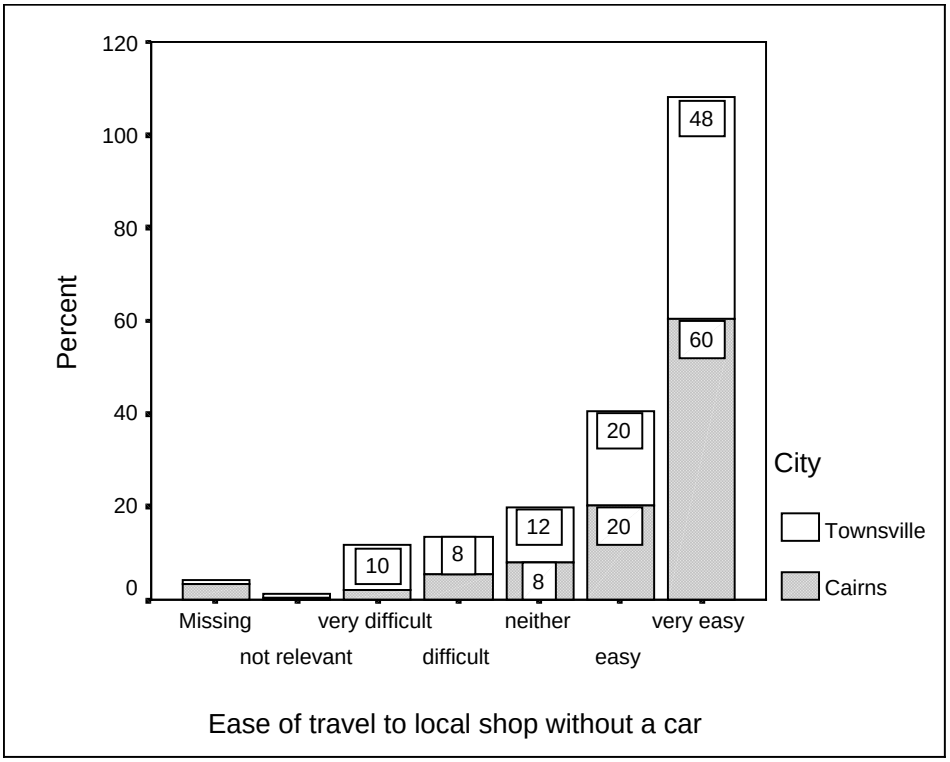


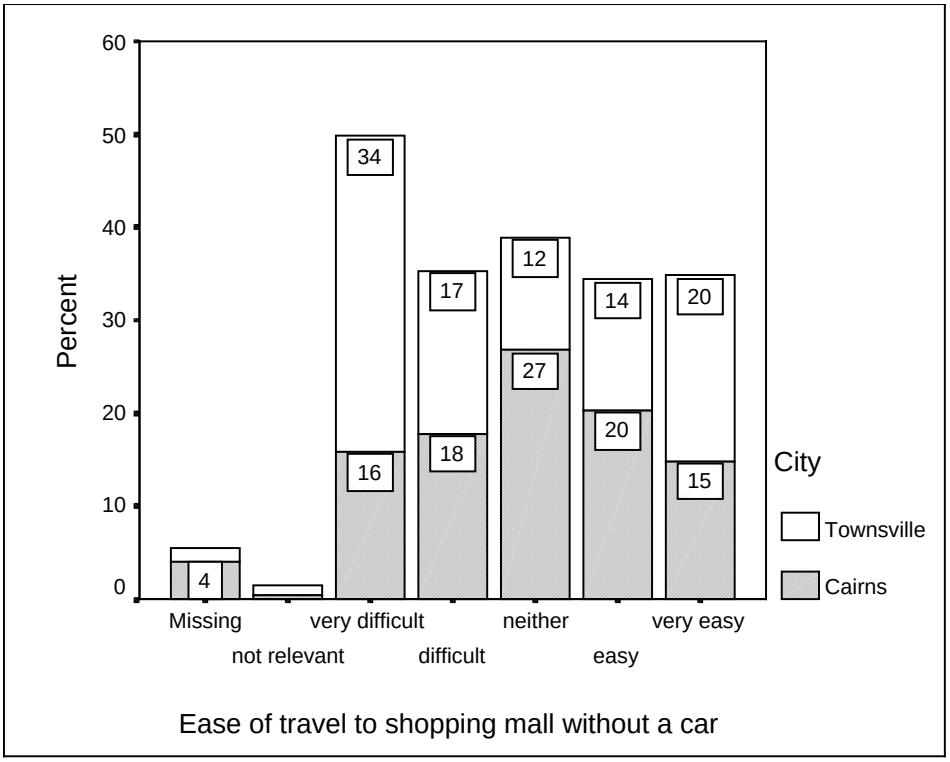
Average number of annual trips made by householders


200
100
0
Percent
85
86
14
12
Missing
yes
no
City
Townsville
Cairns
Do you own a car

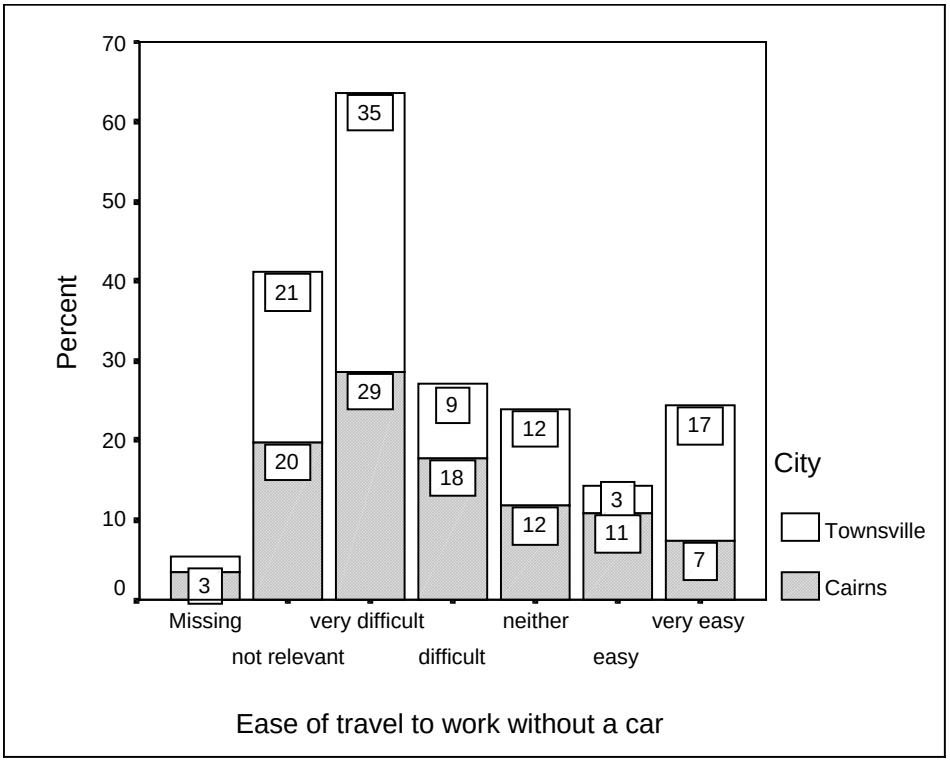

200
100
0
Percent
87
90
13
Missing
yes
no
City
Townsville
Cairns
Do you drive a car?


120
100
80
60
40
20
0
Percent
54
47
12
22
14
10
11
7
City
Townsville
Cairns
Missing
0
more than 10x per we
5-10 x per week
1 - 4 x per week
1 - 3 x per month
rarely
never
drives taken per week

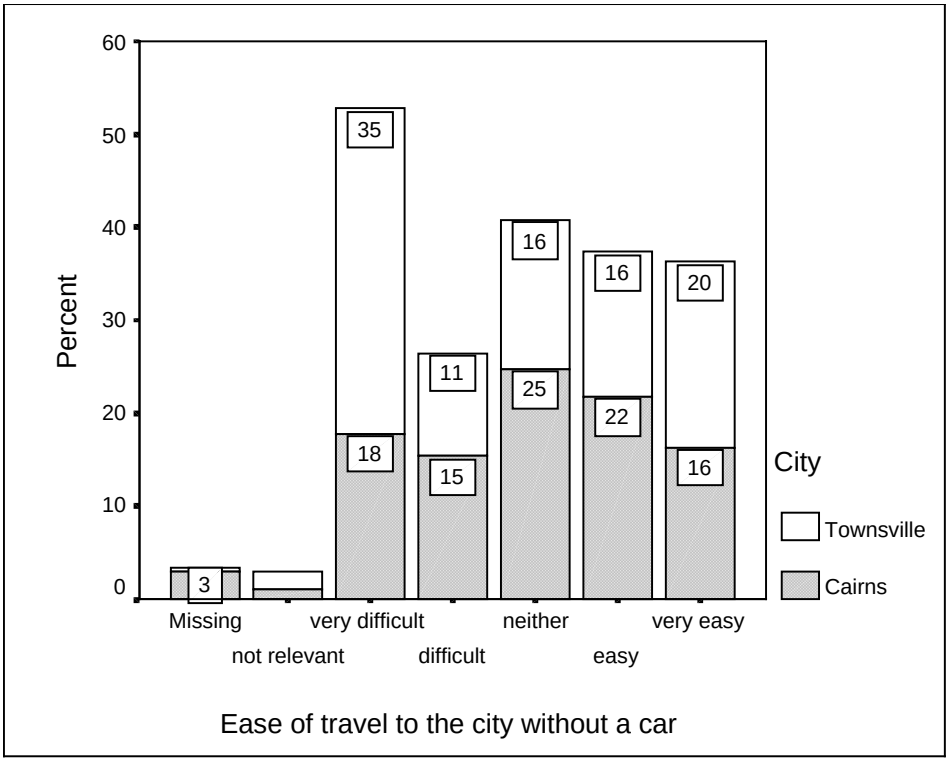

120
100
80
60
40
20
0
Percent
48
60
20
20
12
8
10
8
City
Townsville
Cairns
Missing
not relevant
very difficult
difficult
neither
easy
very easy
Ease of travel to local shop without a car



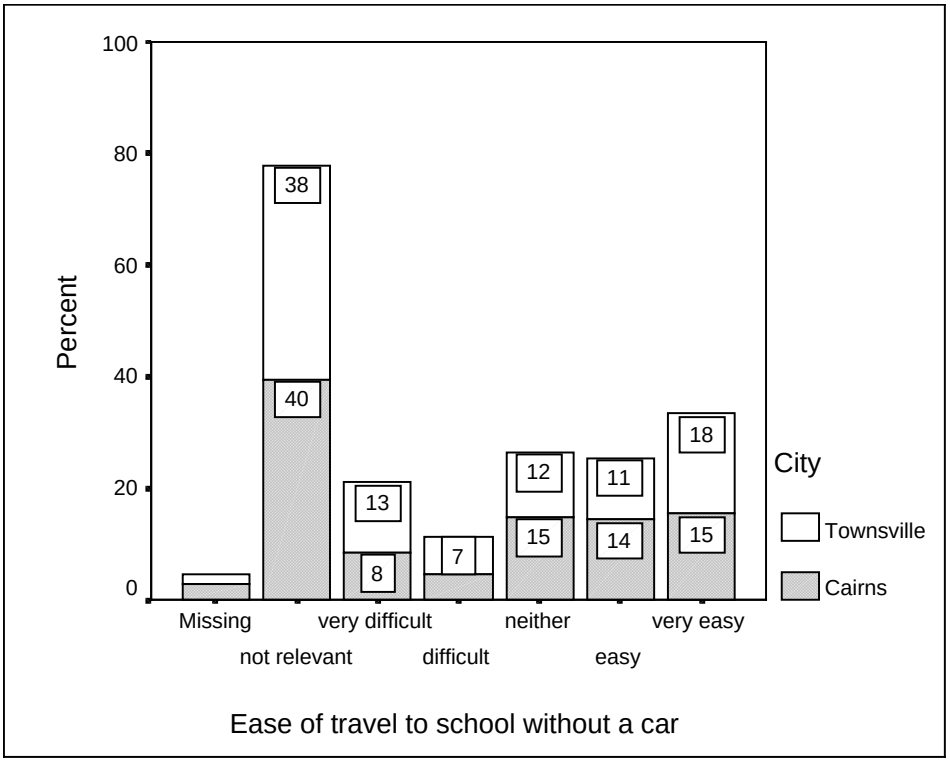
Ease of travel to shopping mall without a car



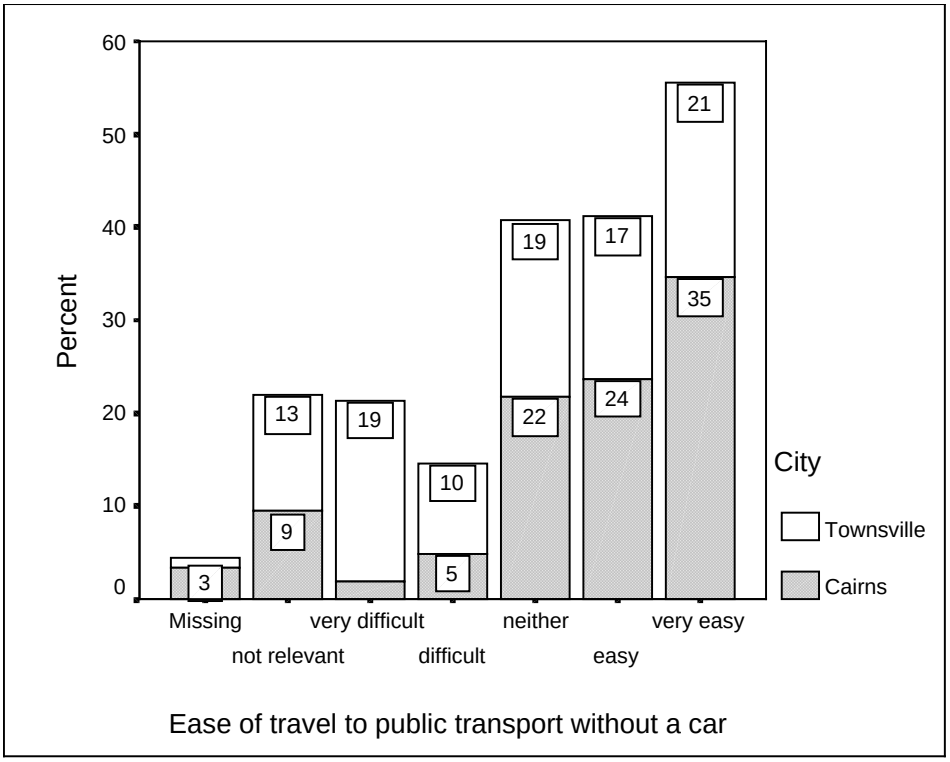
Ease of travel to work without a car



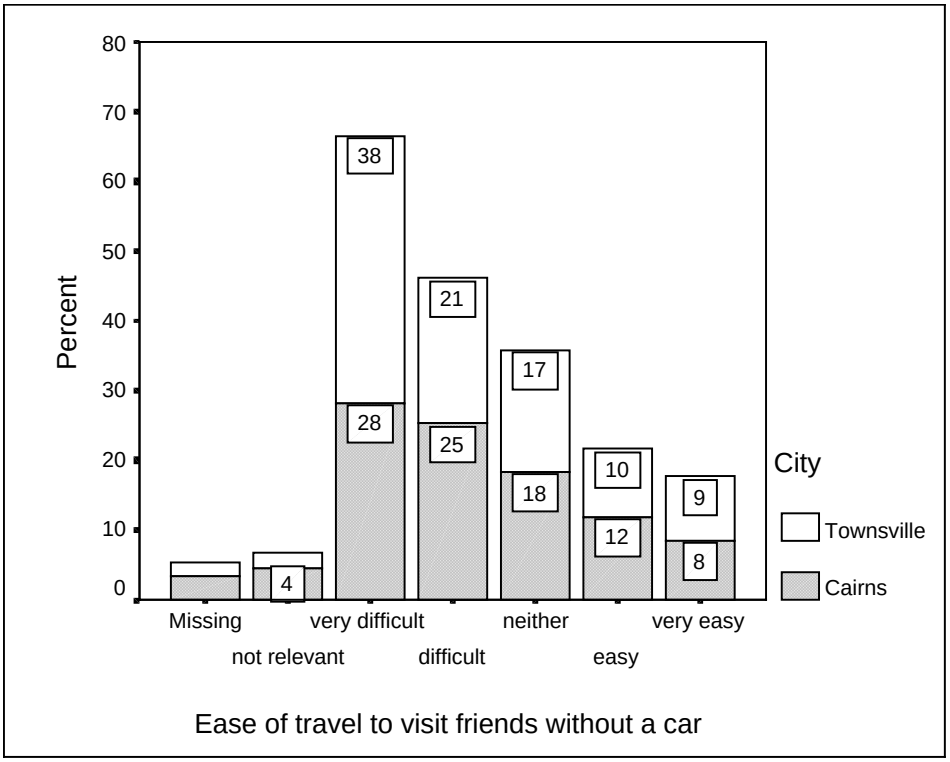
Ease of travel to the city without a car



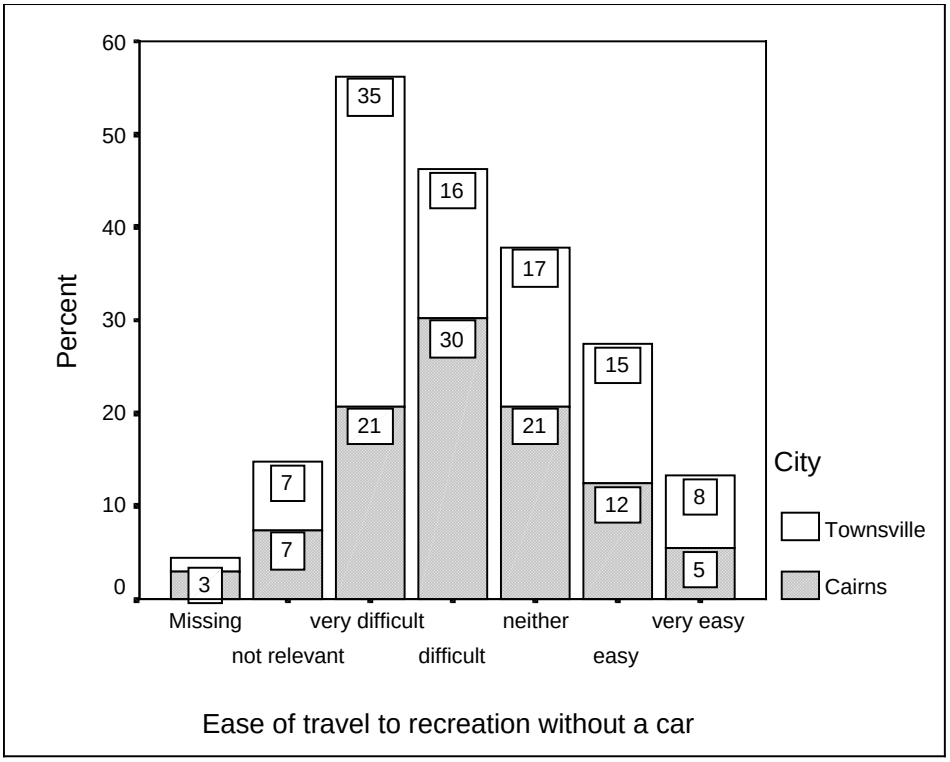
Ease of travel to school without a car



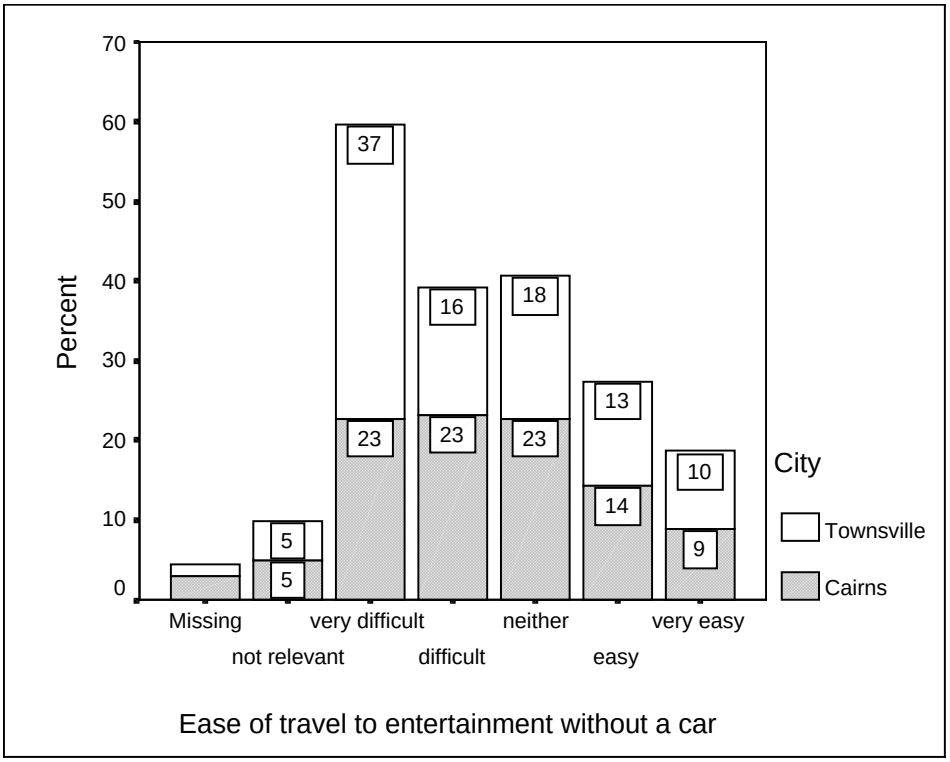
Ease of travel to public transport without a car



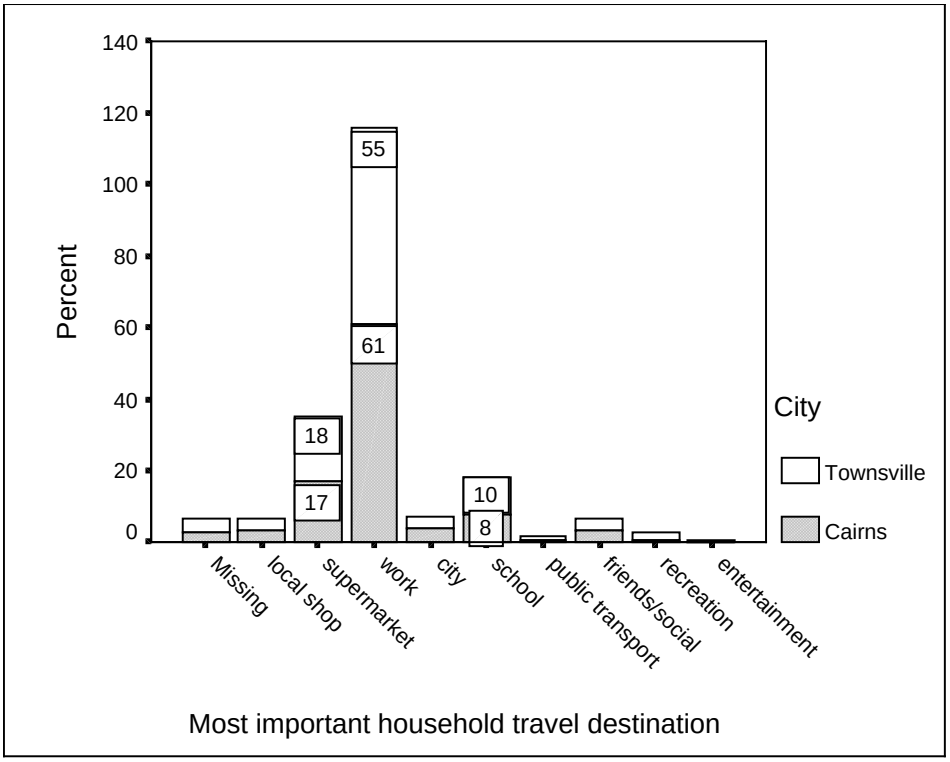
Ease of travel to visit friends without a car



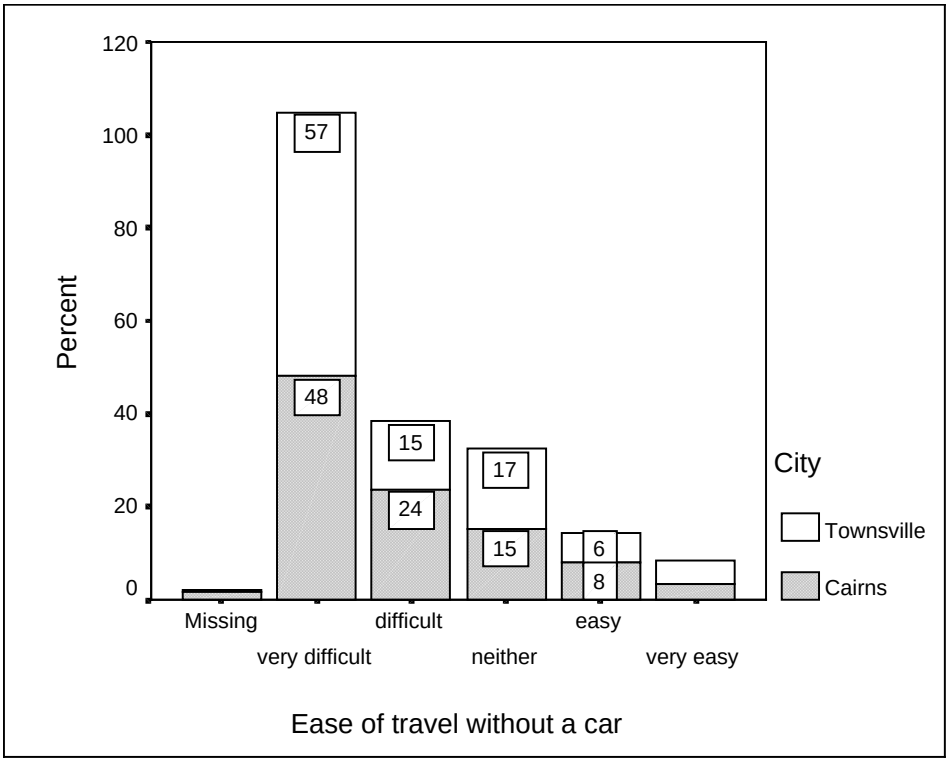
Ease of travel to recreation without a car



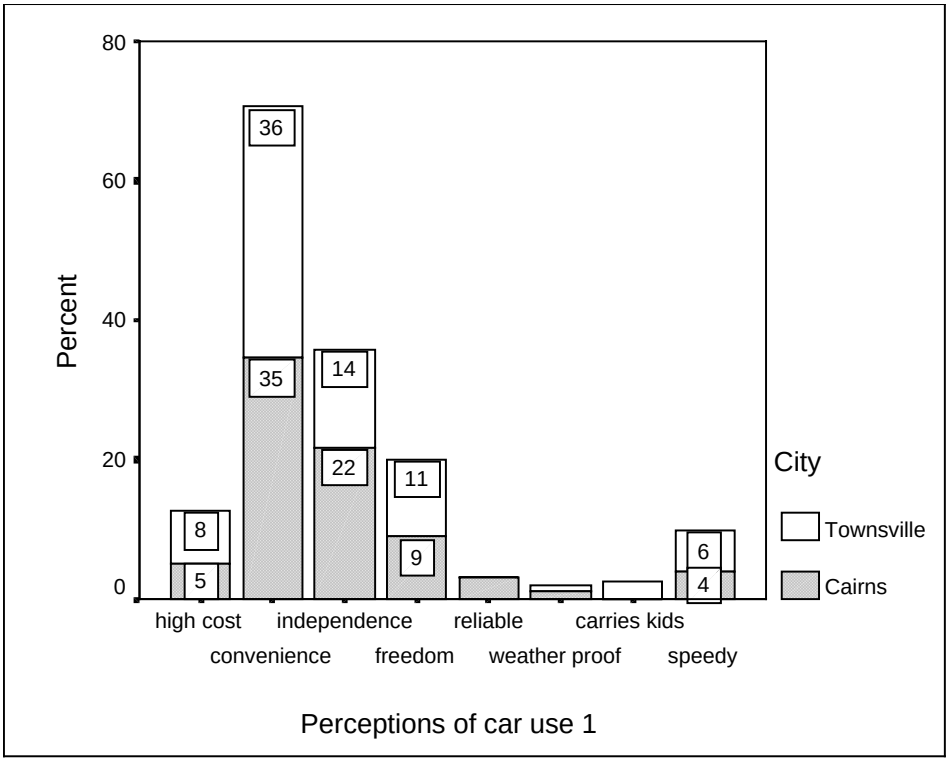
Ease of travel to entertainment without a car



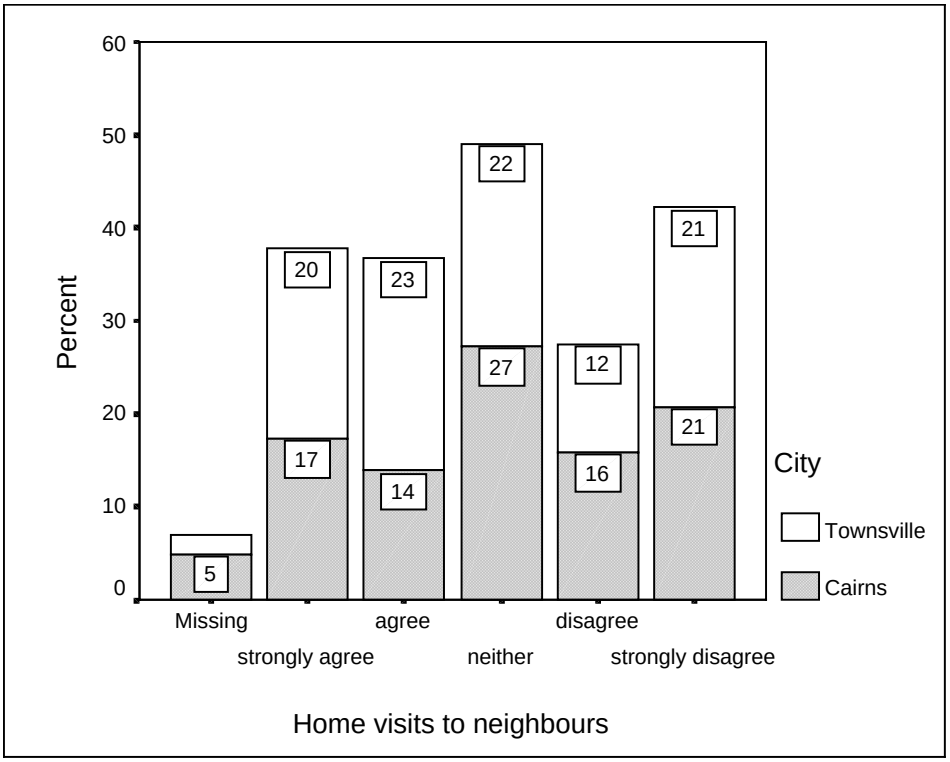
Most important household travel destination



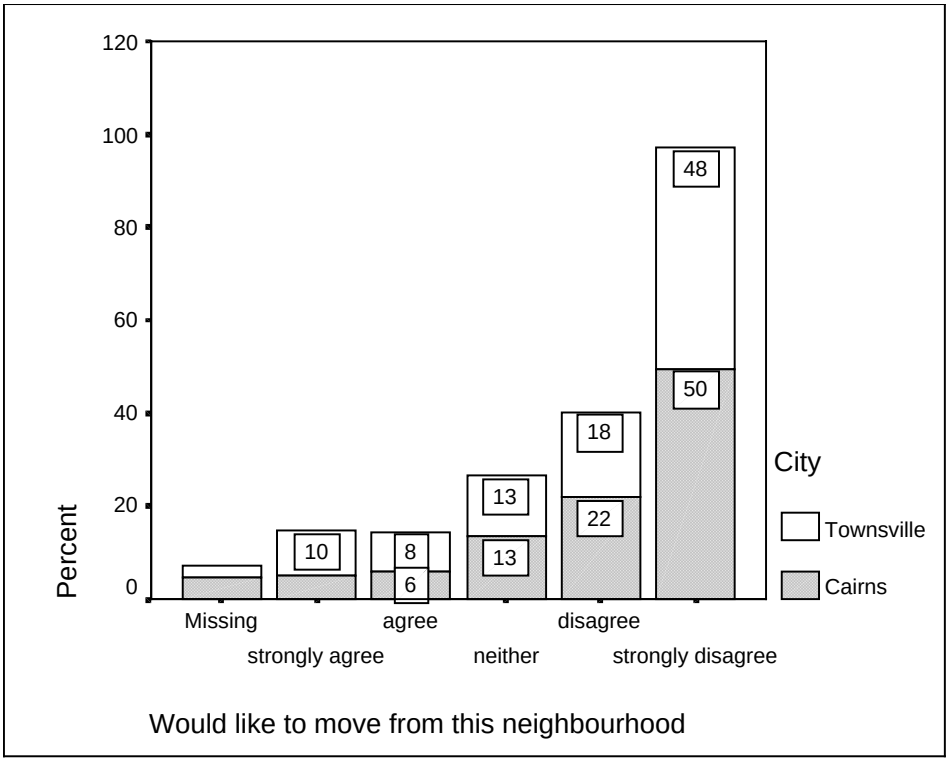
Ease of travel without a car



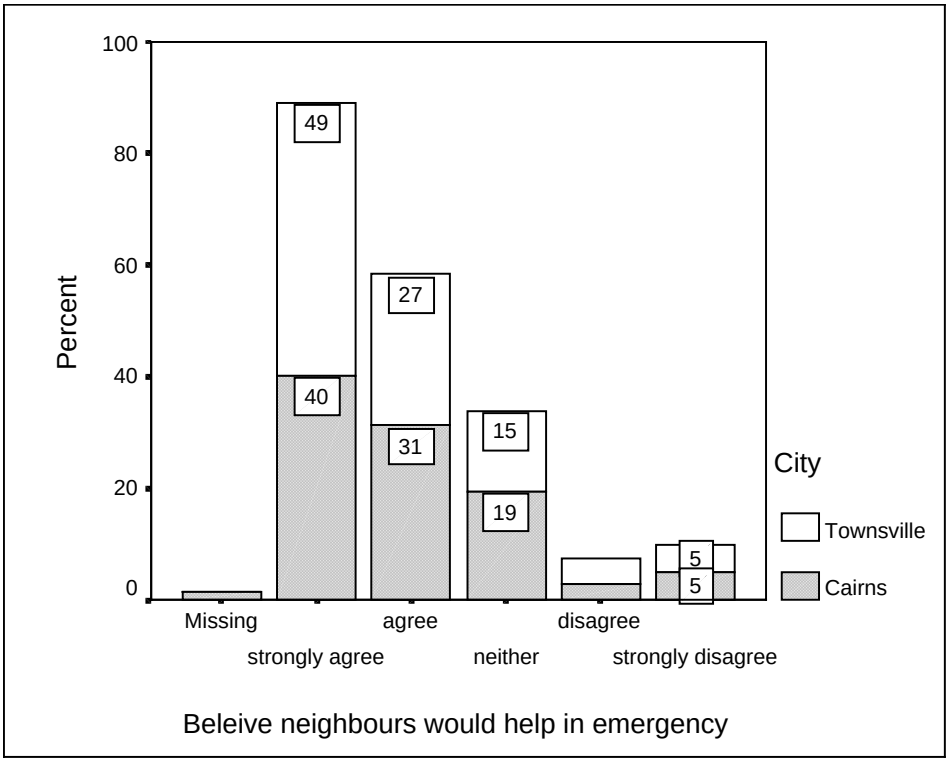
Perceptions of car use 1



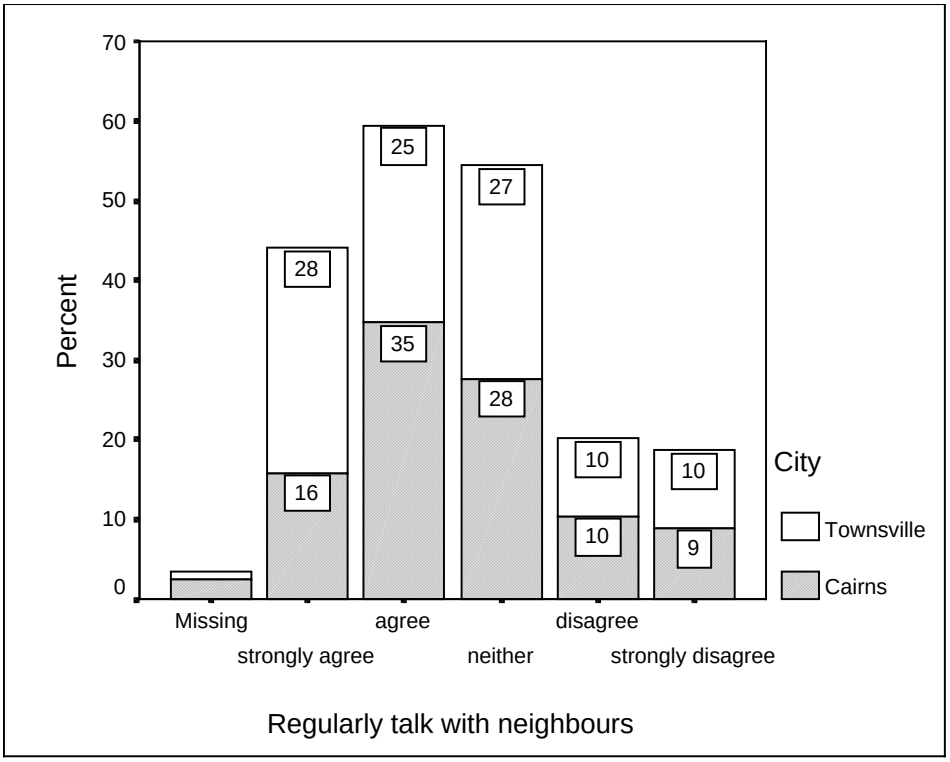
Home visits to neighbours



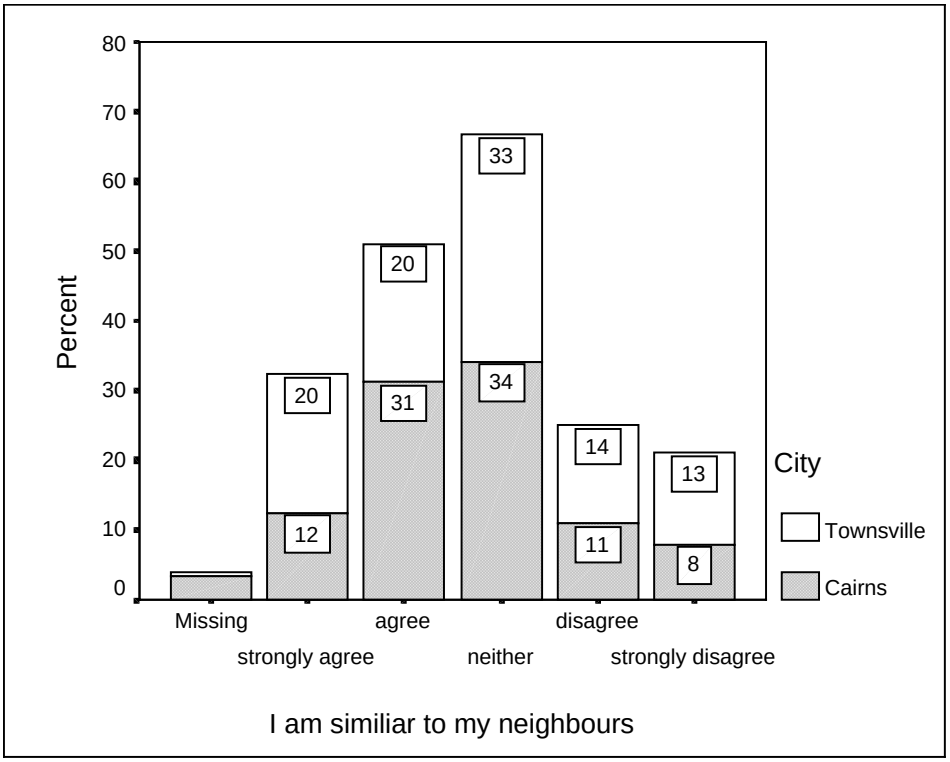
Would like to move from this neighbourhood



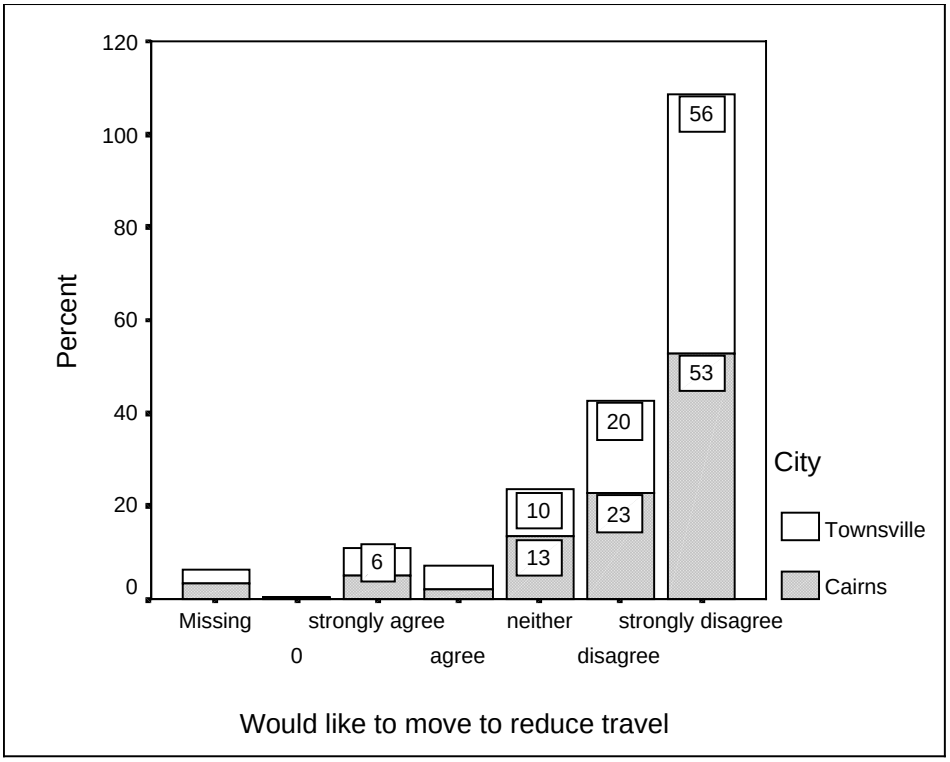
Beleive neighbours would help in emergency



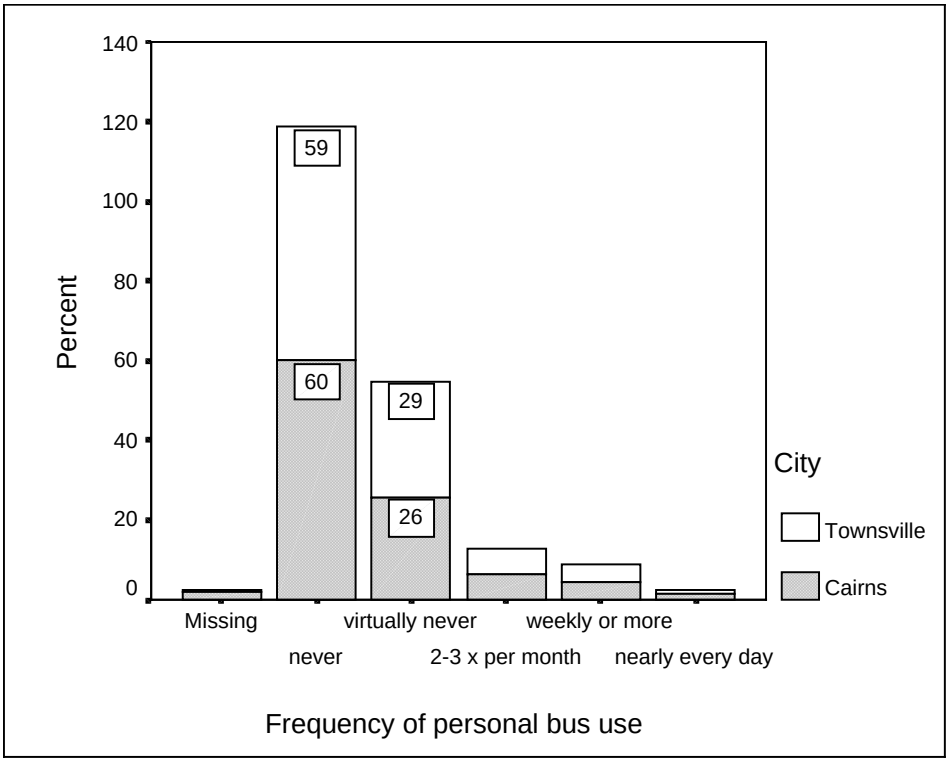
Regularly talk with neighbours



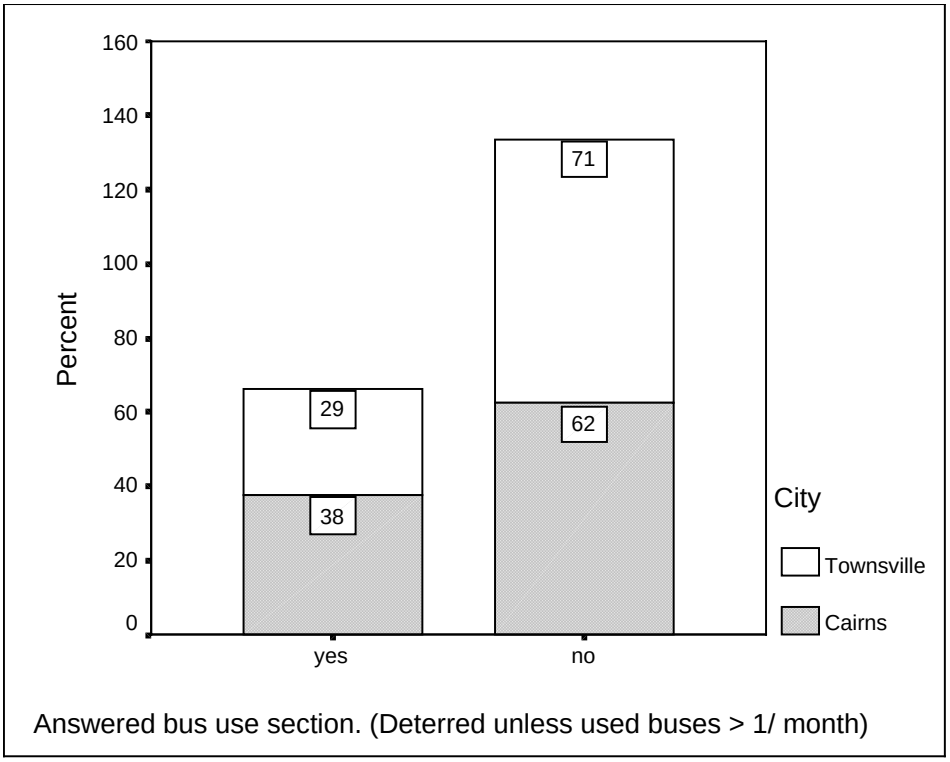
I am similiar to my neighbours



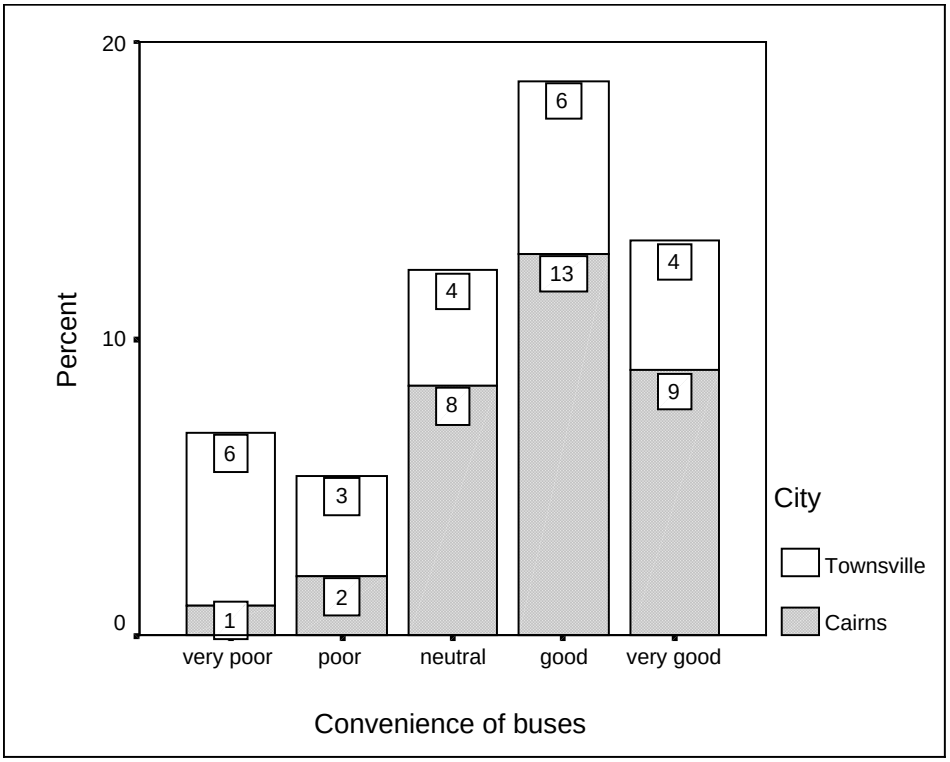
Would like to move to reduce travel

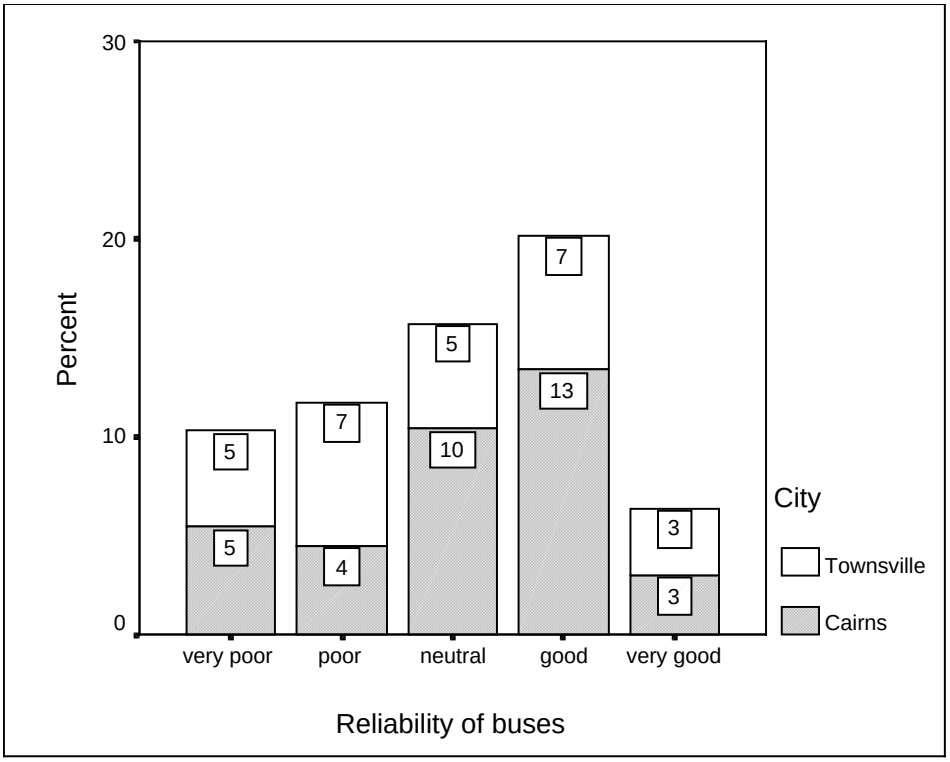


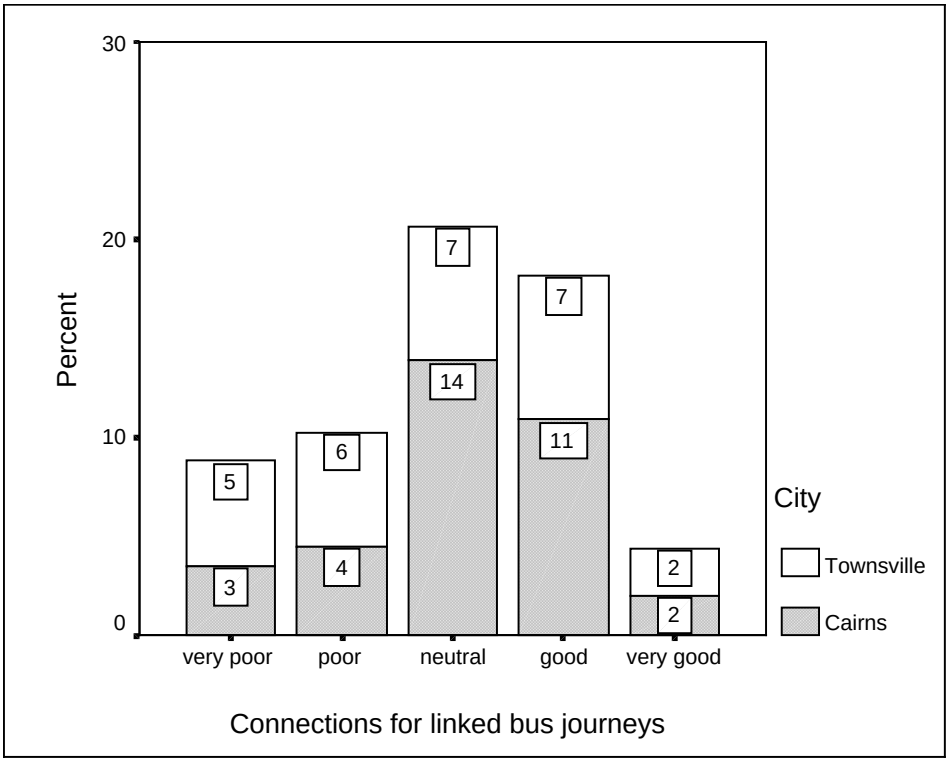
Frequency of personal bus use

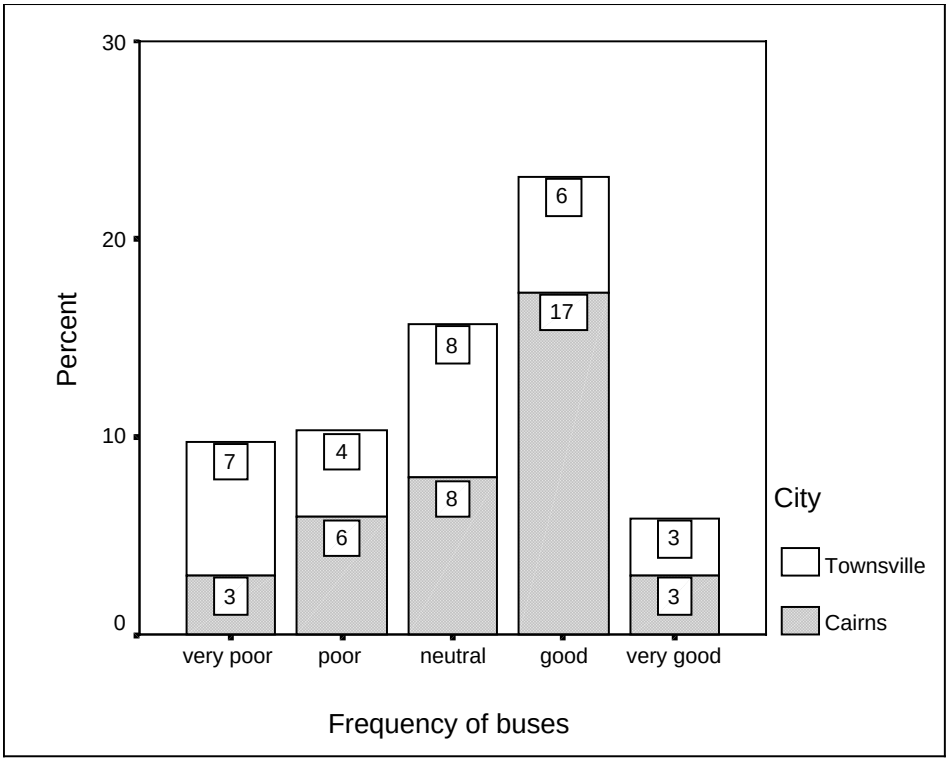


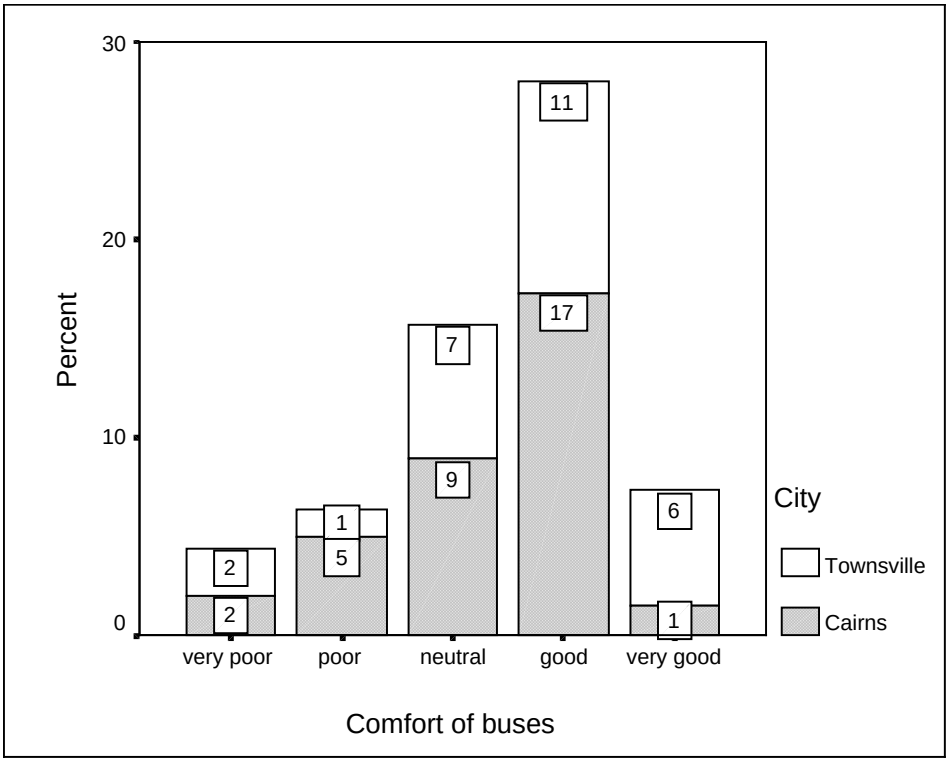
Answered bus use section. (Deterred unless used buses > 1/ month)

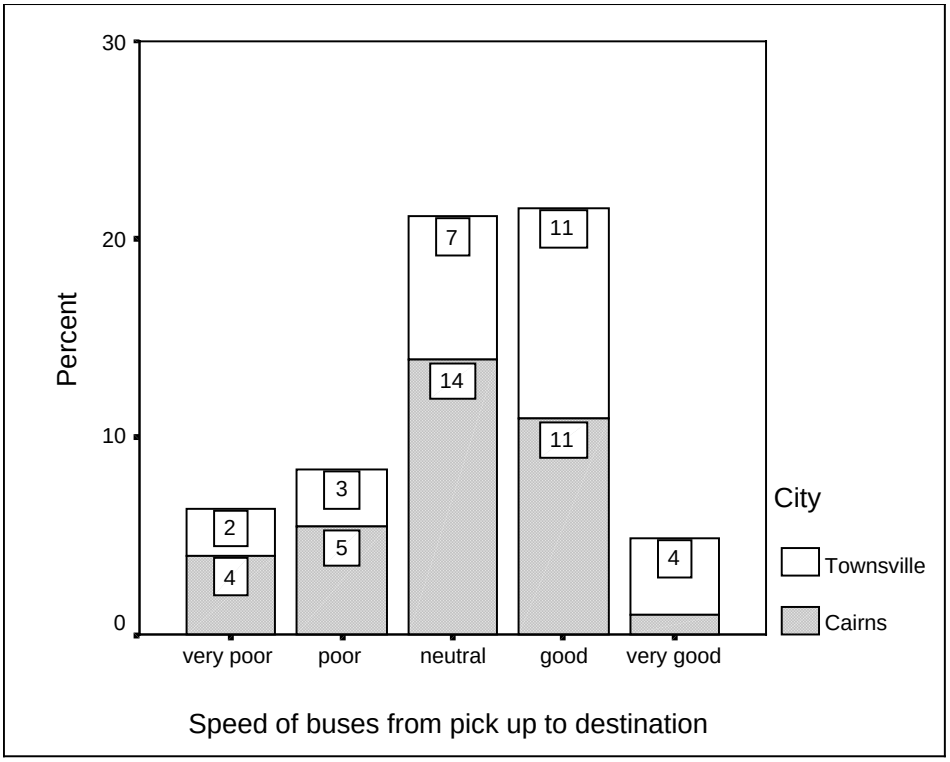


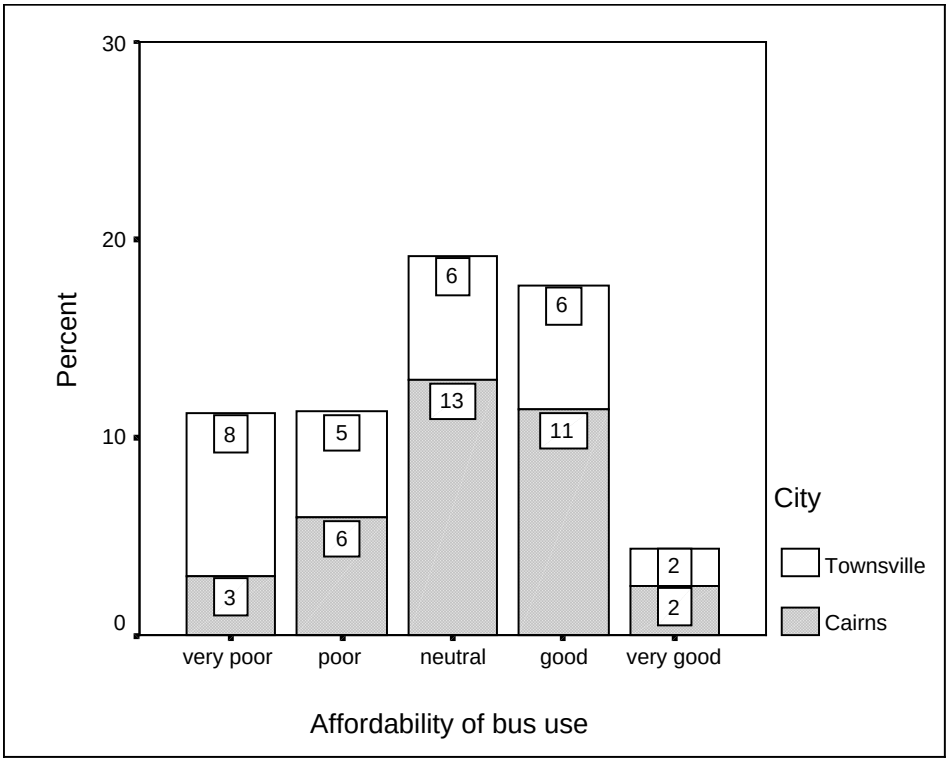

30
20
10
0
Percent
5
5
7
4
5
10
7
13
3
3
very poor
poor
neutral
good
very good
City
Townsville
Cairns
Reliability of buses

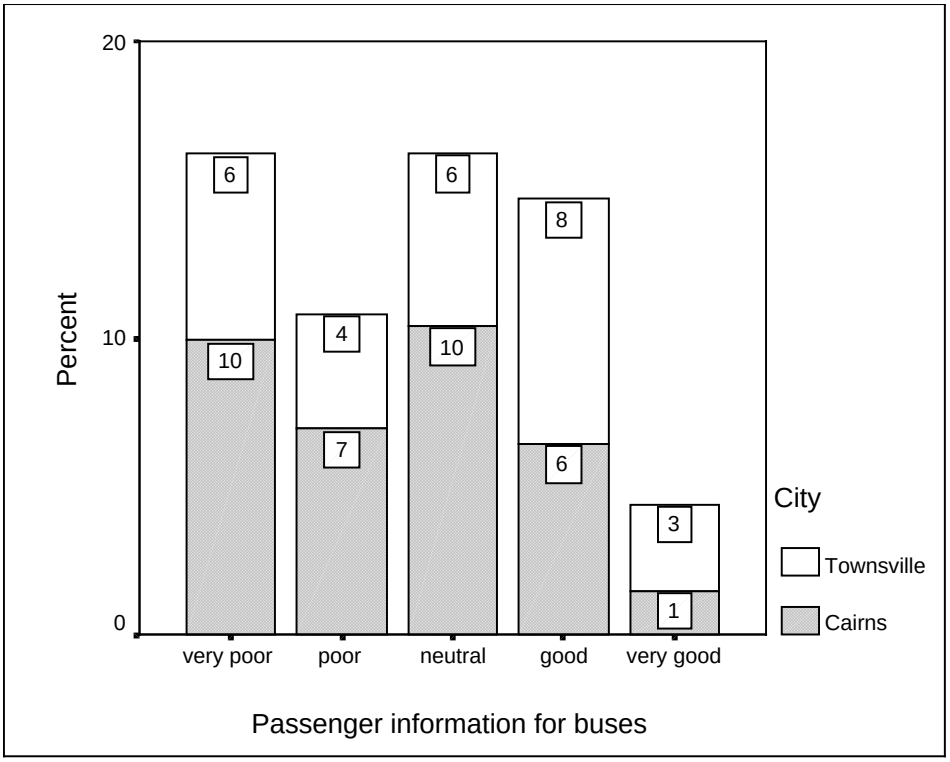

30
20
10
0
Percent
5
3
6
4
7
14
7
11
2
2
very poor
poor
neutral
good
very good
City
Townsville
Cairns
Connections for linked bus journeys


30
20
10
0
Percent
7
3
4
6
8
8
6
17
3
3
very poor
poor
neutral
good
very good
City
Townsville
Cairns
Frequency of buses

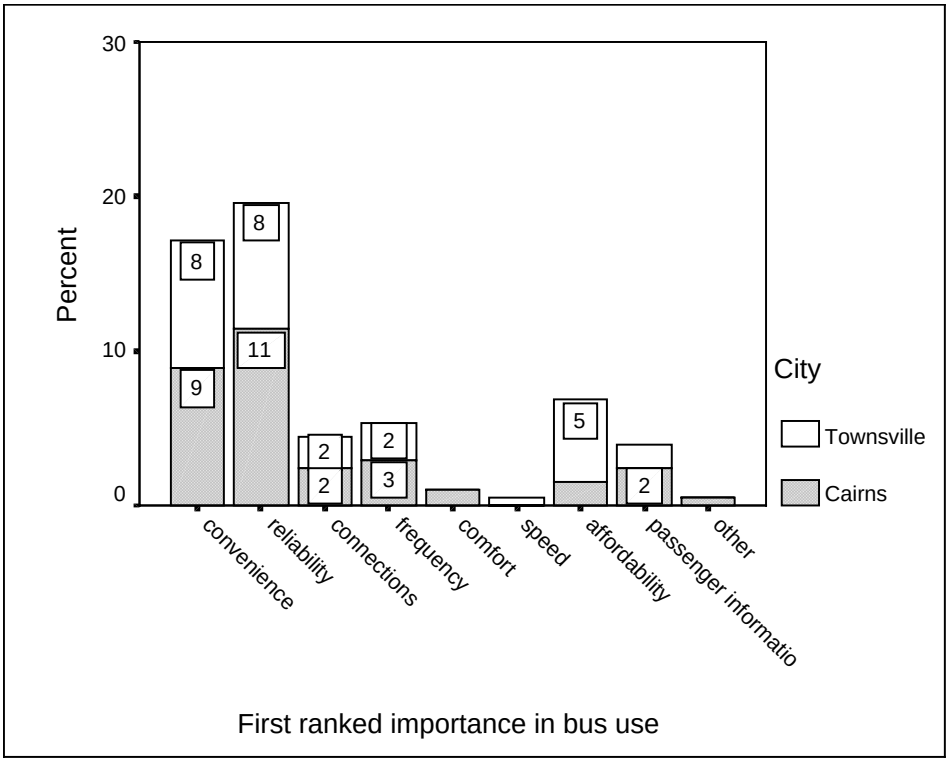

30
20
10
0
Percent
2
2
1
5
7
9
11
17
6
1
very poor
poor
neutral
good
very good
City
Townsville
Cairns
Comfort of buses


30
20
10
0
Percent
2
4
3
5
7
14
11
11
4
very poor
poor
neutral
good
very good
City
Townsville
Cairns
Speed of buses from pick up to destination

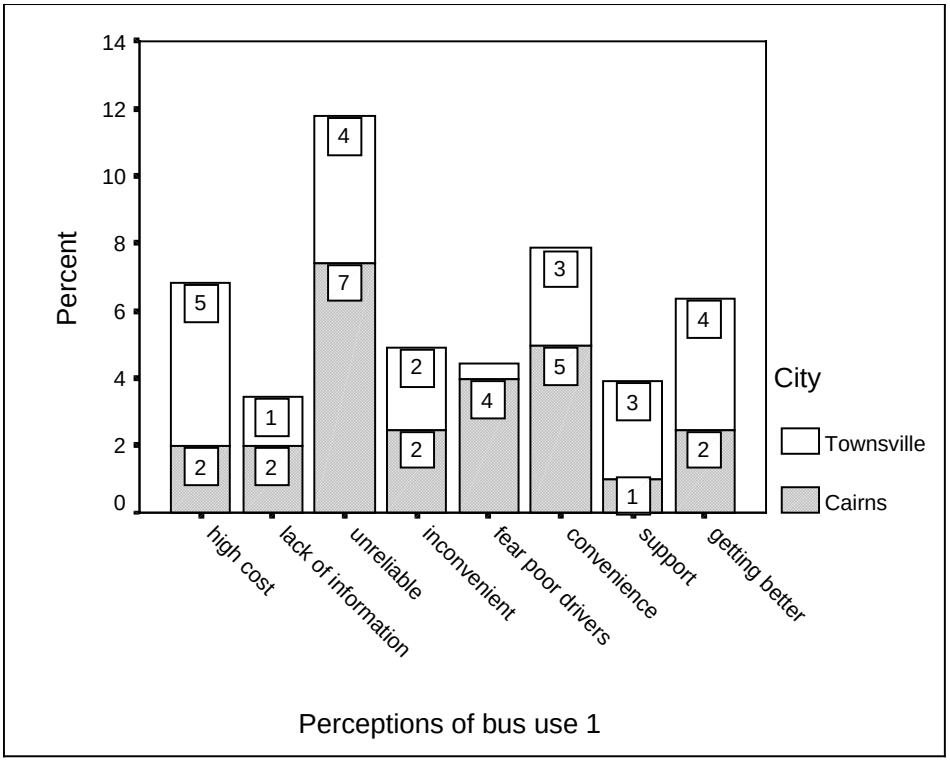

30
20
10
0
Percent
8
3
5
6
6
13
6
11
2
2
very poor
poor
neutral
good
very good
City
Townsville
Cairns
Affordability of bus use



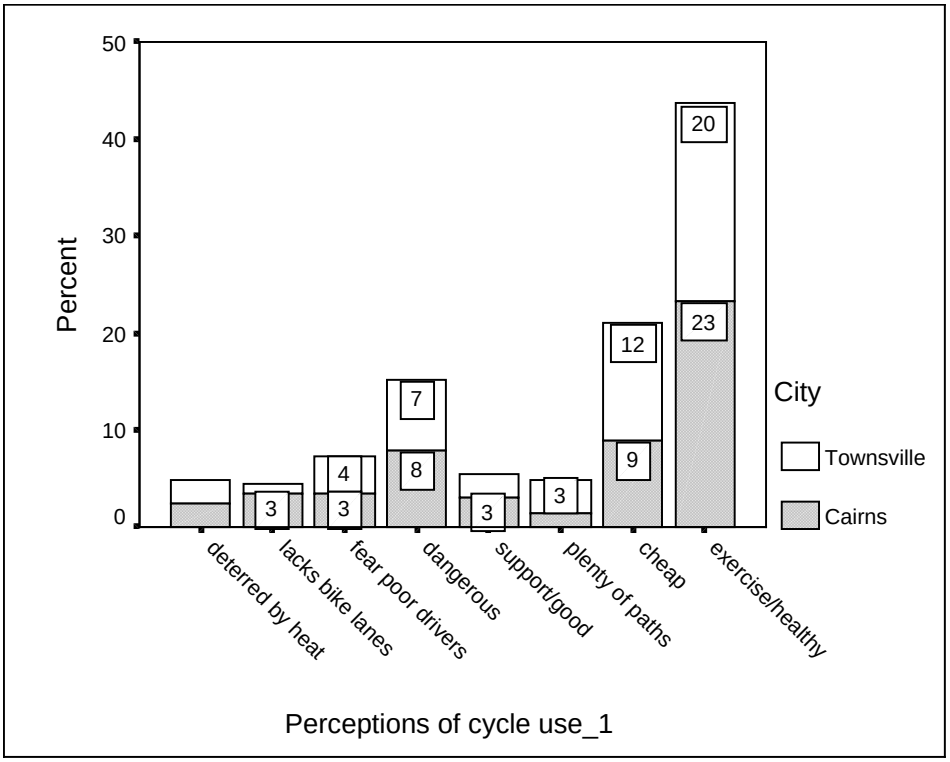
Passenger information for buses



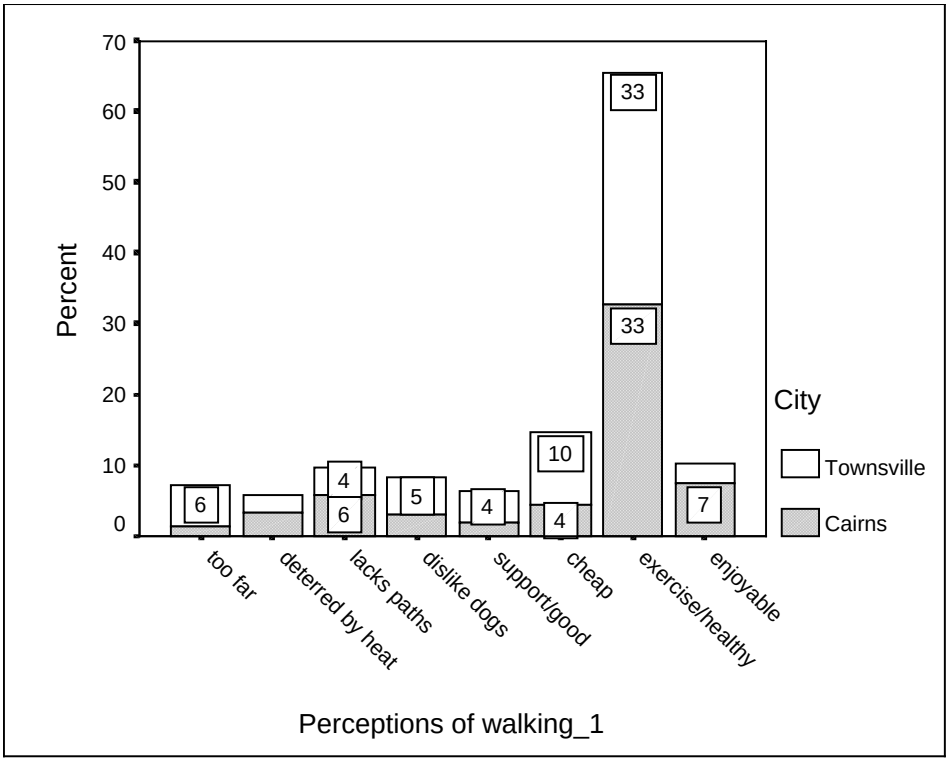
First ranked importance in bus use

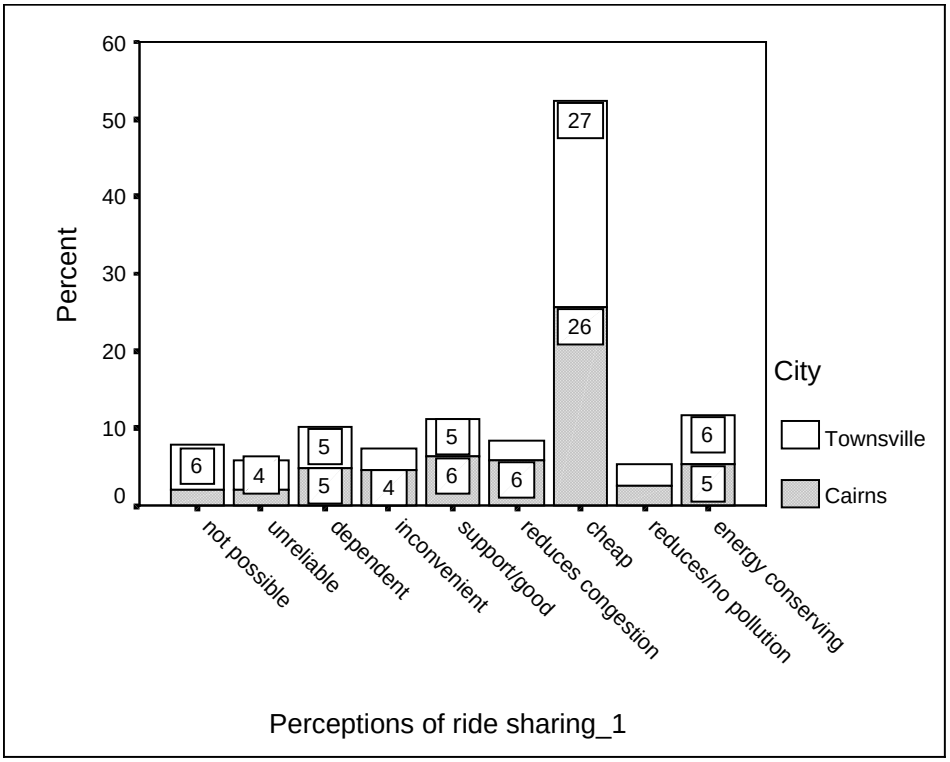


Perceptions of bus use 1

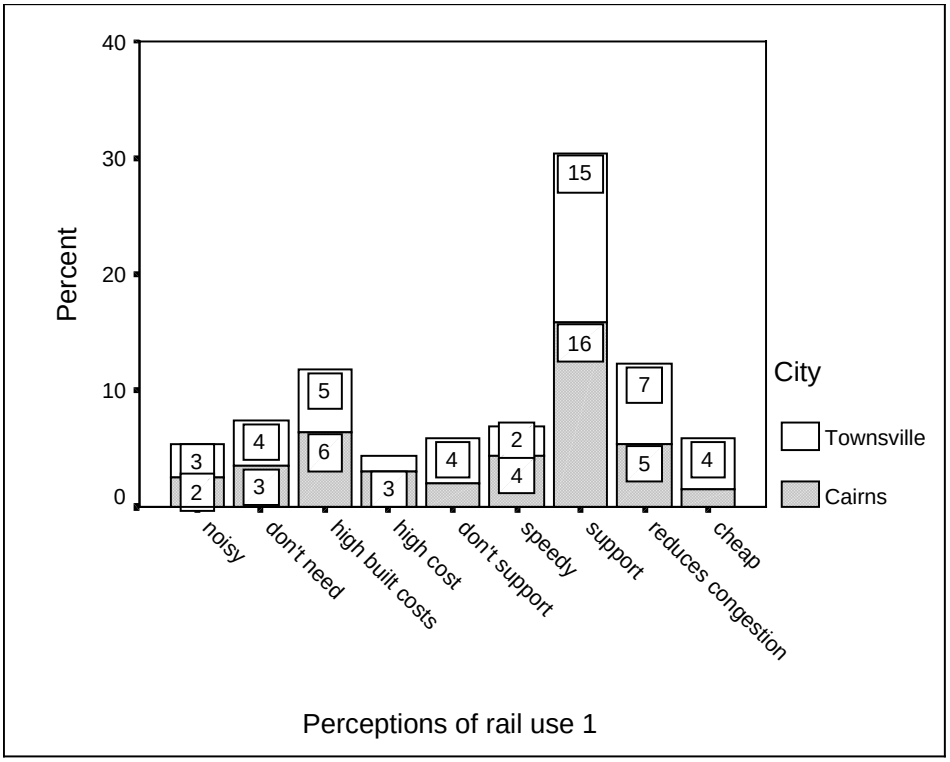


Perceptions of cycle use_1

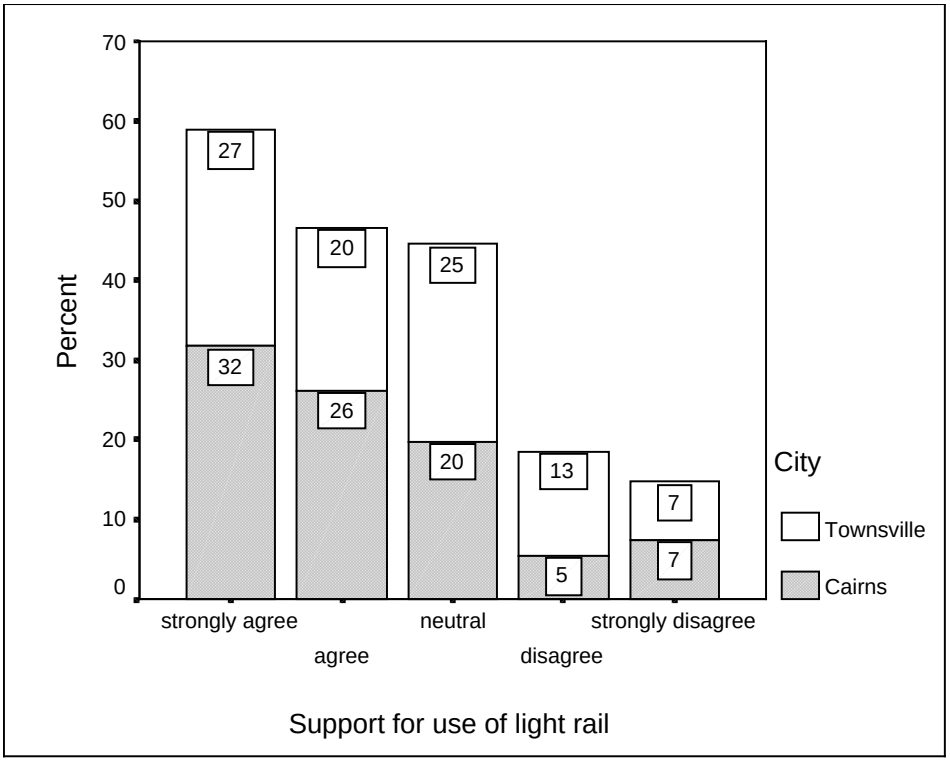

Percent
70
60
50
40
30
20
10
0
6
4
6
5
4
10
4
33
33
7
too far
deterred by heat
lacks paths
dislike dogs
support/good
cheap
exercise/healthy
enjoyable
City
Townsville
Cairns
Perceptions of walking_1


Percent
60
50
40
30
20
10
0
6
4
5
5
4
5
6
6
27
26
6
5
not possible
unreliable
dependent
inconvenient
support/good
reduces congestion
cheap
reduces/no pollution
energy conserving
City
Townsville
Cairns
Perceptions of ride sharing_1

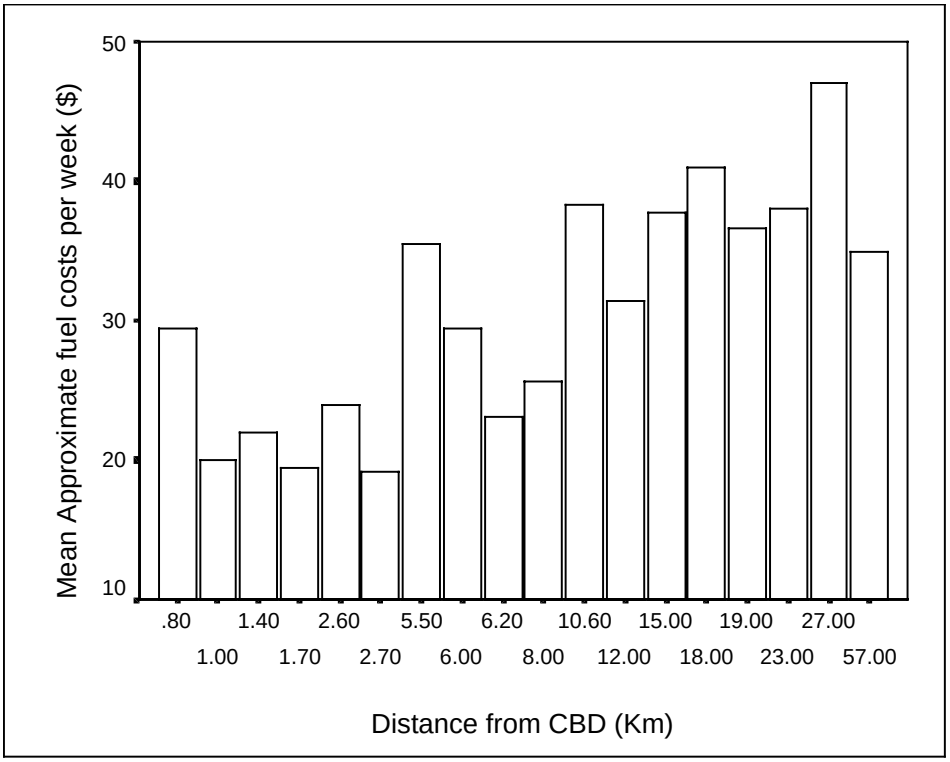
Perceptions of working from home_1

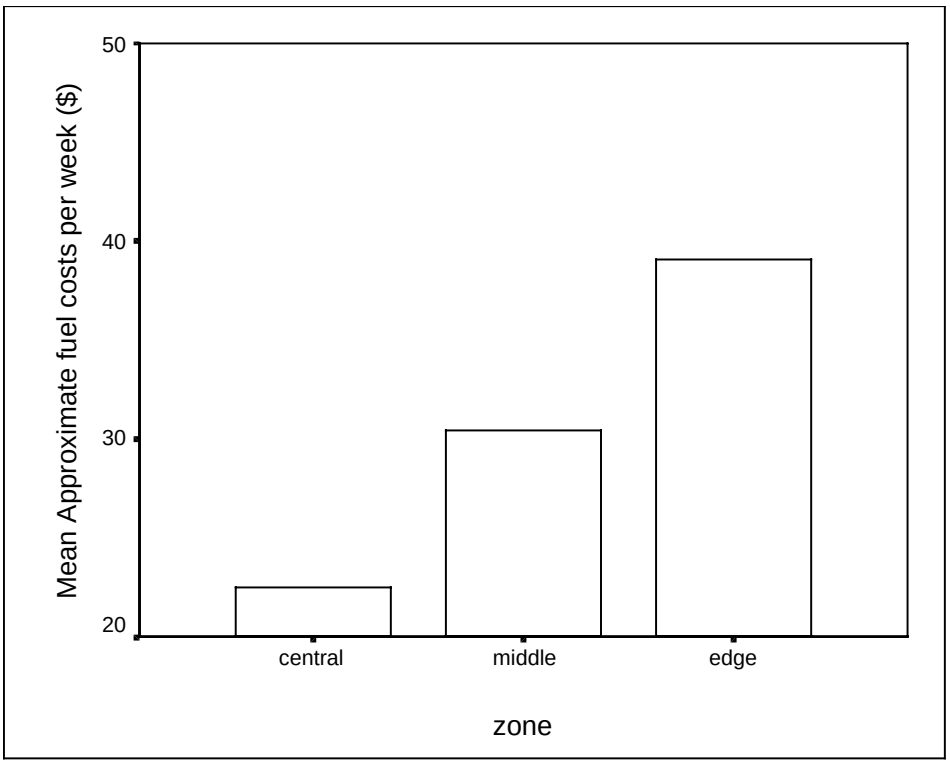


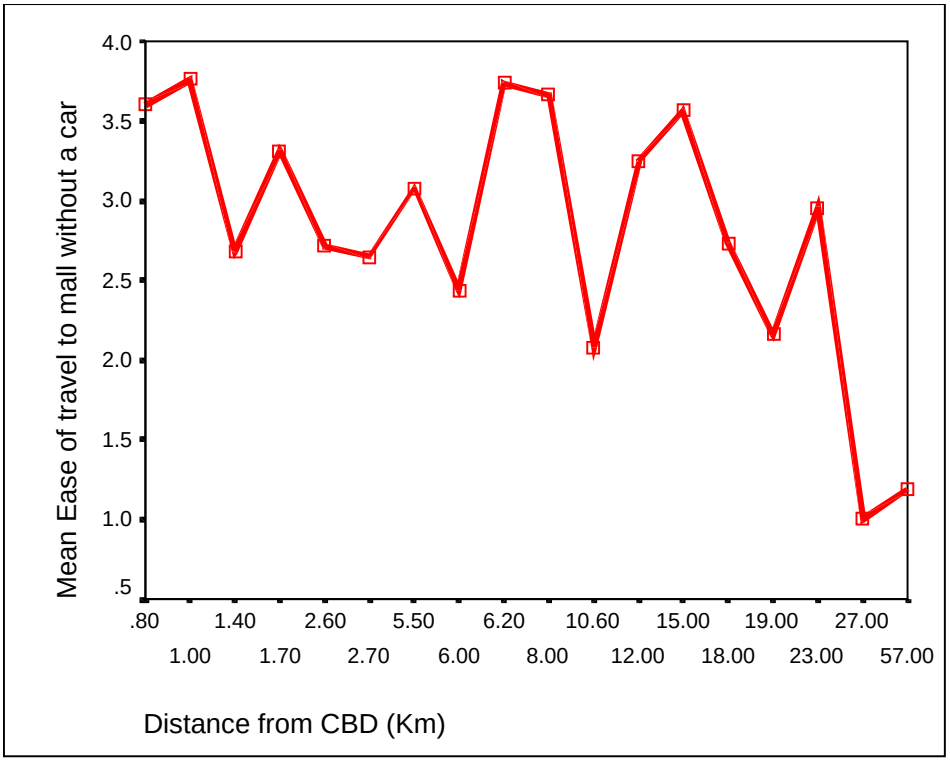
Perceptions of rail use 1

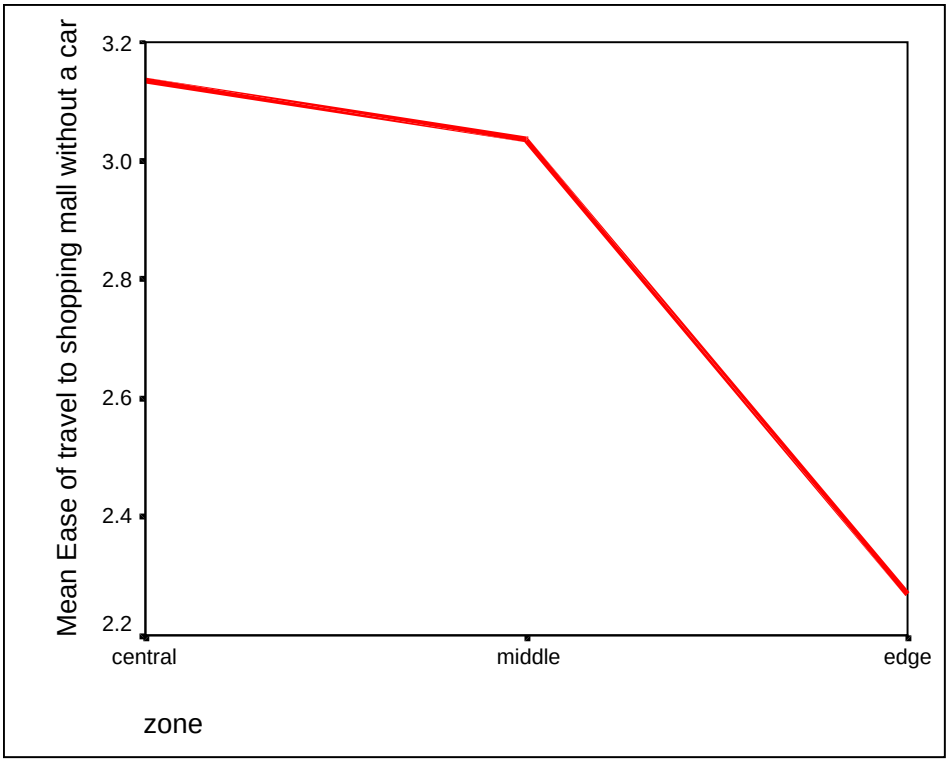

70
60
50
40
30
20
10
0
Percent
27
20
25
13
7
32
26
20
5
7
City
Townsville
Cairns
strongly agree
agree
neutral
disagree
strongly disagree
Support for use of light rail

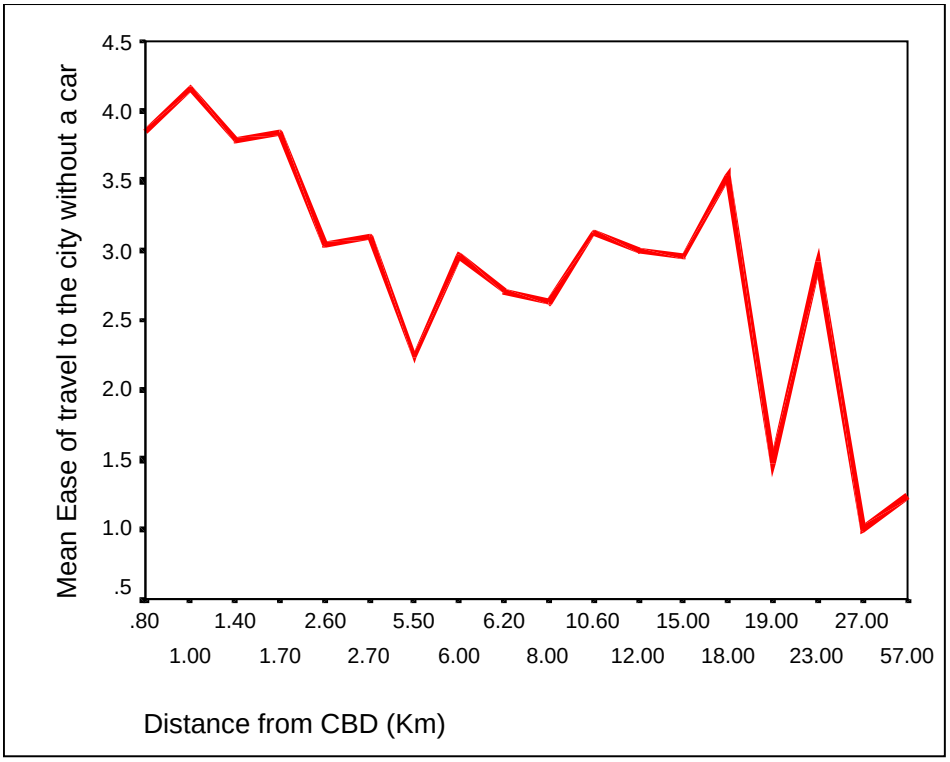
Appendix 17
North Queensland Collector District and Demographic charts

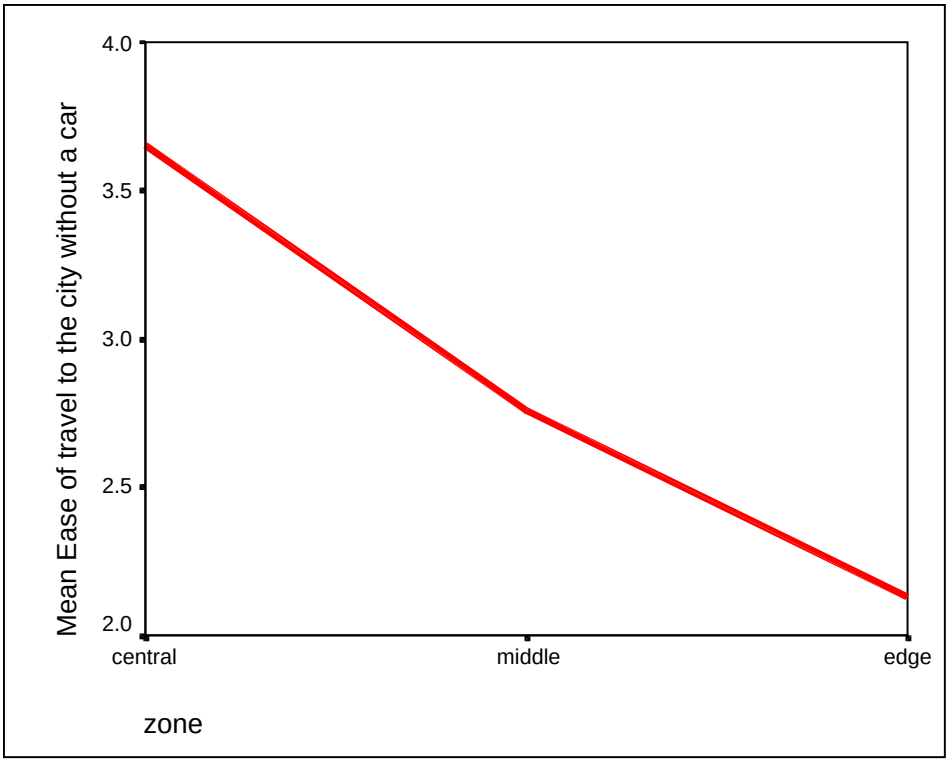


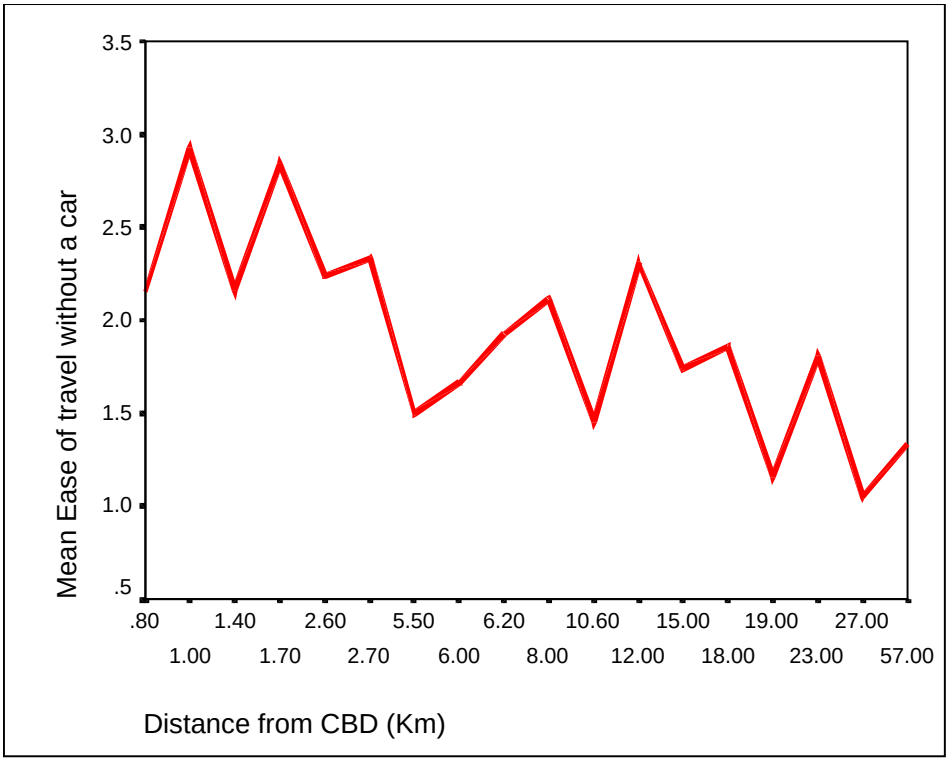


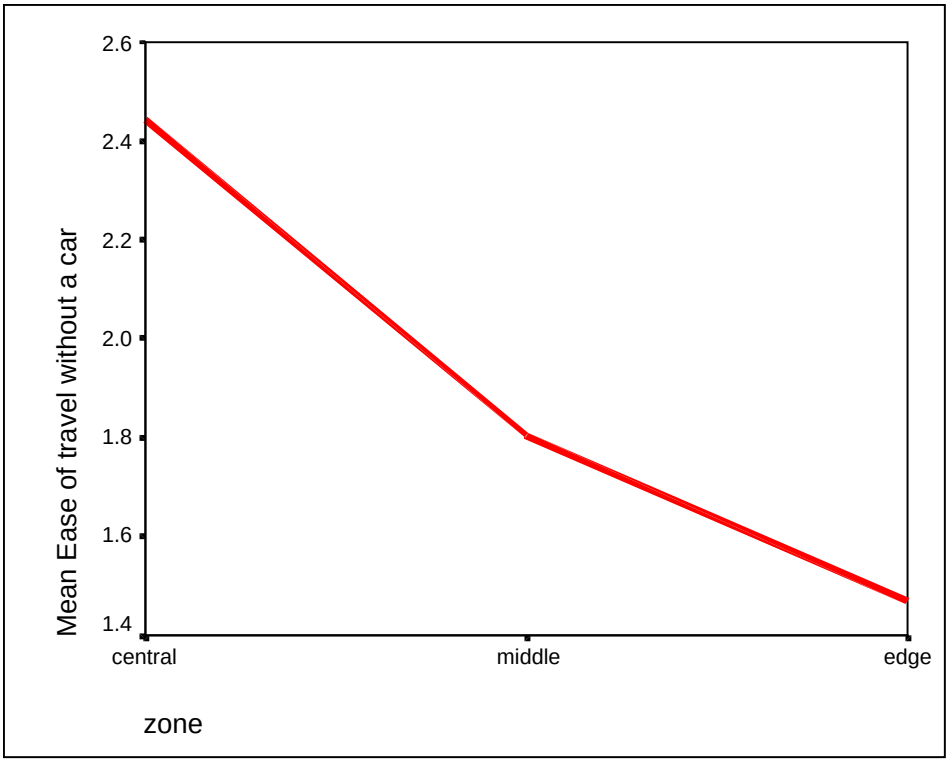

Mean Ease of travel to mall without a car
4.0
3.5
3.0
2.5
2.0
1.5
1.0
.5
.80
1.40
2.60
5.50
6.20
10.60
15.00
19.00
27.00
1.00
1.70
2.70
6.00
8.00
12.00
18.00
23.00
57.00
Distance from CBD (Km)

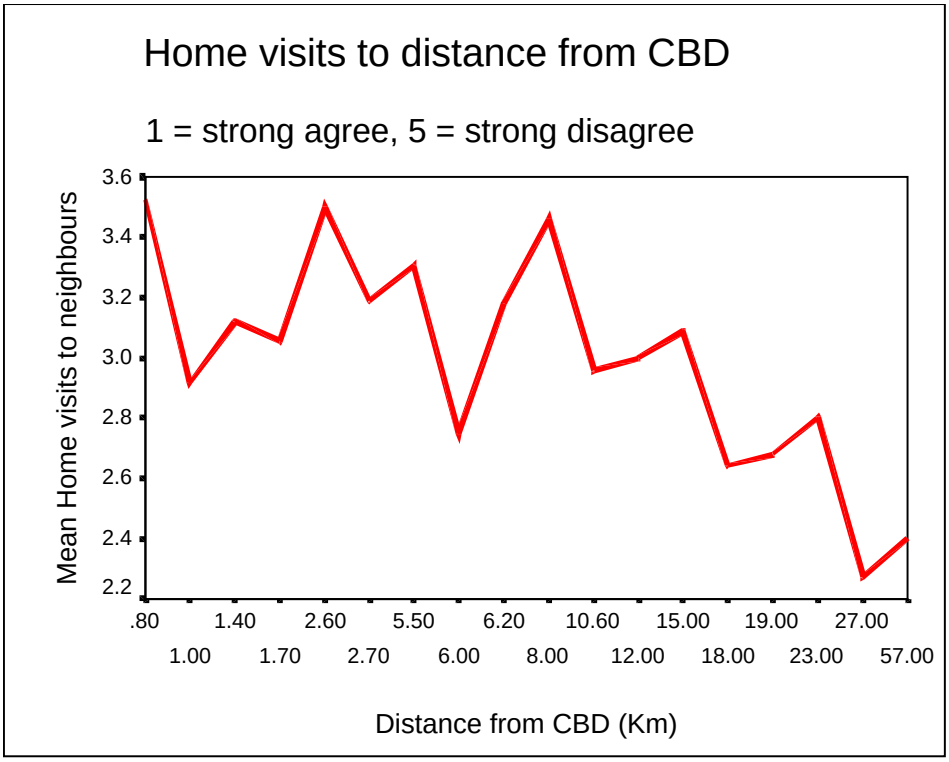

Mean Ease of travel to shopping mall without a car
3.2
3.0
2.8
2.6
2.4
2.2
central
middle
edge
zone

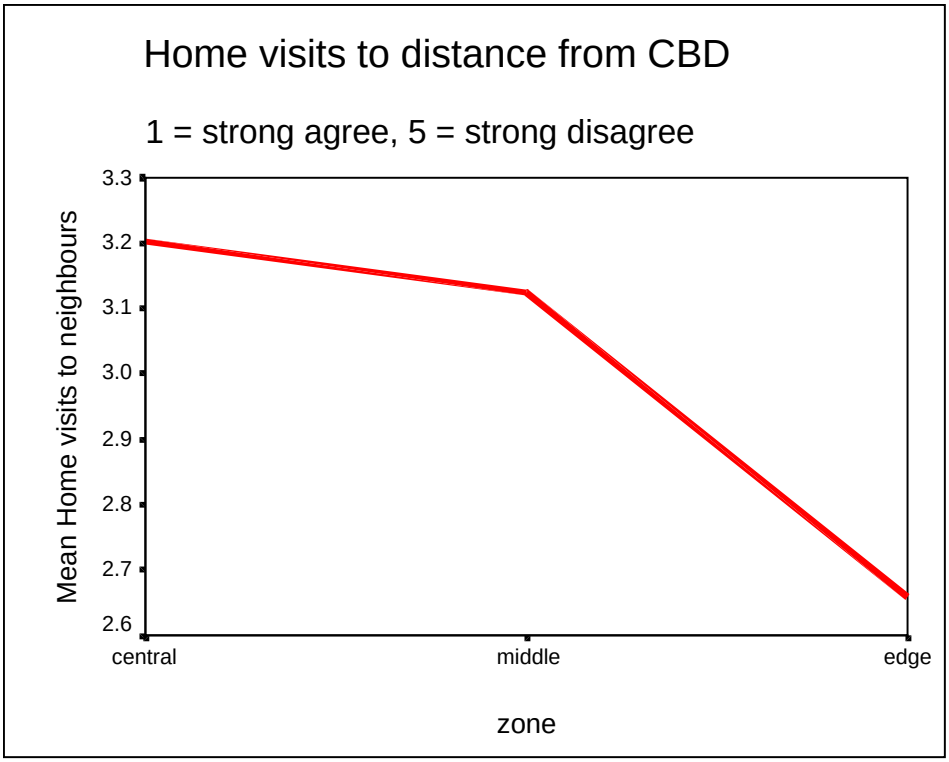

Mean Ease of travel to the city without a car
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
.5
.80
1.00
1.40
1.70
2.60
2.70
5.50
6.00
6.20
8.00
10.60
12.00
15.00
18.00
19.00
23.00
27.00
57.00
Distance from CBD (Km)


Mean Ease of travel to the city without a car
4.0
3.5
3.0
2.5
2.0
central
middle
edge
zone

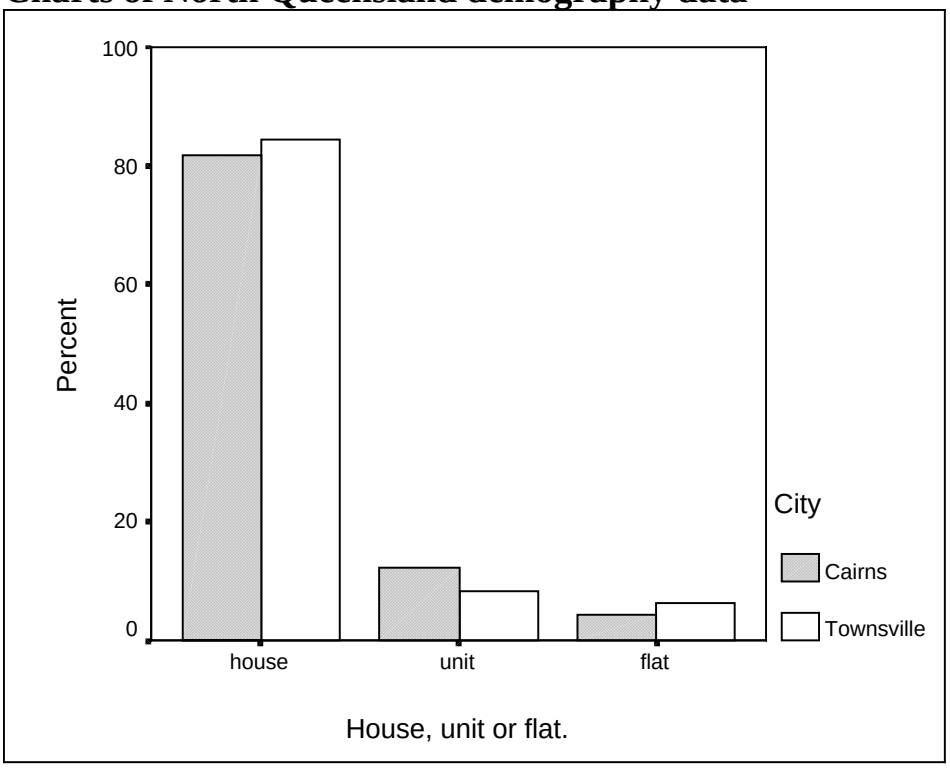

Mean Ease of travel without a car
3.5
3.0
2.5
2.0
1.5
1.0
.5
.80
1.00
1.40
1.70
2.60
2.70
5.50
6.00
6.20
8.00
10.60
12.00
15.00
18.00
19.00
23.00
27.00
57.00
Distance from CBD (Km)

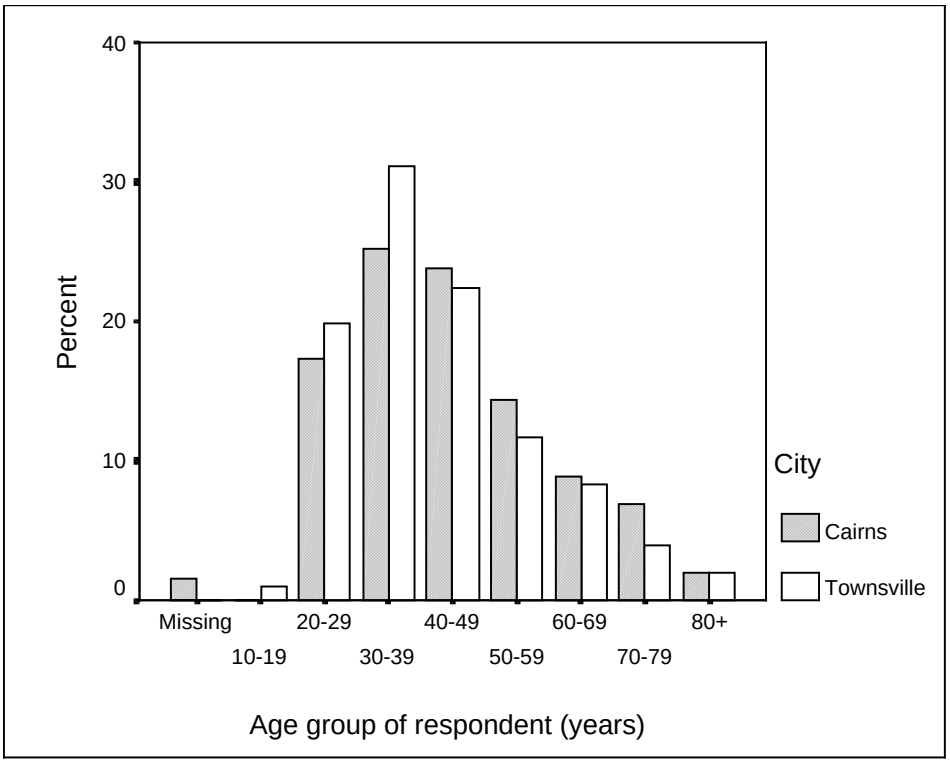

Mean Ease of travel without a car
2.6
2.4
2.2
2.0
1.8
1.6
1.4
central
middle
edge
zone

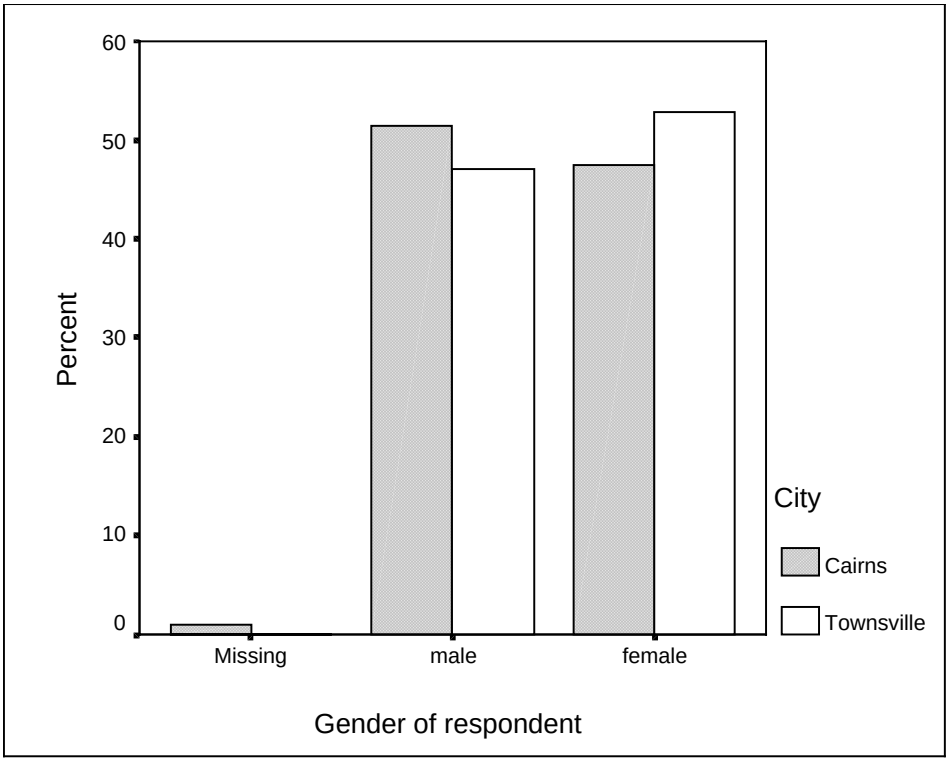

Home visits to distance from CBD
1 = strong agree, 5 = strong disagree
Mean Home visits to neighbours
3.6
3.4
3.2
3.0
2.8
2.6
2.4
2.2
.80
1.00
1.40
1.70
2.60
2.70
5.50
6.00
6.20
8.00
10.60
12.00
15.00
18.00
19.00
23.00
27.00
57.00
Distance from CBD (Km)

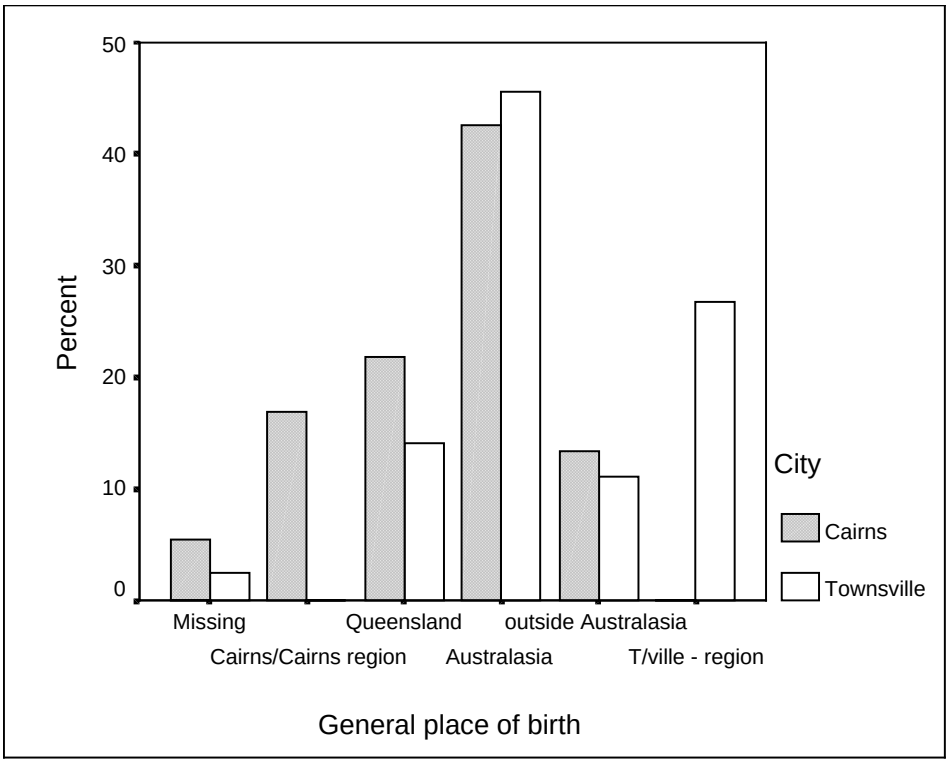

Home visits to distance from CBD
1 = strong agree, 5 = strong disagree
Mean Home visits to neighbours
3.3
3.2
3.1
3.0
2.9
2.8
2.7
2.6
central
middle
edge
zone

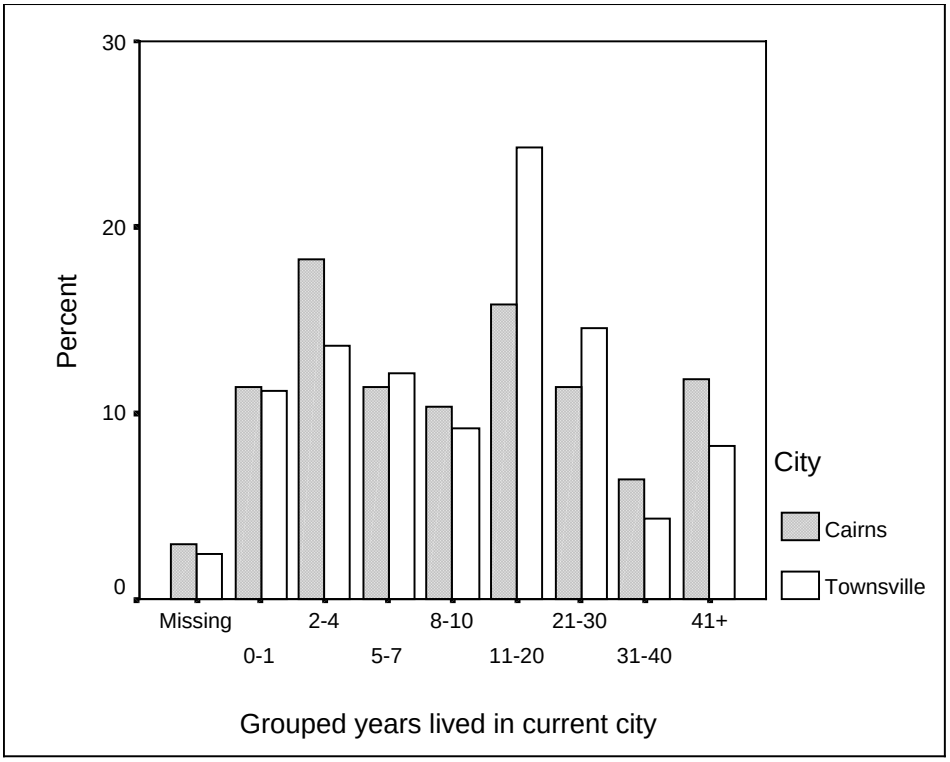
Charts of North Queensland demography data

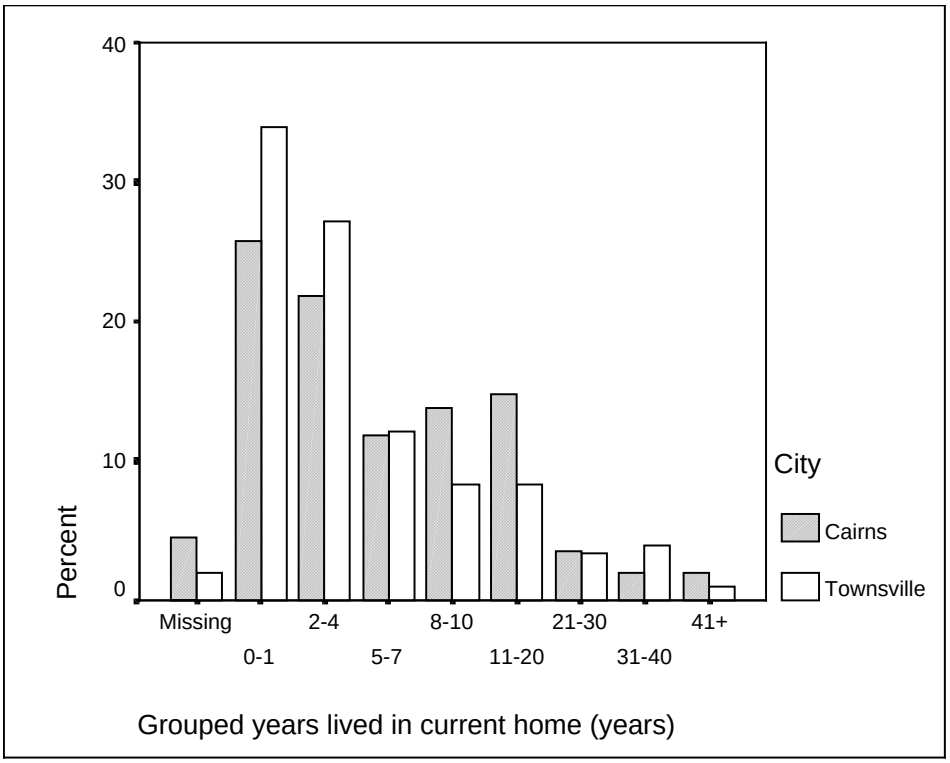


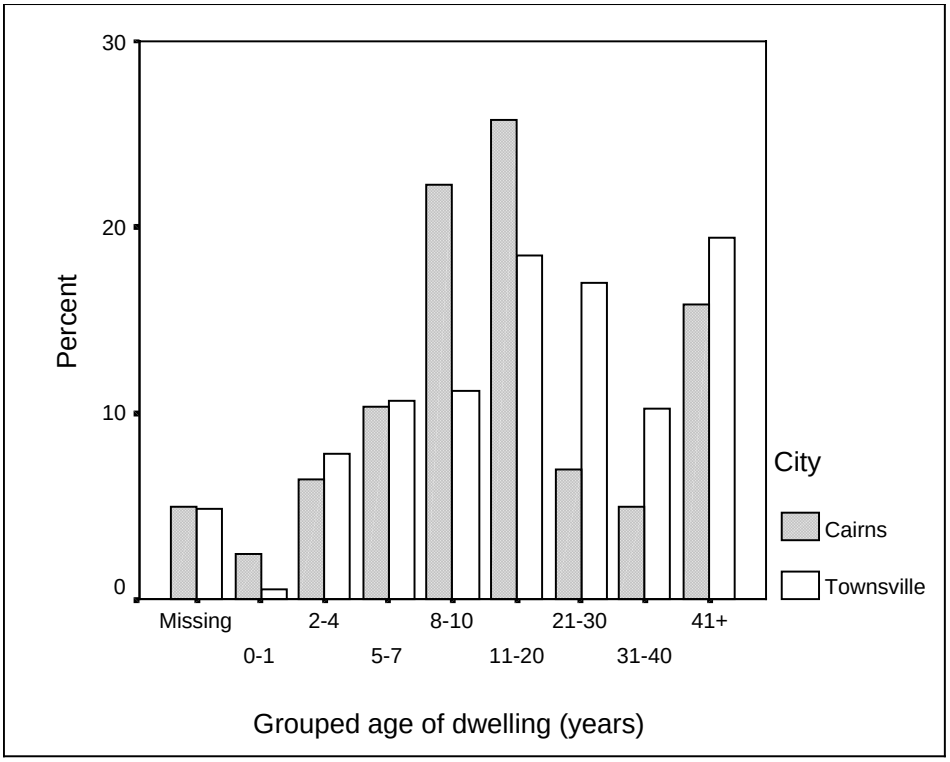


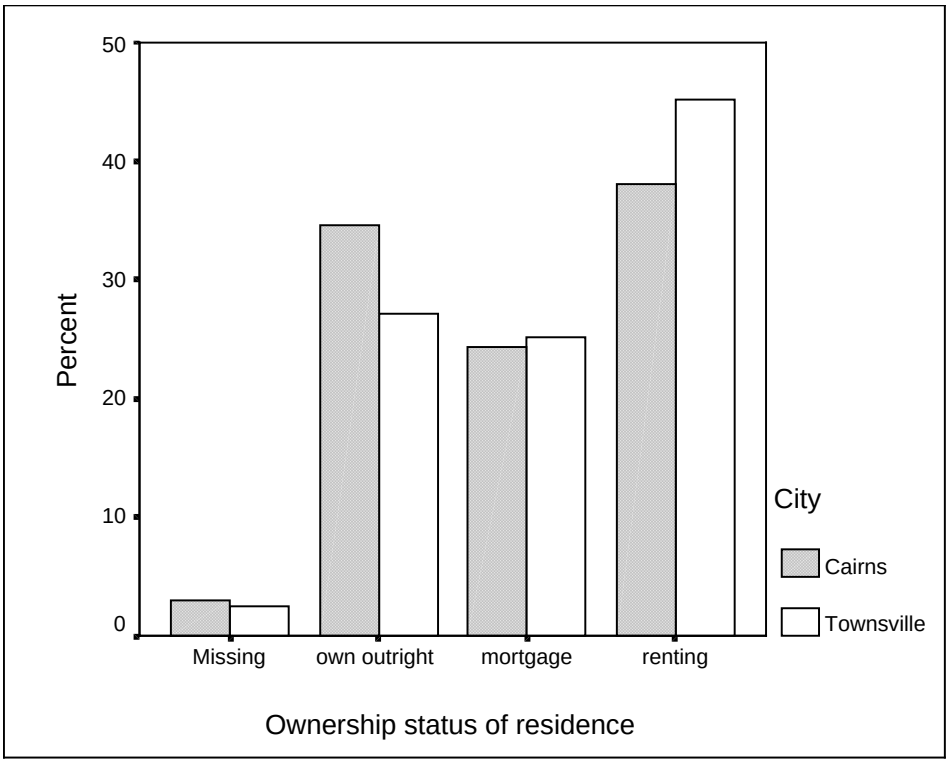

60
50
40
30
20
10
0
Percent
Missing
male
female
City
Cairns
Townsville
Gender of respondent

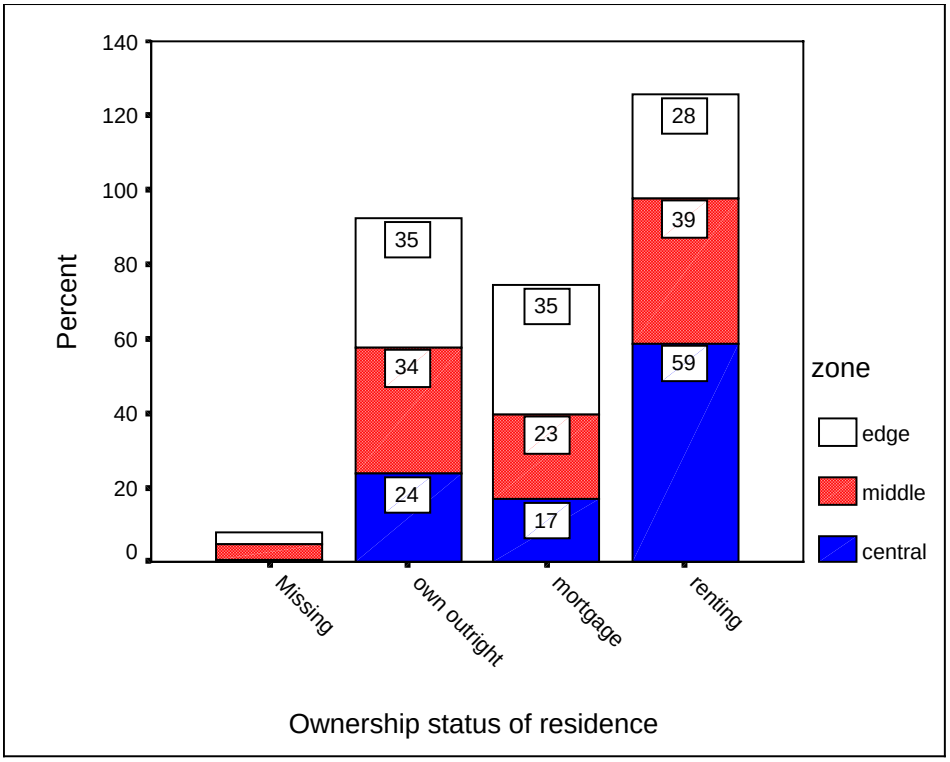

50
40
30
20
10
0
Percent
Missing
Cairns/Cairns region
Queensland
Australasia
outside Australasia
T/ville - region
City
Cairns
Townsville
General place of birth


30
20
10
0
Percent
City
Cairns
Townsville
Missing
0-1
2-4
5-7
8-10
11-20
21-30
31-40
41+
Grouped years lived in current city

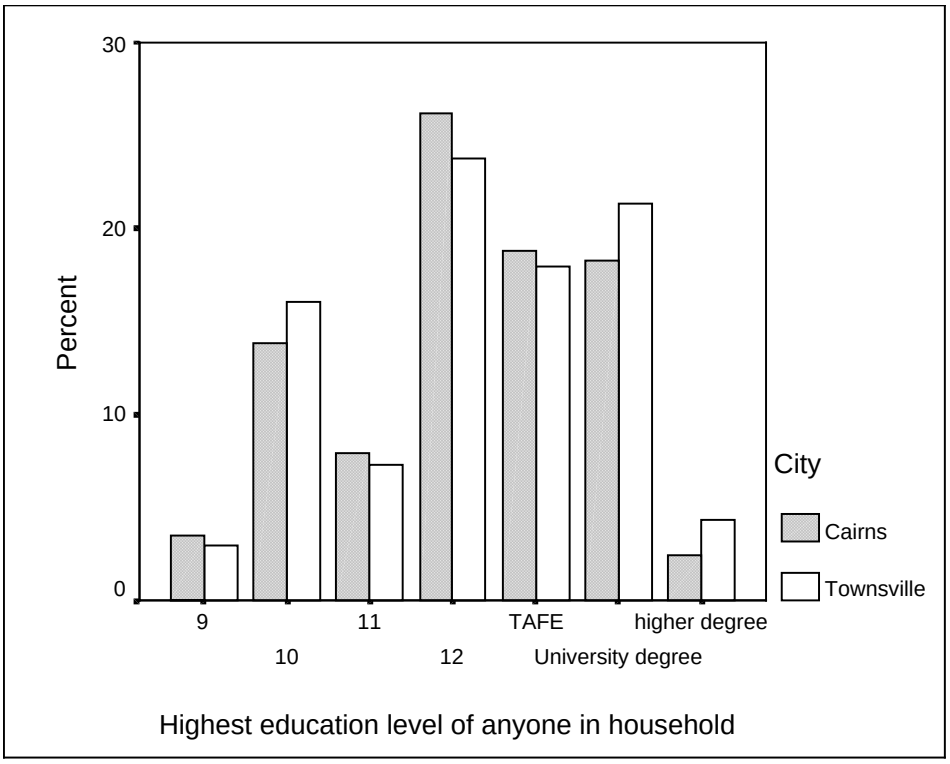

40
30
20
10
0
Percent
City
Cairns
Townsville
Missing
0-1
2-4
5-7
8-10
11-20
21-30
31-40
41+
Grouped years lived in current home (years)


30
20
10
0
Percent
City
Cairns
Townsville
Missing
0-1
2-4
5-7
8-10
11-20
21-30
31-40
41+
Grouped age of dwelling (years)

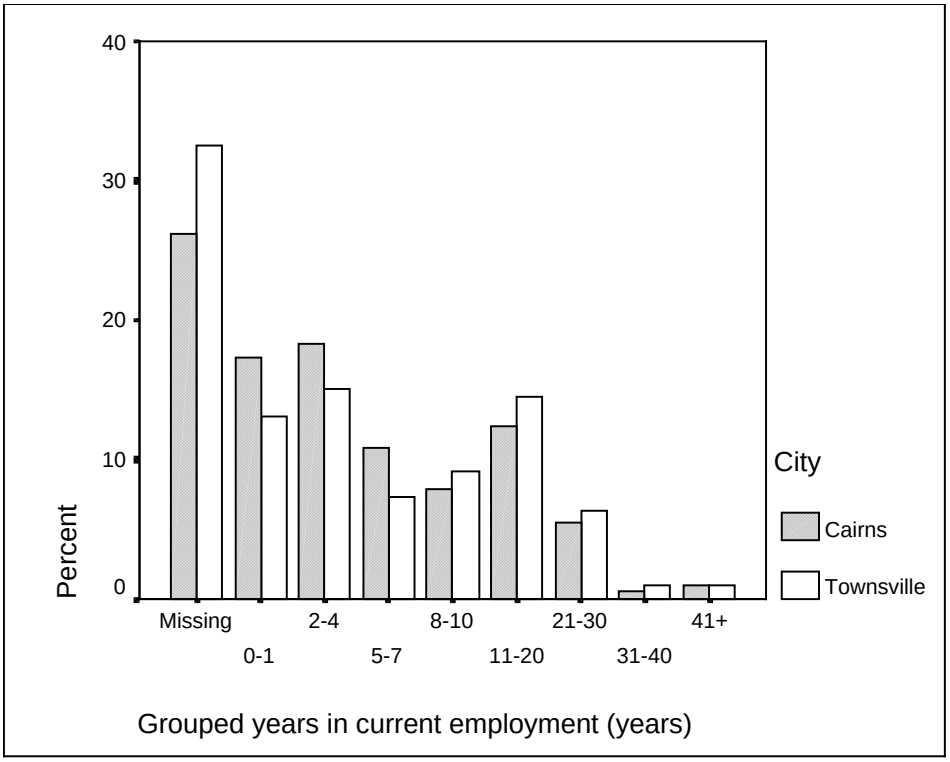

50
40
30
20
10
0
Percent
City
Cairns
Townsville
Missing
own outright
mortgage
renting
Ownership status of residence

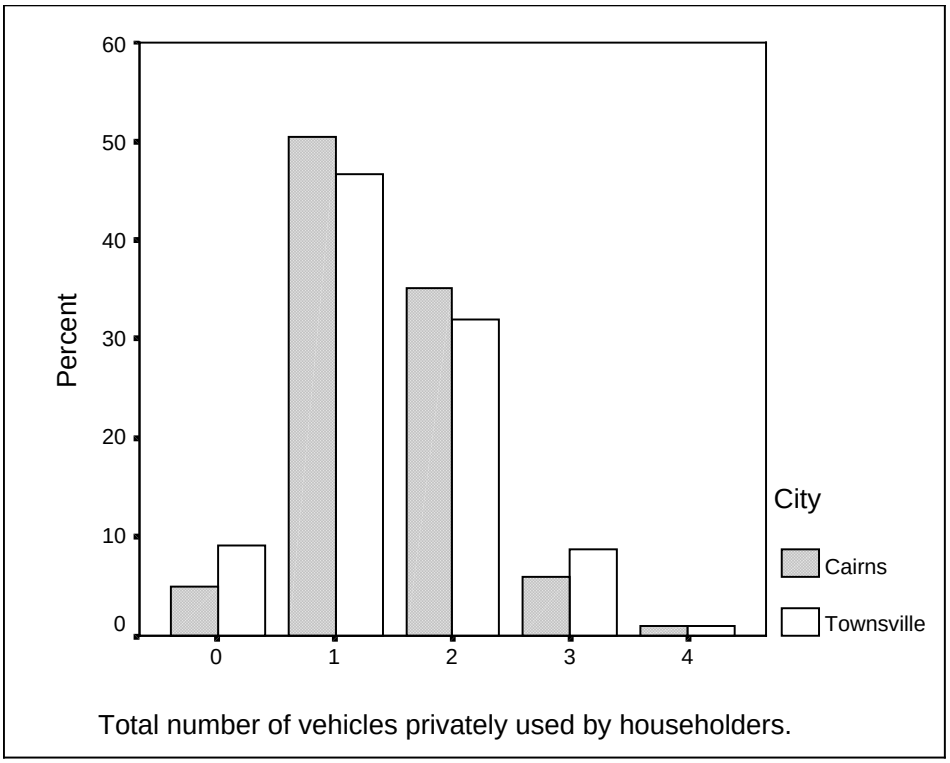


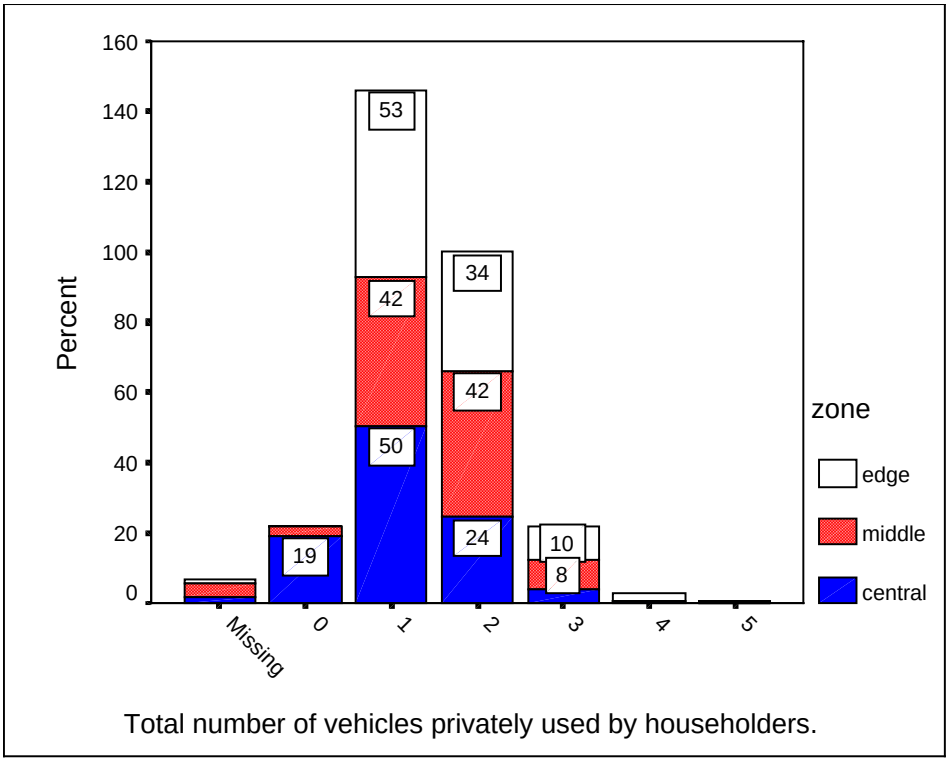
Ownership status of residence



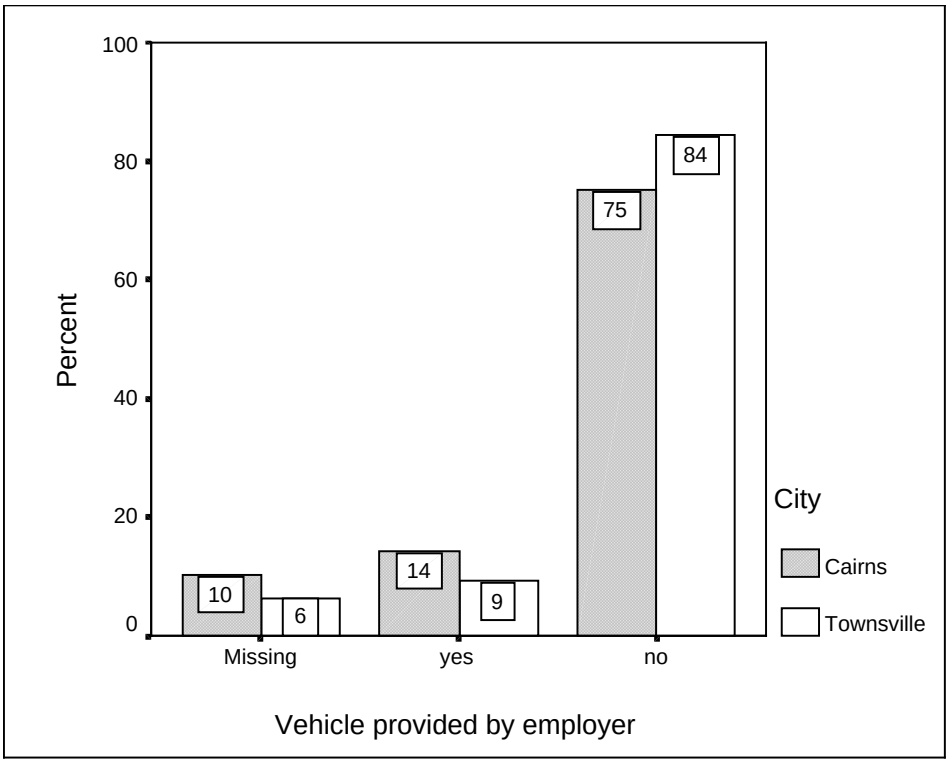
Highest education level of anyone in household


40
30
20
10
0
Percent
City
Cairns
Townsville
Missing
0-1
2-4
5-7
8-10
11-20
21-30
31-40
41+
Grouped years in current employment (years)

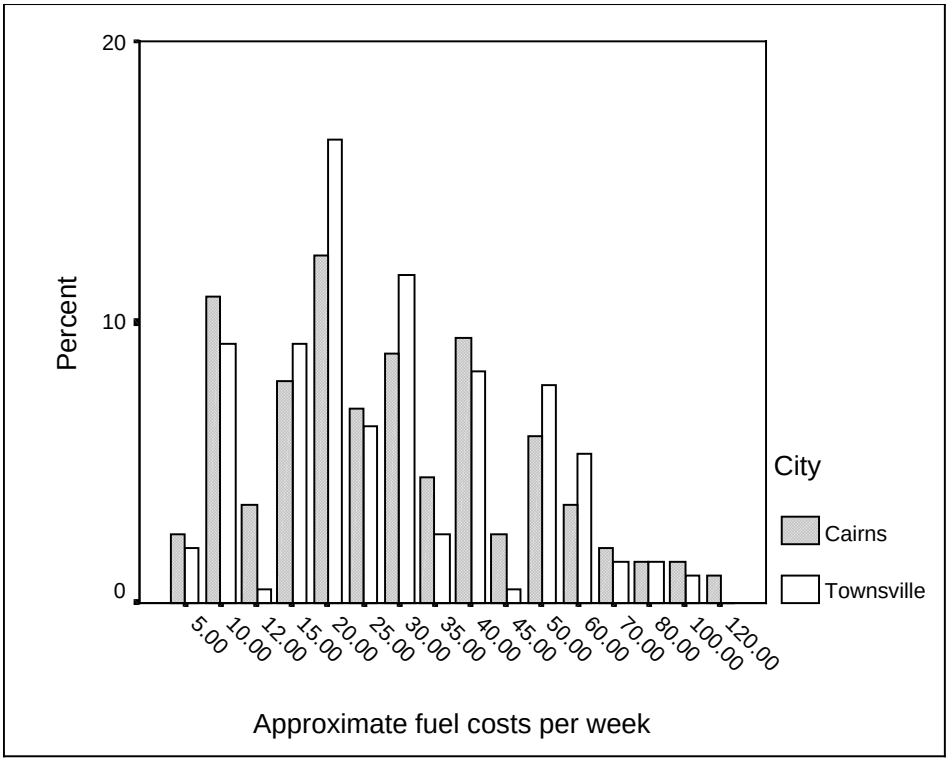

60
50
40
30
20
10
0
Percent
City
Cairns
Townsville
0
1
2
3
4
Total number of vehicles privately used by householders.

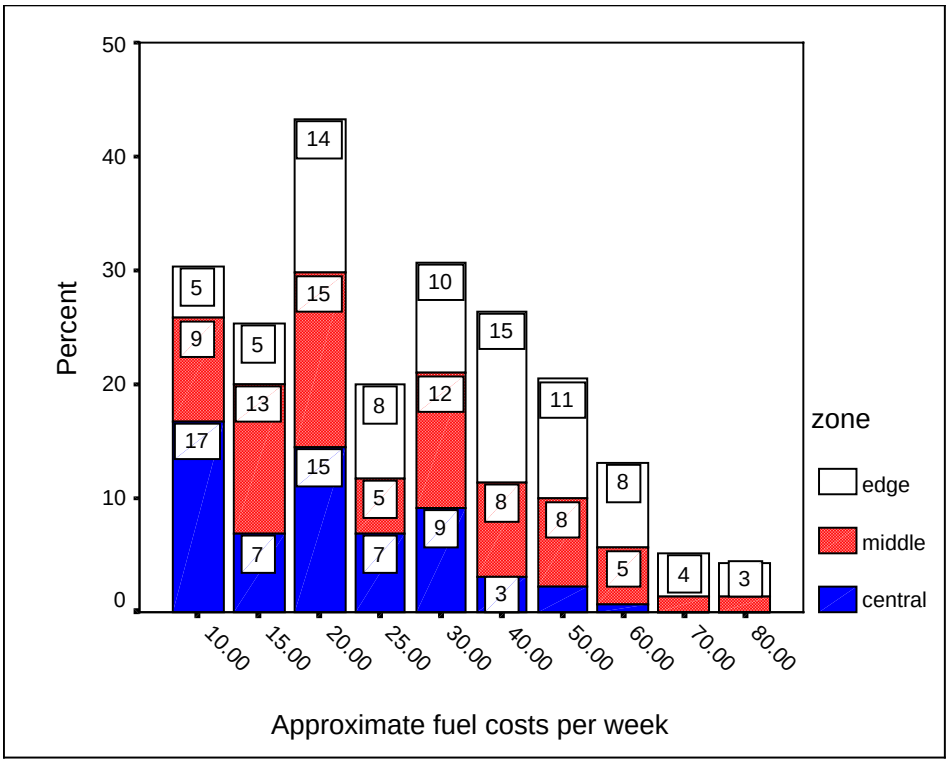


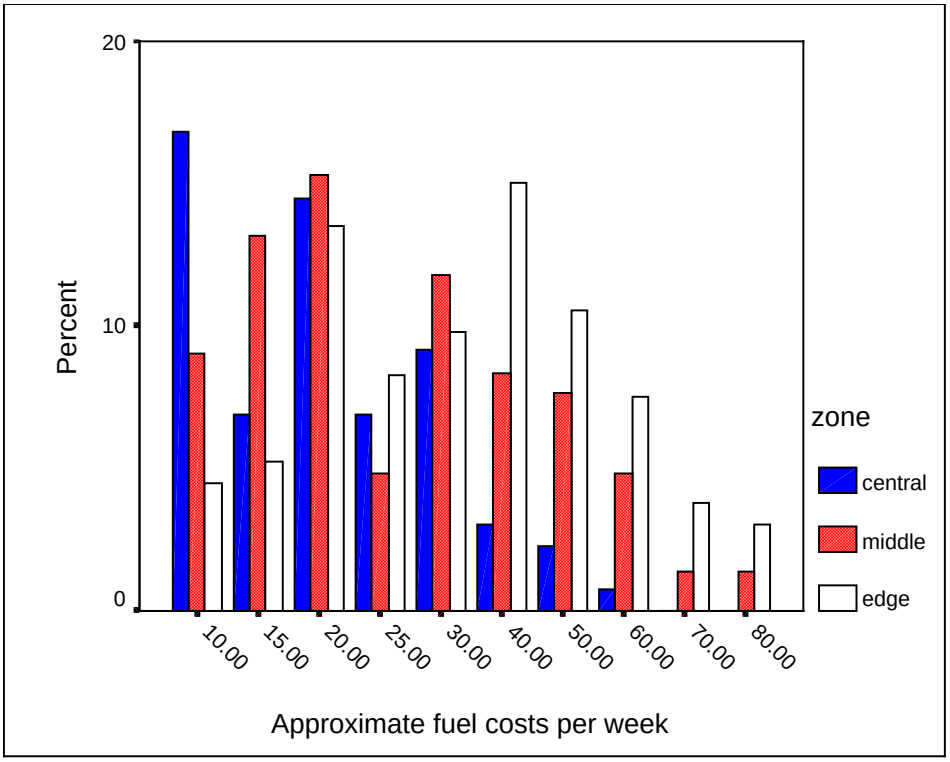
Total number of vehicles privately used by householders.

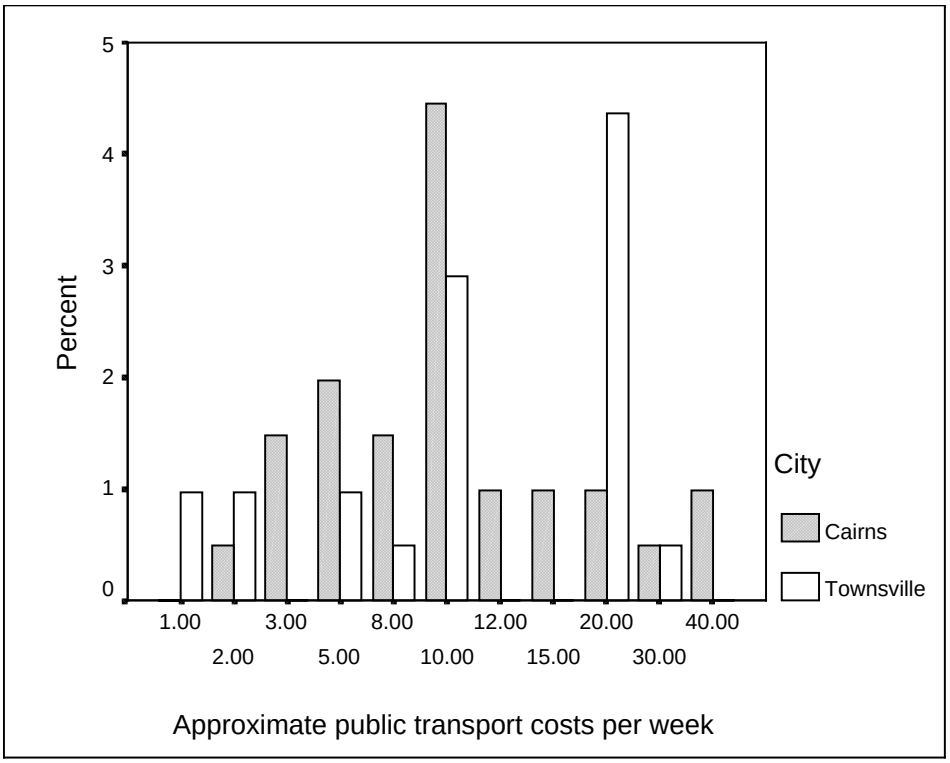


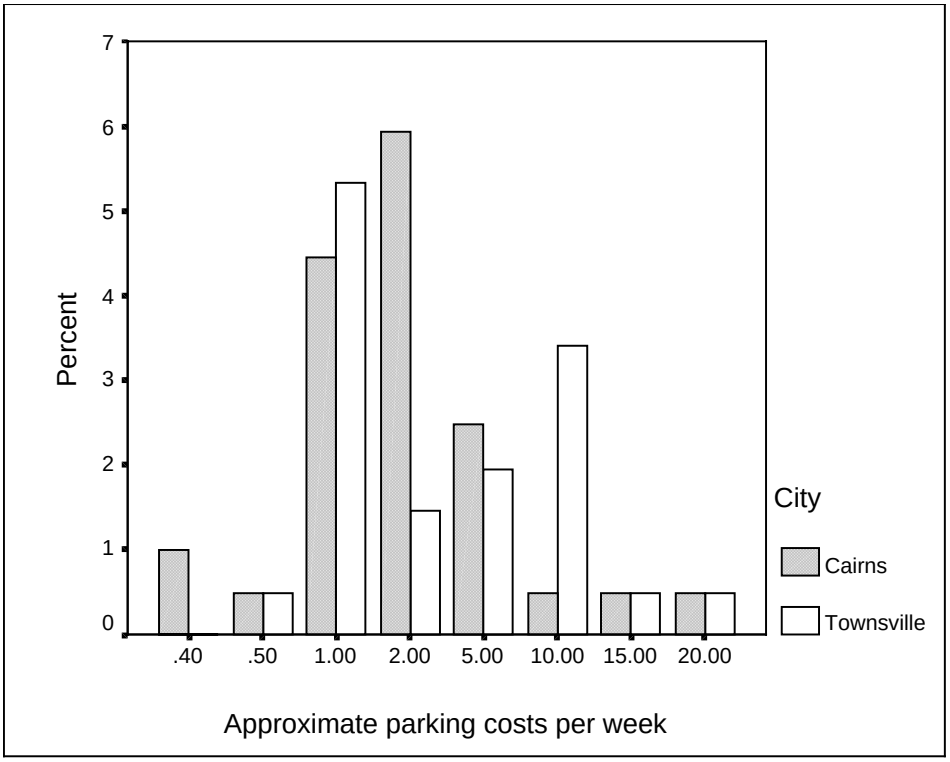
Vehicle provided by employer

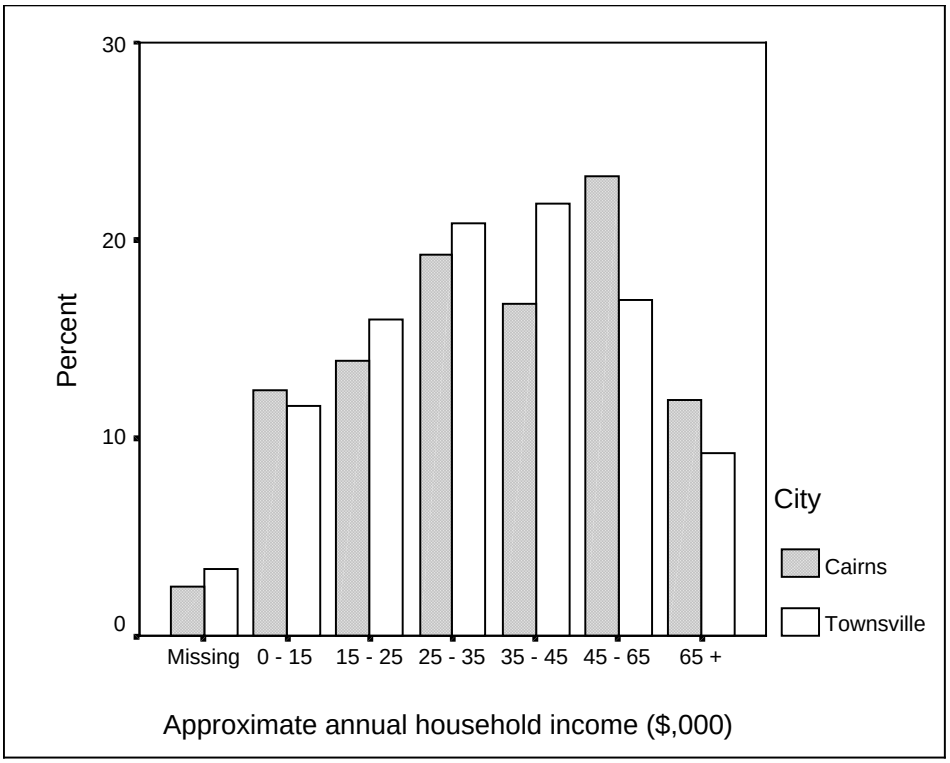

20
10
0
Percent
City
Cairns
Townsville
5.00
10.00
12.00
15.00
20.00
25.00
30.00
35.00
40.00
45.00
50.00
60.00
70.00
80.00
100.00
120.00
Approximate fuel costs per week

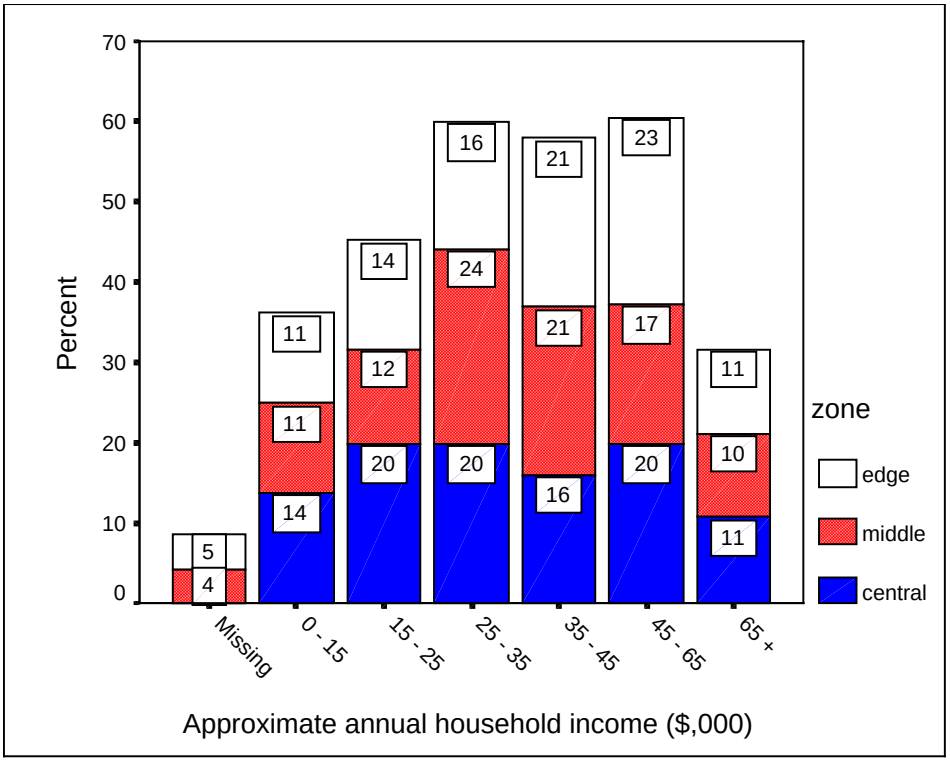

50
40
30
20
10
0
Percent
zone
edge
middle
central
10.00
15.00
20.00
25.00
30.00
40.00
50.00
60.00
70.00
80.00
Approximate fuel costs per week

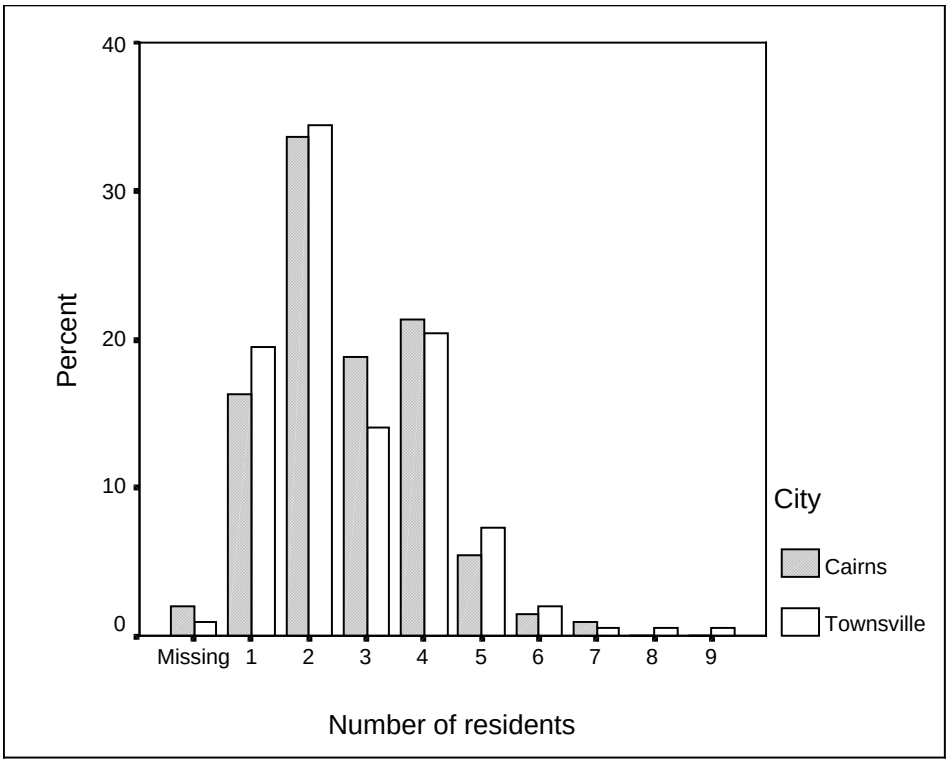

20
10
0
Percent
10.00
15.00
20.00
25.00
30.00
40.00
50.00
60.00
70.00
80.00
Approximate fuel costs per week
zone
central
middle
edge

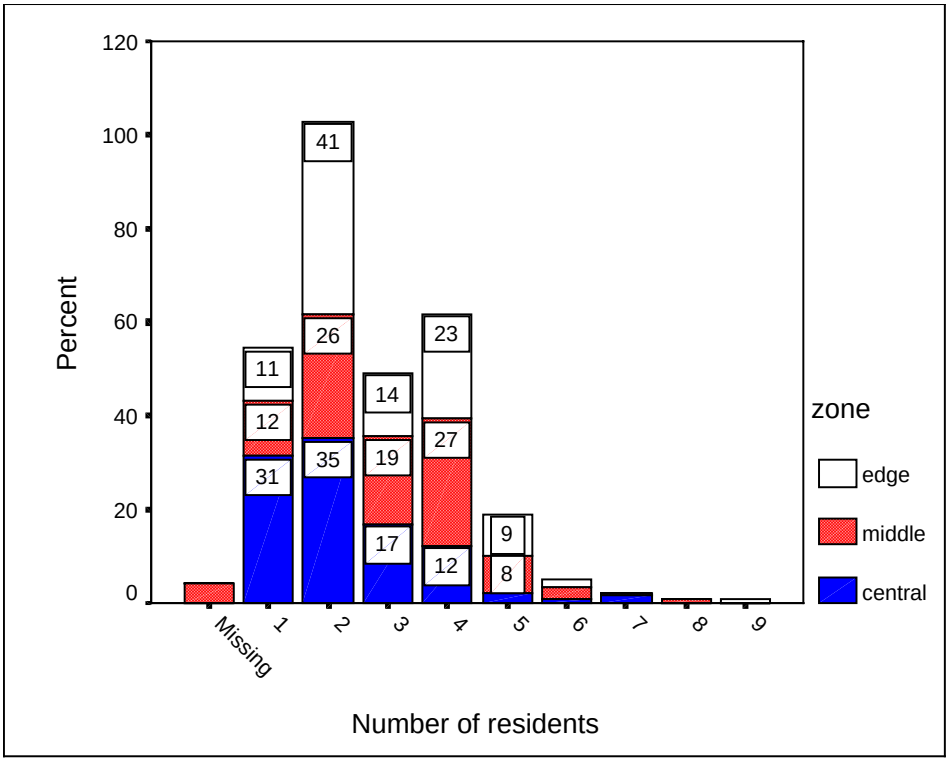

5
4
3
2
1
0
Percent
1.00
2.00
3.00
5.00
8.00
10.00
12.00
15.00
20.00
30.00
40.00
Approximate public transport costs per week
City
Cairns
Townsville

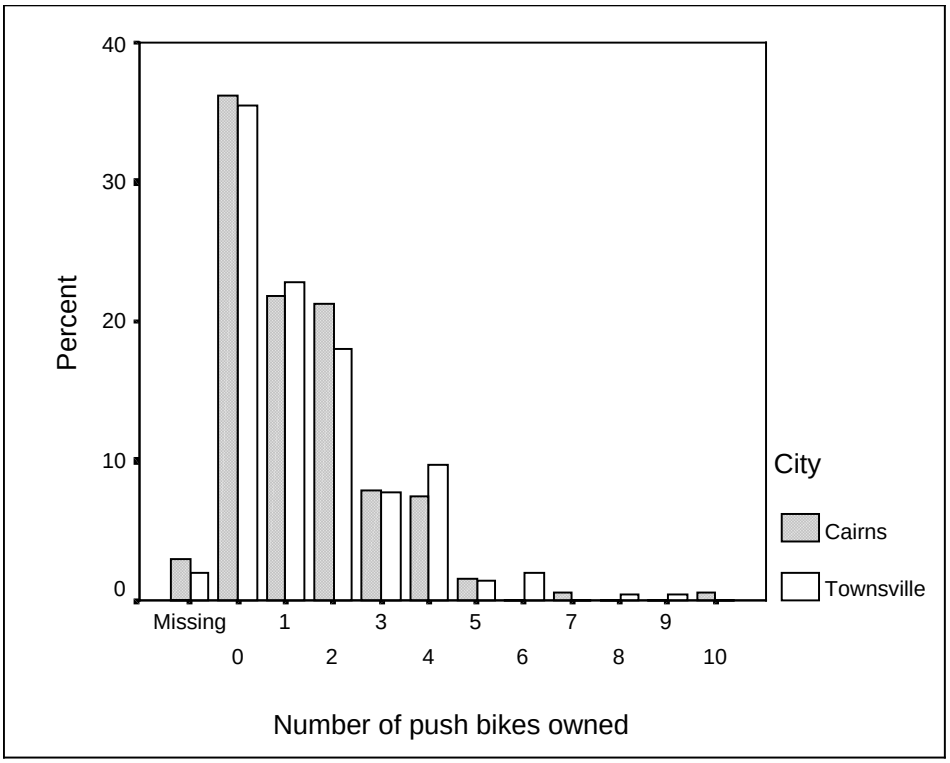

Percent
7
6
5
4
3
2
1
0
.40
.50
1.00
2.00
5.00
10.00
15.00
20.00
City
Cairns
Townsville
Approximate parking costs per week

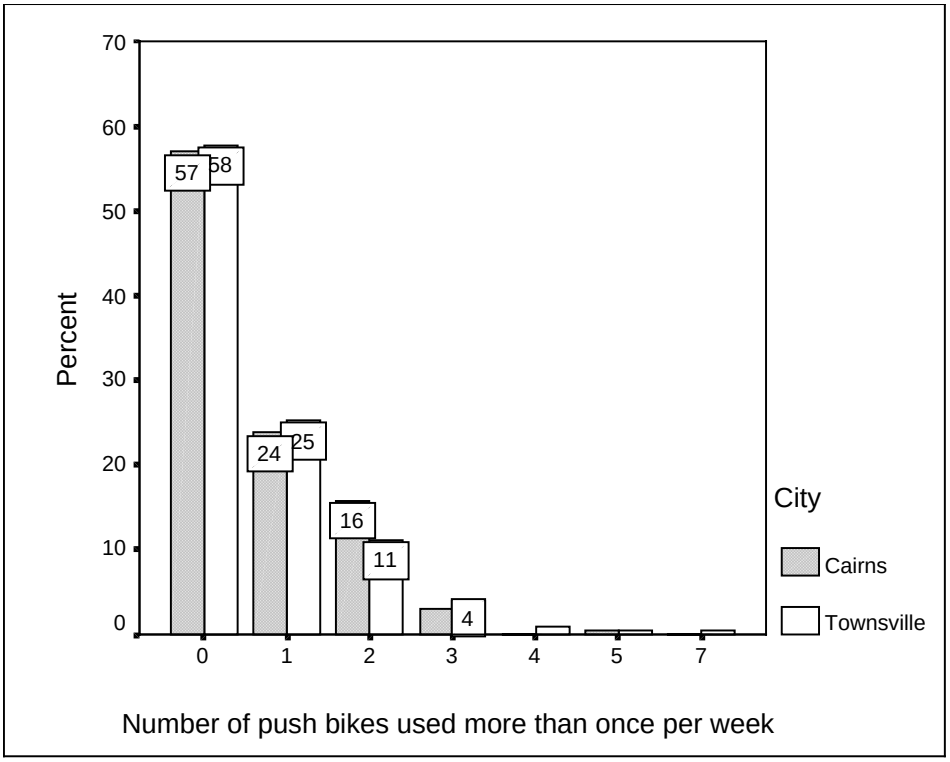

Percent
30
20
10
0
Missing
0 - 15
15 - 25
25 - 35
35 - 45
45 - 65
65 +
City
Cairns
Townsville
Approximate annual household income ($,000)

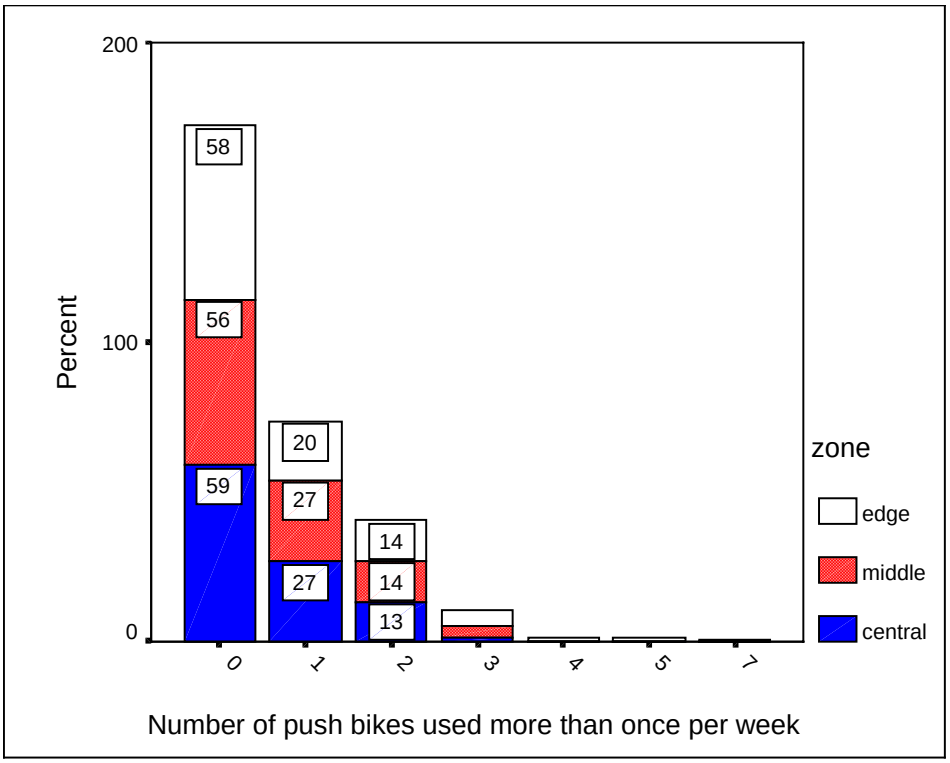

Percent
70
60
50
40
30
20
10
0
5
4
11
11
14
14
12
20
16
24
20
21
21
16
23
17
20
11
10
11
Missing
0 - 15
15 - 25
25 - 35
35 - 45
45 - 65
65 +
zone
edge
middle
central
Approximate annual household income ($,000)

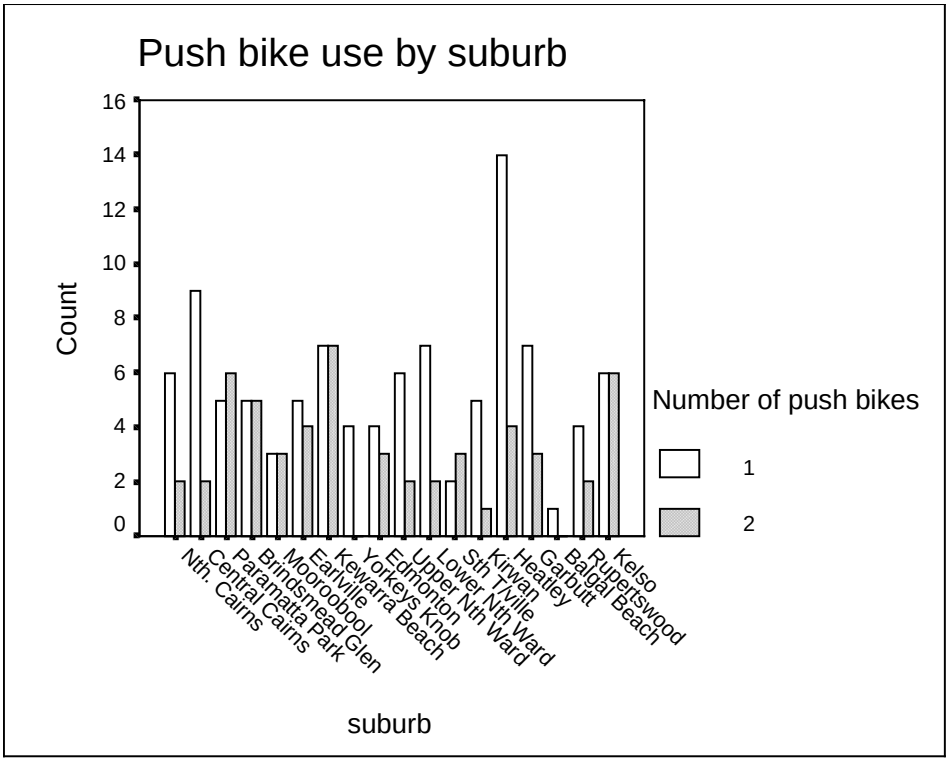

Percent
40
30
20
10
0
Missing
1
2
3
4
5
6
7
8
9
City
Cairns
Townsville
Number of residents

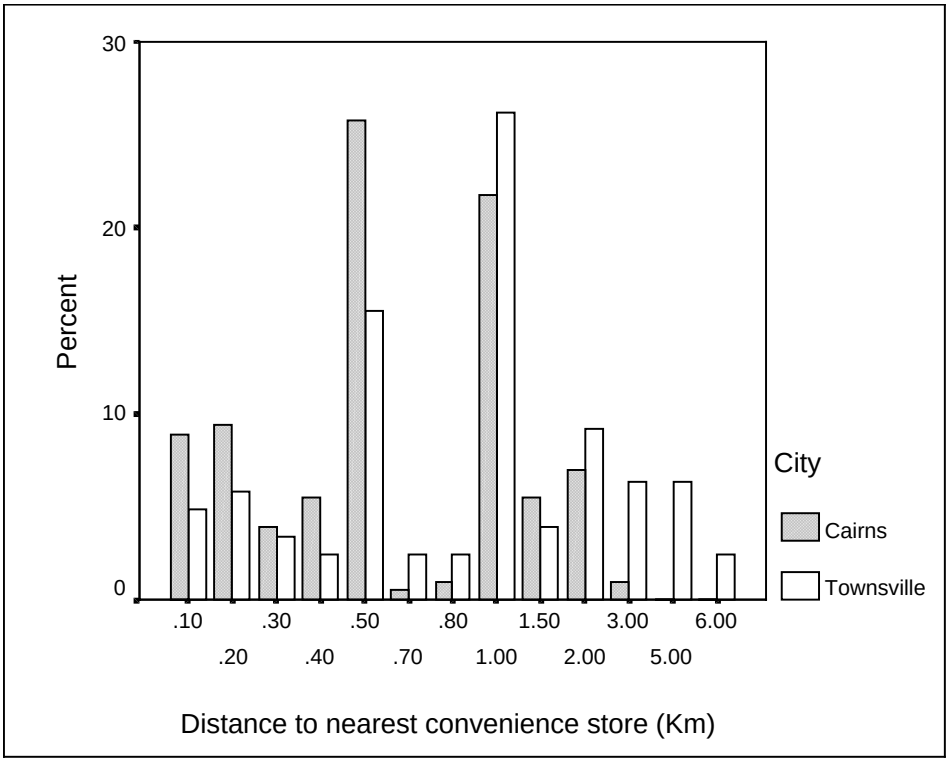

120
100
80
60
40
20
0
Percent
41
26
11
12
31
35
14
19
17
23
27
12
9
8
Missing
1
2
3
4
5
6
7
8
9
Number of residents
zone
edge
middle
central

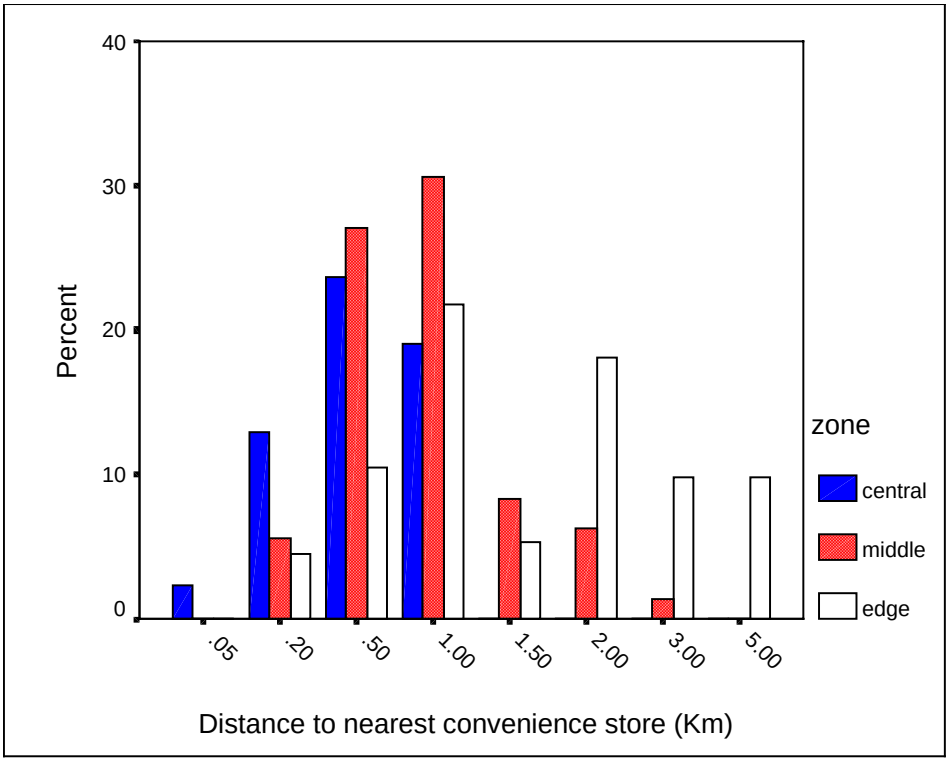

40
30
20
10
0
Percent
Missing
0
1
2
3
4
5
6
7
8
9
10
Number of push bikes owned
City
Cairns
Townsville

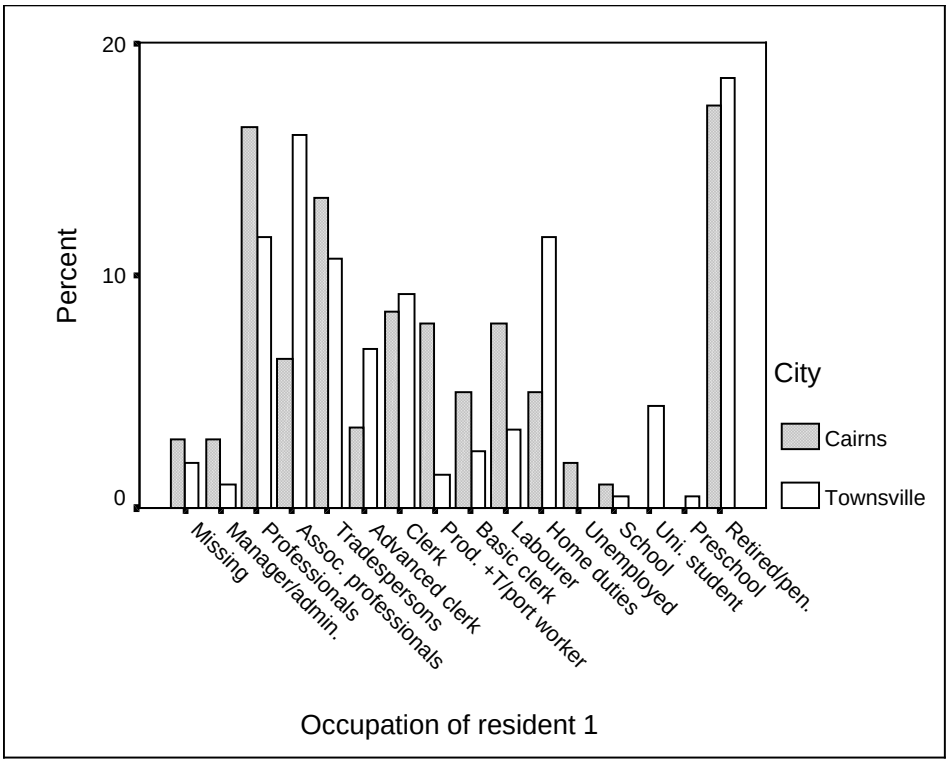

70
60
50
40
30
20
10
0
Percent
57
58
24
25
16
11
4
0
1
2
3
4
5
7
City
Cairns
Townsville
Number of push bikes used more than once per week

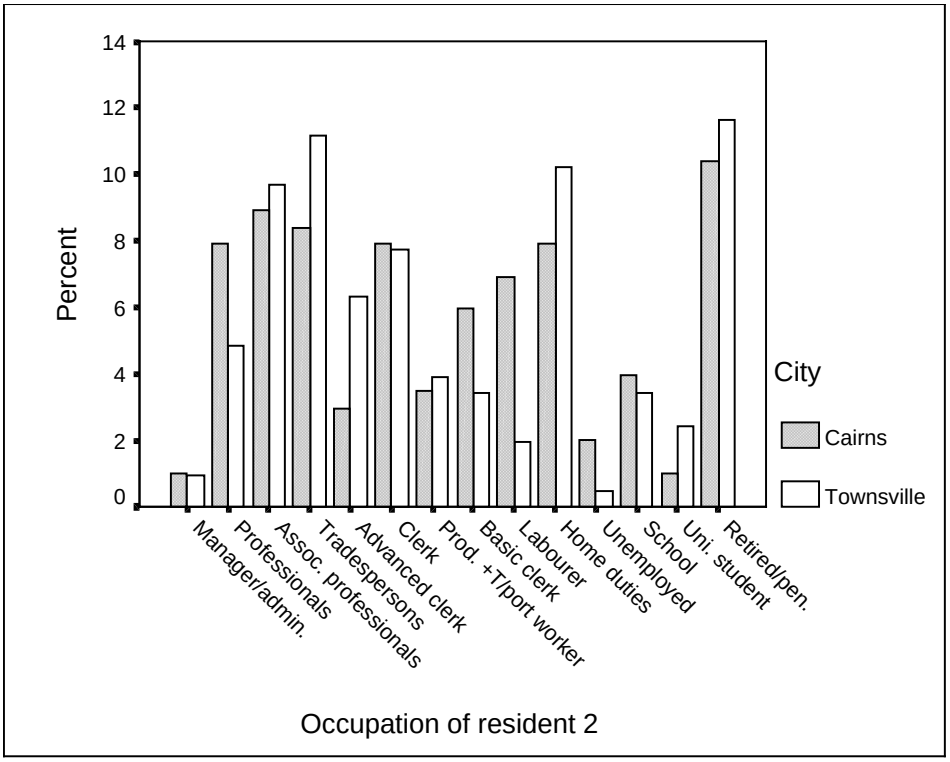

200
100
0
Percent
58
56
59
20
27
27
14
14
13
0
1
2
3
4
5
7
zone
edge
middle
central
Number of push bikes used more than once per week

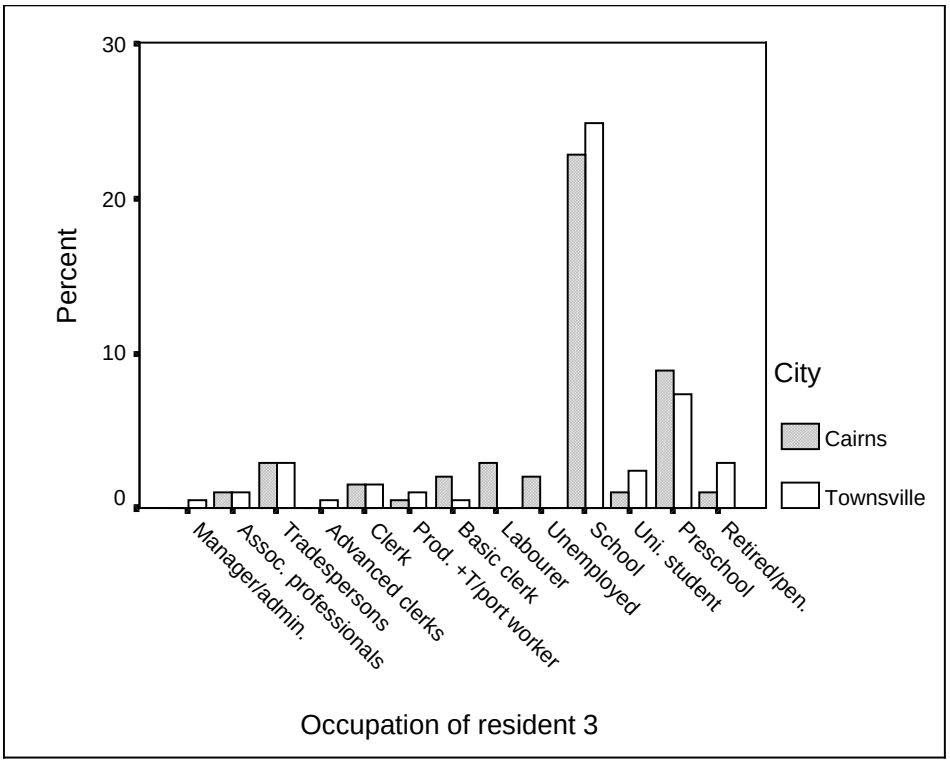

Push bike use by suburb
Count
16
14
12
10
8
6
4
2
0
Number of push bikes
1
2
Nth. Cairns
Central Cairns
Parramatta Park
Brinsmead Glen
Mooroobool
Earlville
Kewarra Beach
Yorkeys Knob
Edmonton
Upper Nth Ward
Lower Nth Ward
Sth Tville
Kirwan
Heatley
Garbutt
Balgal Beach
Rupertswood
Kelso
suburb


Percent
30
20
10
0
City
Cairns
Townsville
.10
.20
.30
.40
.50
.70
.80
1.00
1.50
2.00
3.00
5.00
6.00
Distance to nearest convenience store (Km)

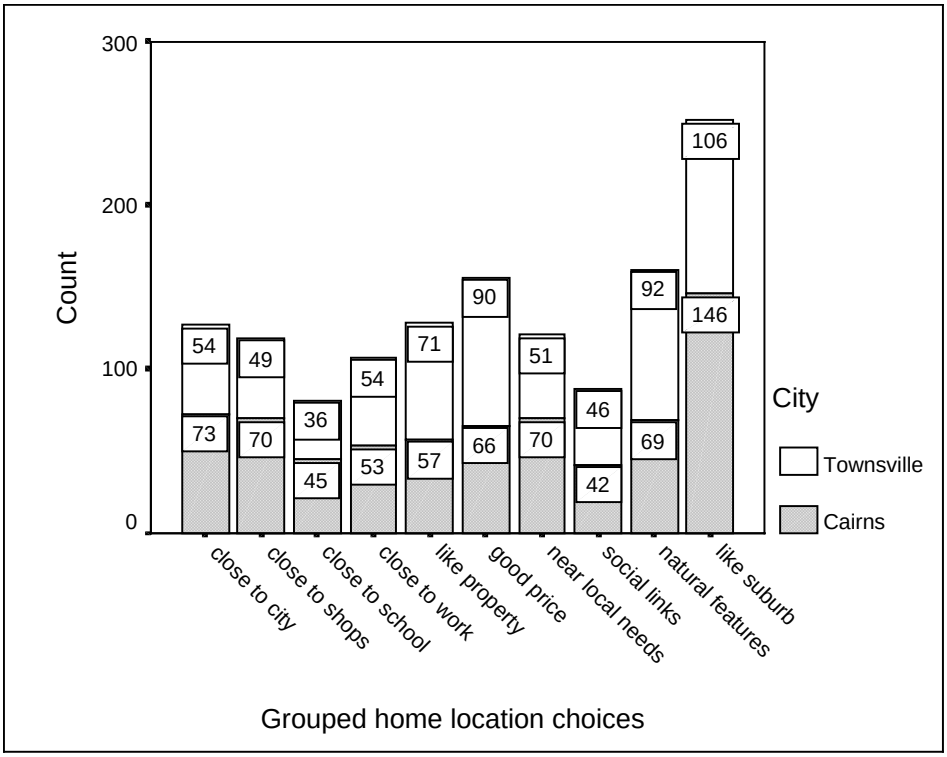

40
30
20
10
0
Percent
.05
.20
.50
1.00
1.50
2.00
3.00
5.00
zone
central
middle
edge
Distance to nearest convenience store (Km)

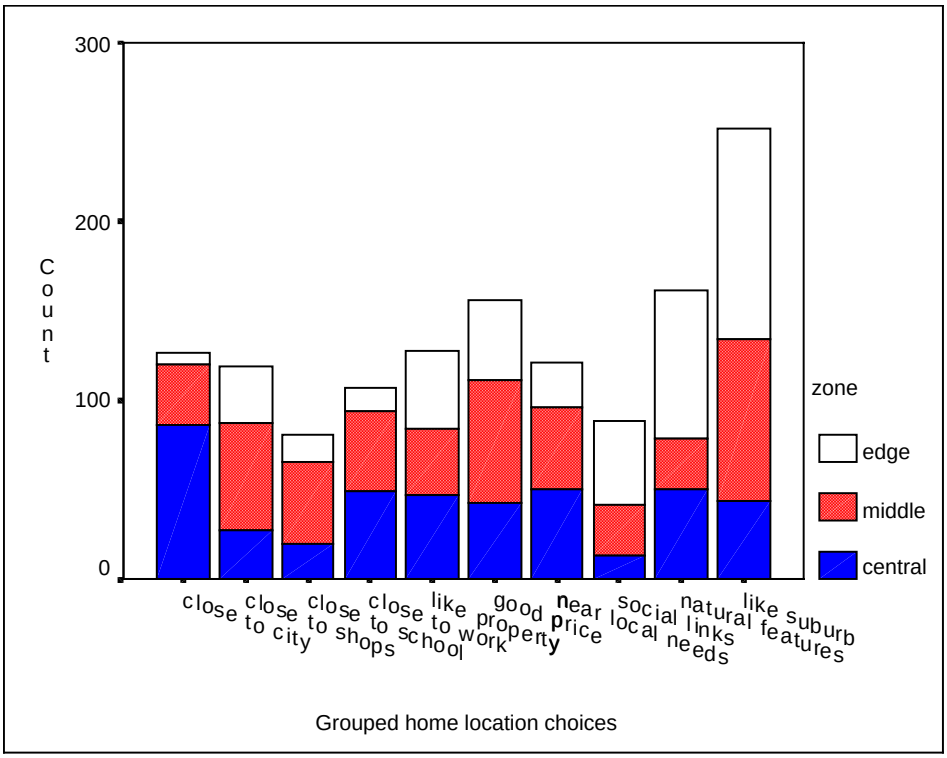

20
10
0
Percent
Missing
Manager/admin.
Professionals
Assoc. professionals
Tradespersons
Advanced clerk
Clerk
Prod. +T/port worker
Basic clerk
Labourer
Home duties
Unemployed
School
Uni. student
Preschool
Retired/pen.
City
Cairns
Townsville
Occupation of resident 1

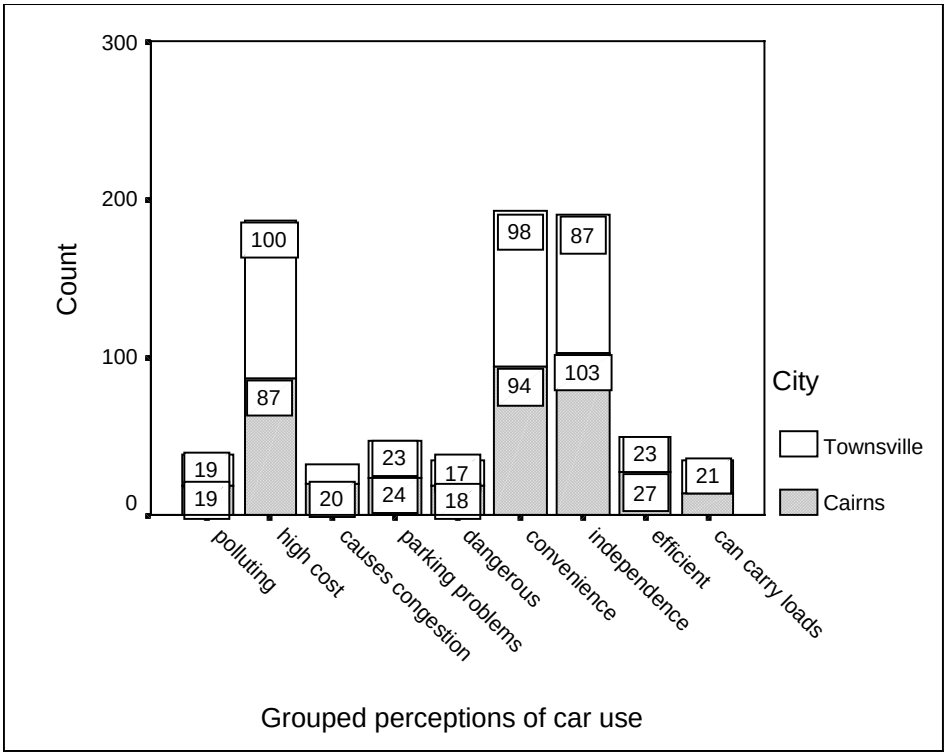

Percent
14
12
10
8
6
4
2
0
City
Cairns
Townsville
Manager/admin.
Professionals
Assoc. professionals
Tradespersons
Advanced clerk
Clerk
Prod. +T/port worker
Basic clerk
Labourer
Home duties
Unemployed
School
Uni. student
Retired/pen.
Occupation of resident 2

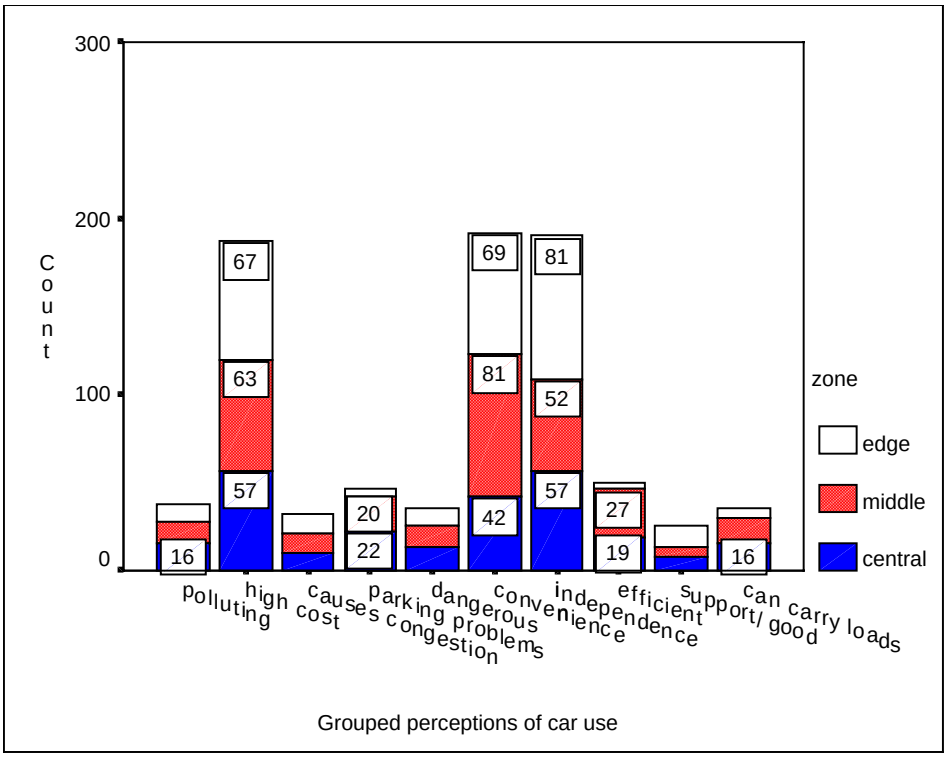

Percent
30
20
10
0
City
Cairns
Townsville
Manager/admin.
Assoc. professionals
Tradespersons
Advanced clerks
Clerk
Prod. +T/port worker
Basic clerk
Labourer
Unemployed
School
Uni. student
Preschool
Retired/pen.
Occupation of resident 3

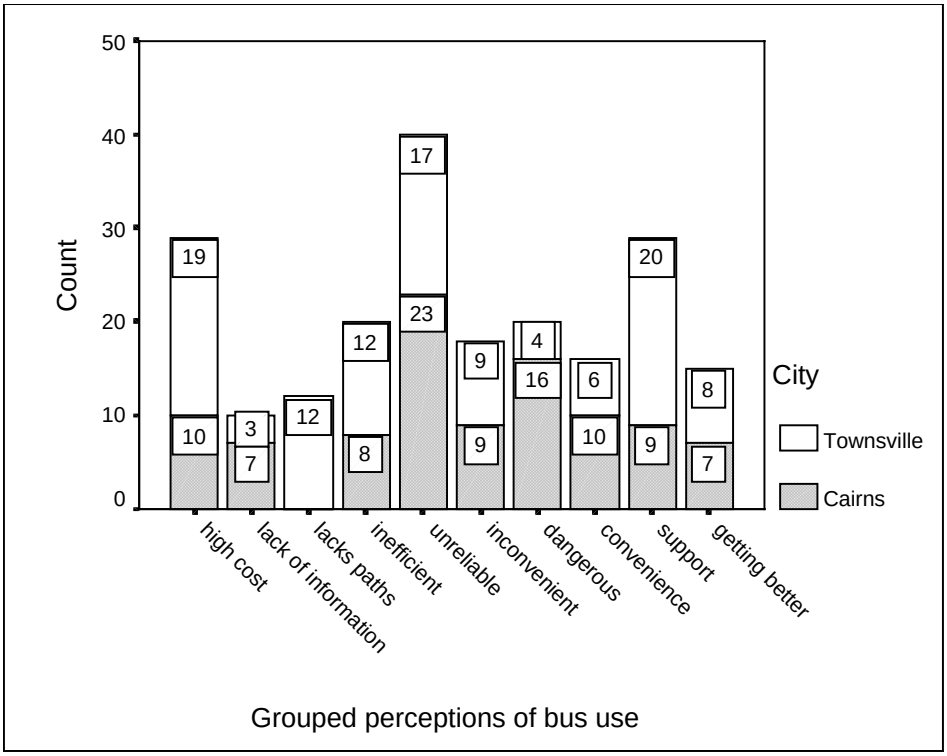
Appendix 18
North Queensland multiple answer charts and written comments






300
200
100
0
Count
100
87
98
87
94
103
19
19
20
23
24
17
18
23
27
21
City
Townsville
Cairns
polluting
high cost
causes congestion
parking problems
dangerous
convenience
independence
efficient
can carry loads
Grouped perceptions of car use


300
200
100
0
Count
67
63
57
16
69
81
52
81
57
42
20
22
27
19
16
zone
edge
middle
central
polluting
high cost
causes congestion
parking problems
dangerous
convenience
independence
efficient
support/ good
can carry loads
Grouped perceptions of car use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City
Townsville
Cairns
high cost
lack of information
lacks paths
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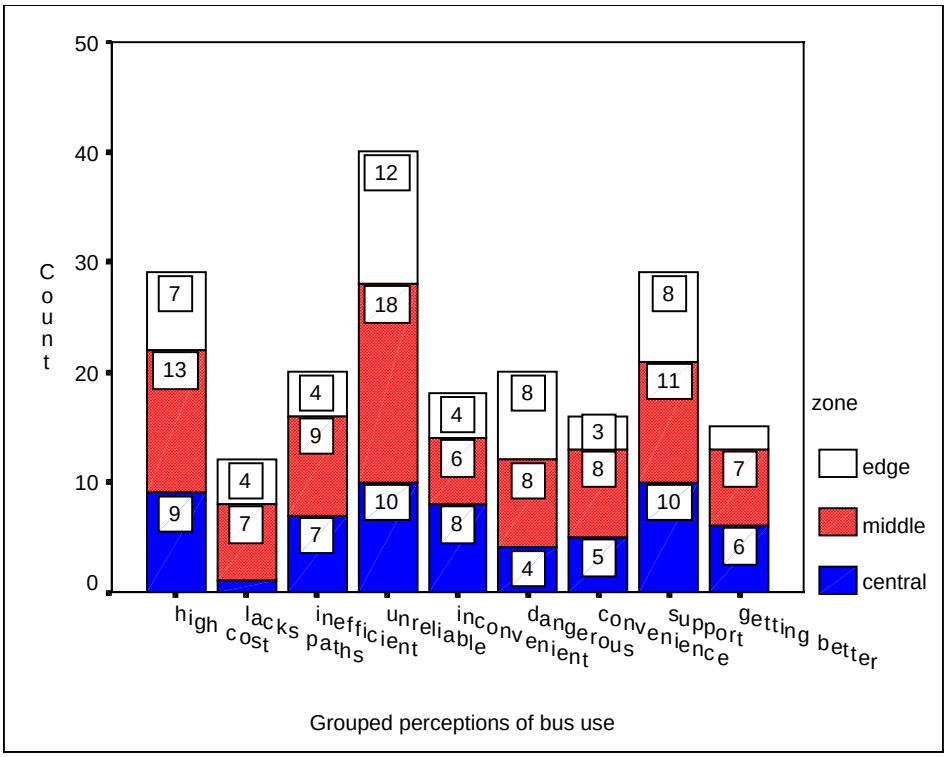
unreliable
inconvenient
dangerous
convenience
support
getting better
Grouped perceptions of bus use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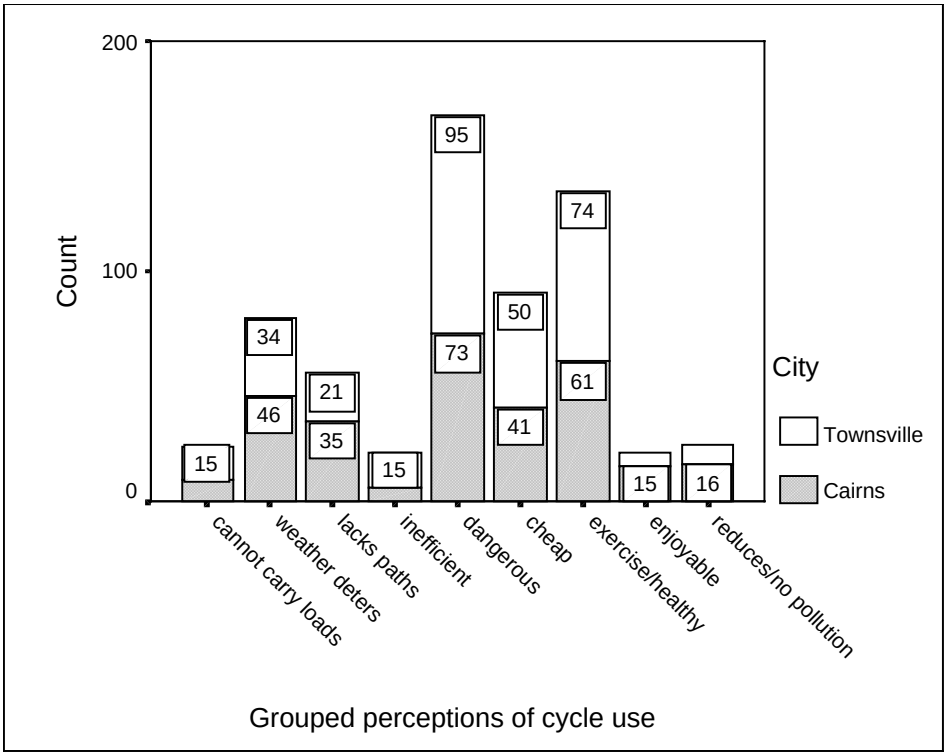
getting better
Grouped perceptions of bus use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Cairns
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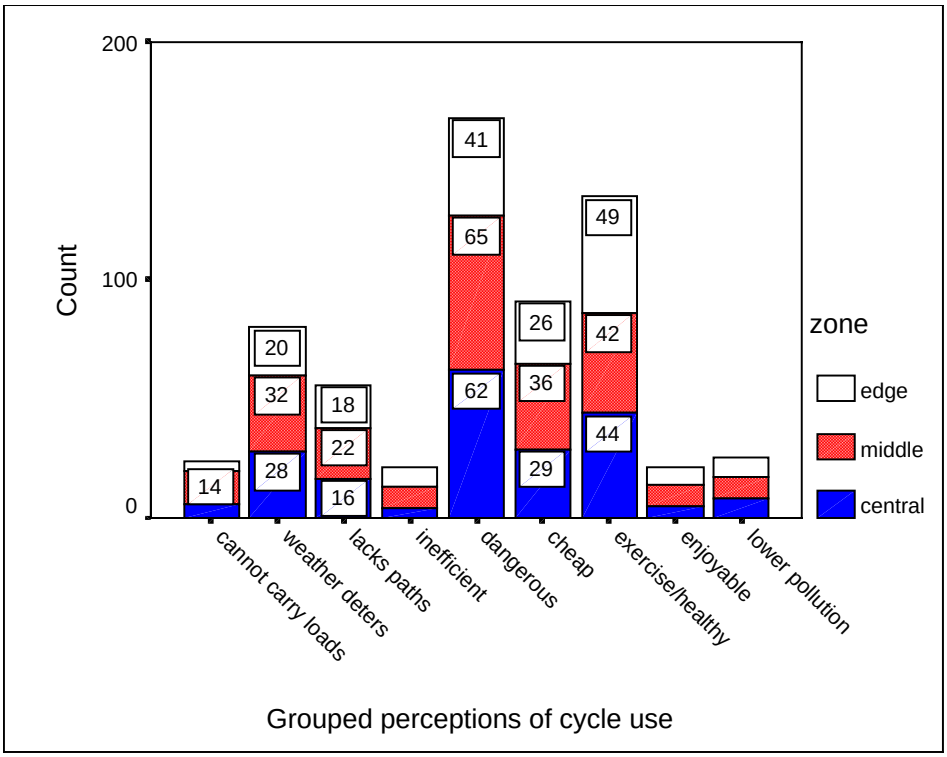
lacks paths
inefficient
dangerous
cheap
exercise/healthy
enjoyable
reduces/no pollution
Grouped perceptions of cycle use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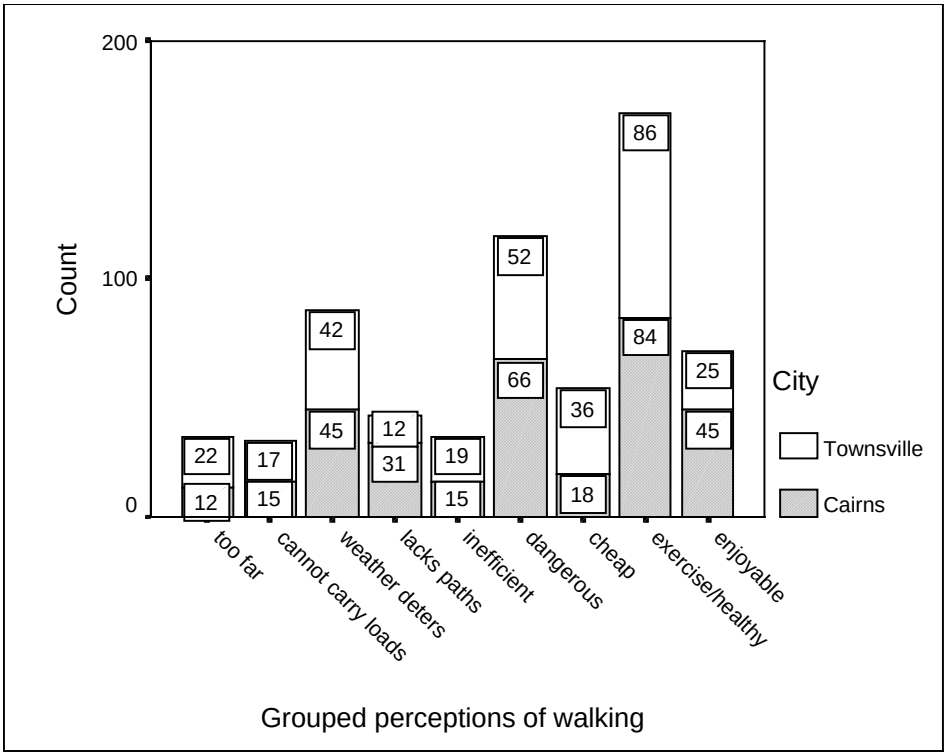
weather deters
lacks paths
inefficient
dangerous
cheap
exercise/healthy
enjoyable
lower pollution
Grouped perceptions of cycle use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too far
cannot carry loads
weather deters
lacks paths
inefficient
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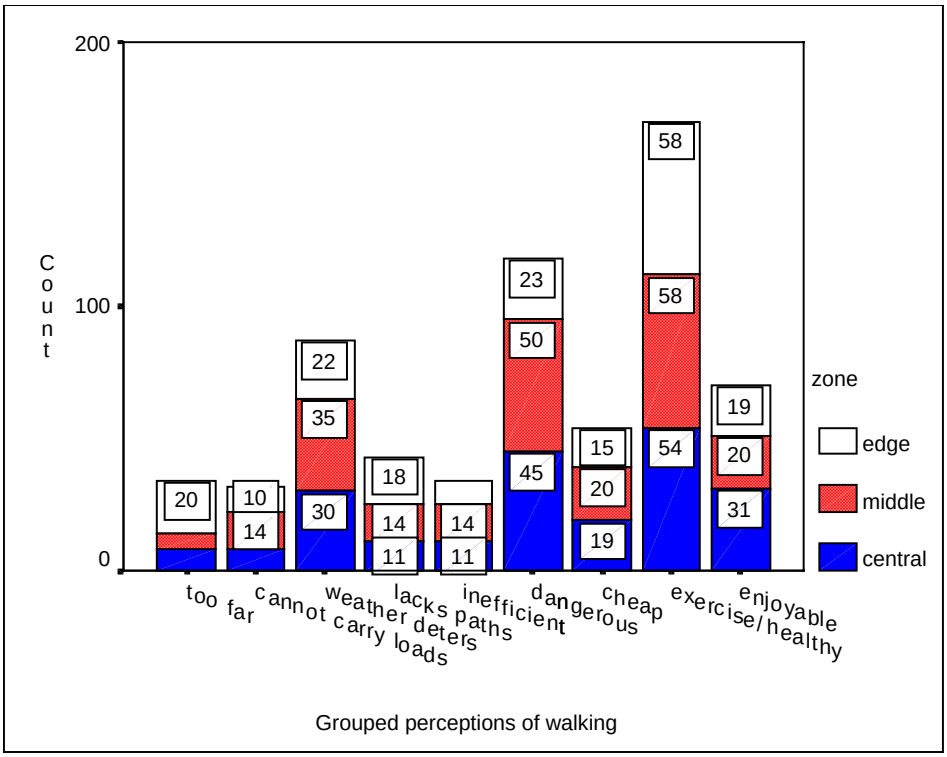
exercise/healthy
enjoyable
City
Townsville
Cairns
Grouped perceptions of walking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too far
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weather deters
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inefficient
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cheap
exercise/healthy
enjoyable
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edge
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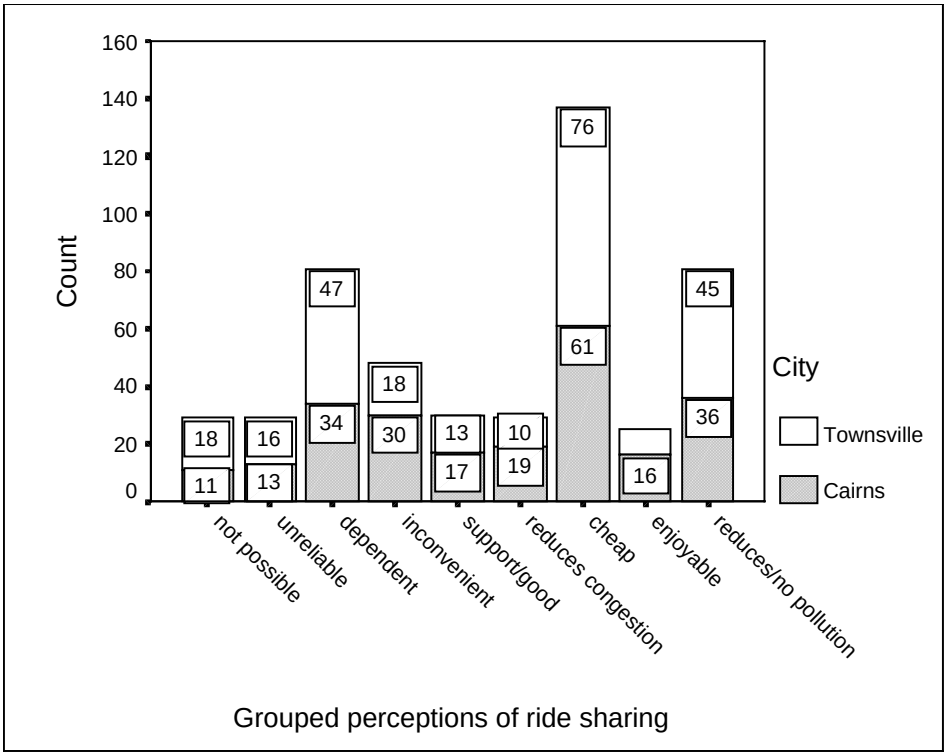
central
Grouped perceptions of walking



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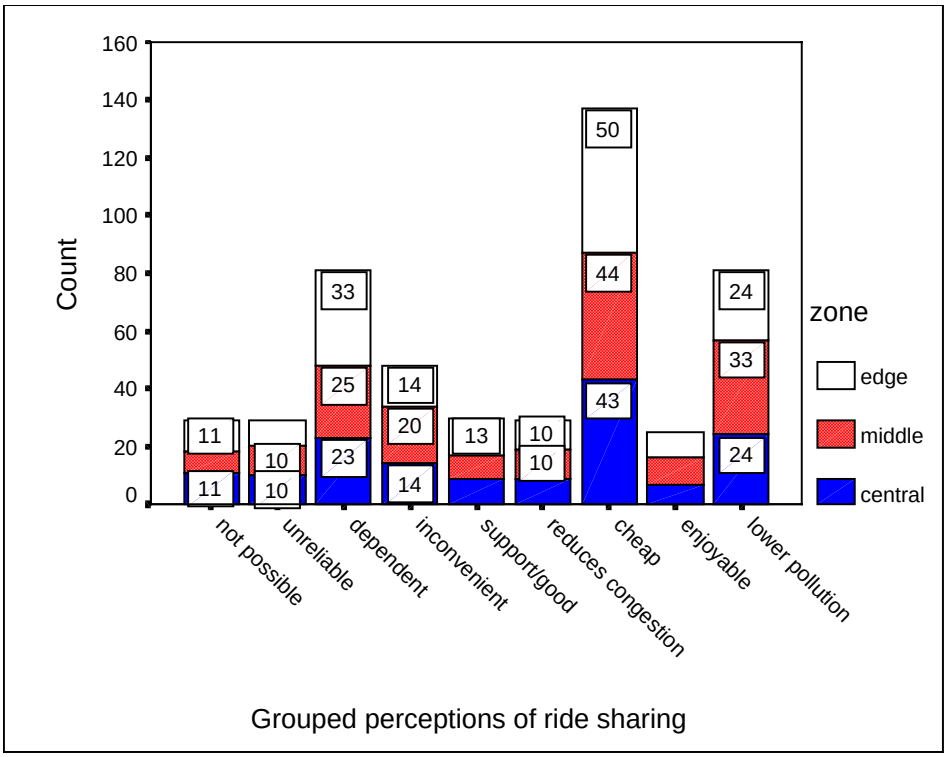
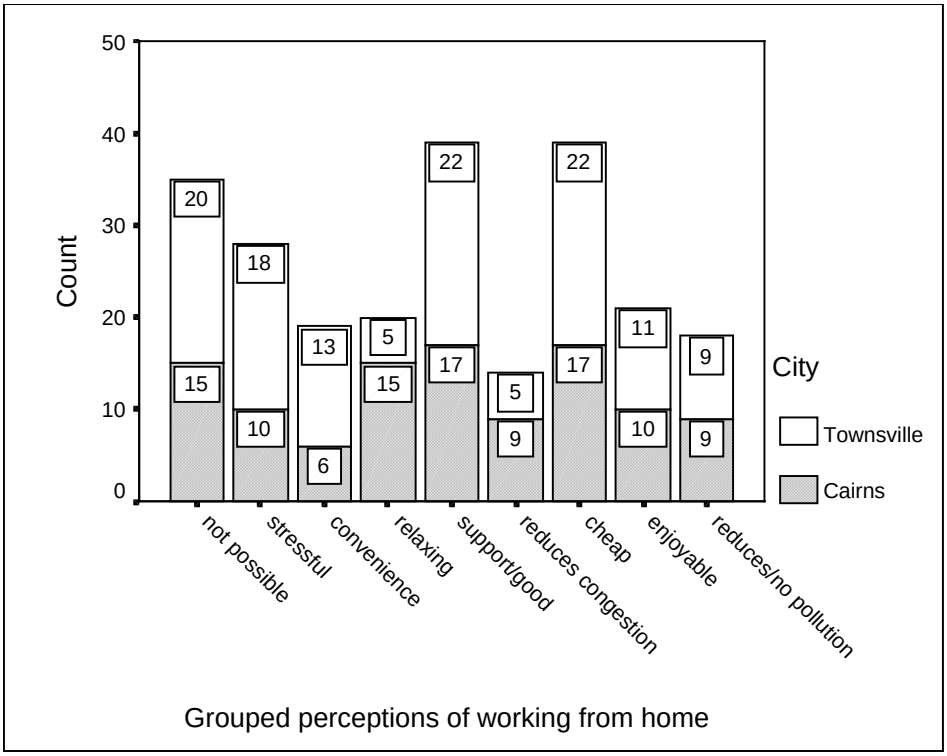
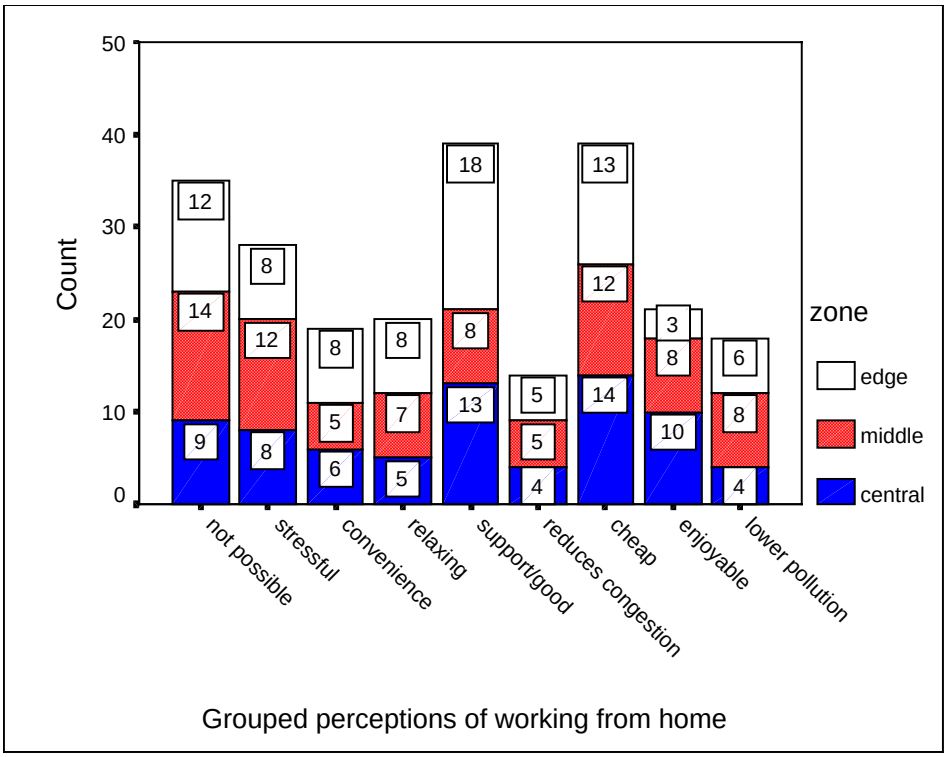


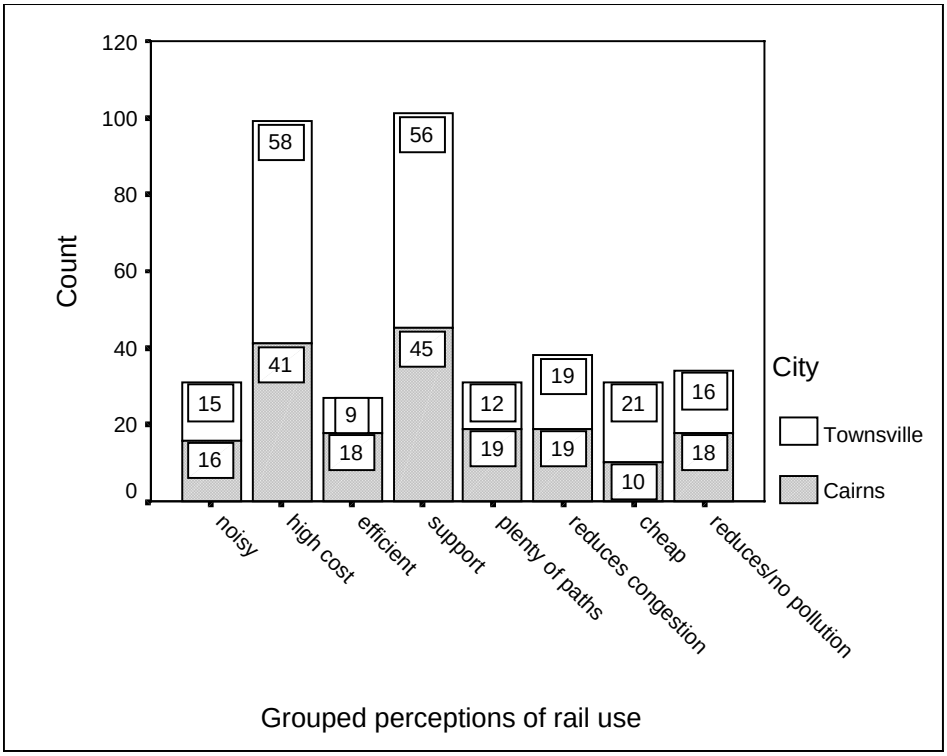
Grouped perceptions of ride sharing



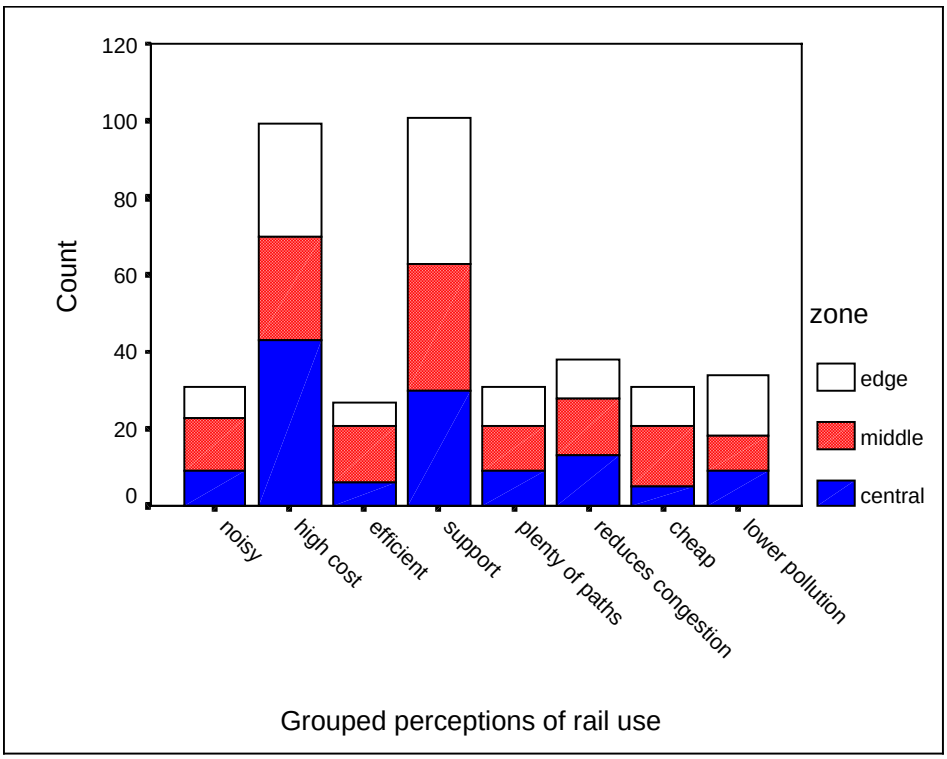
Grouped perceptions of working from home



Grouped perceptions of working from home



Grouped perceptions of rail use



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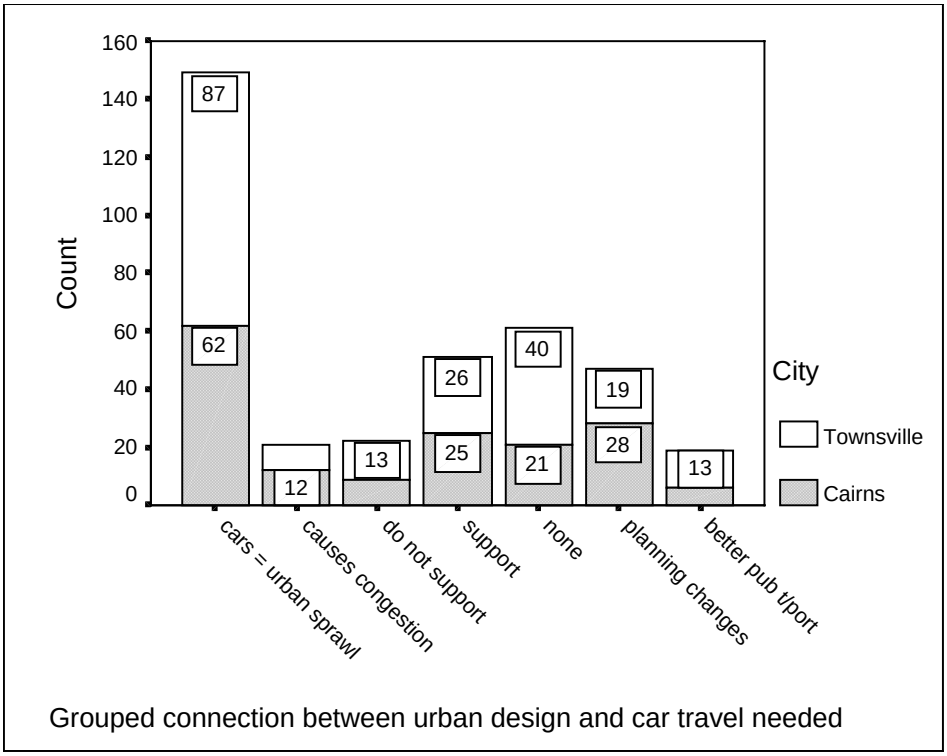
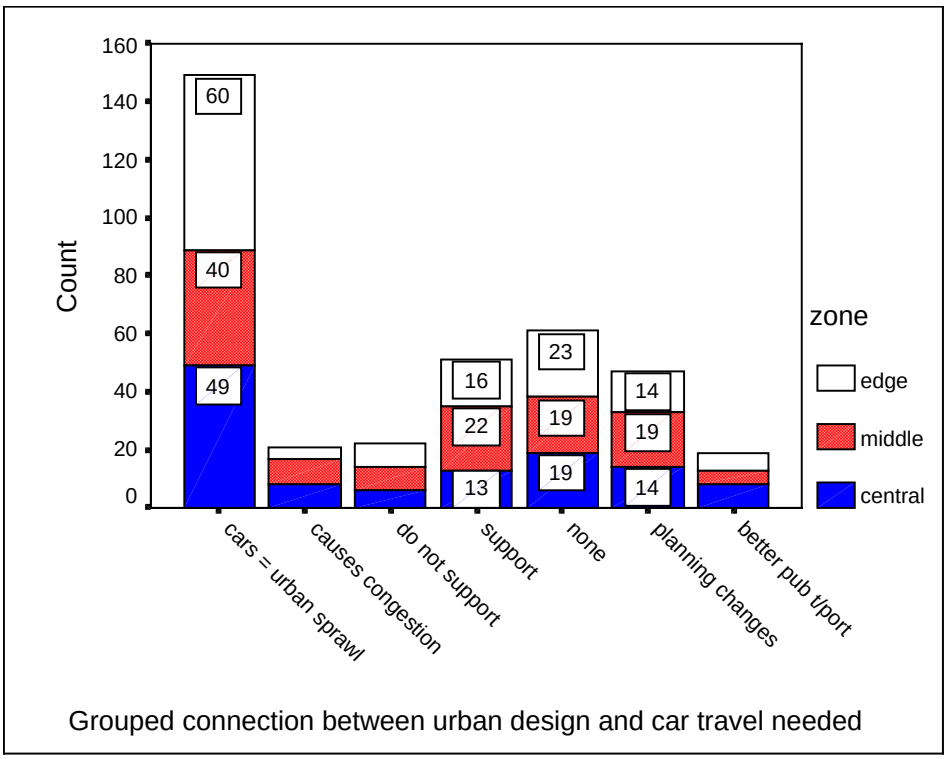
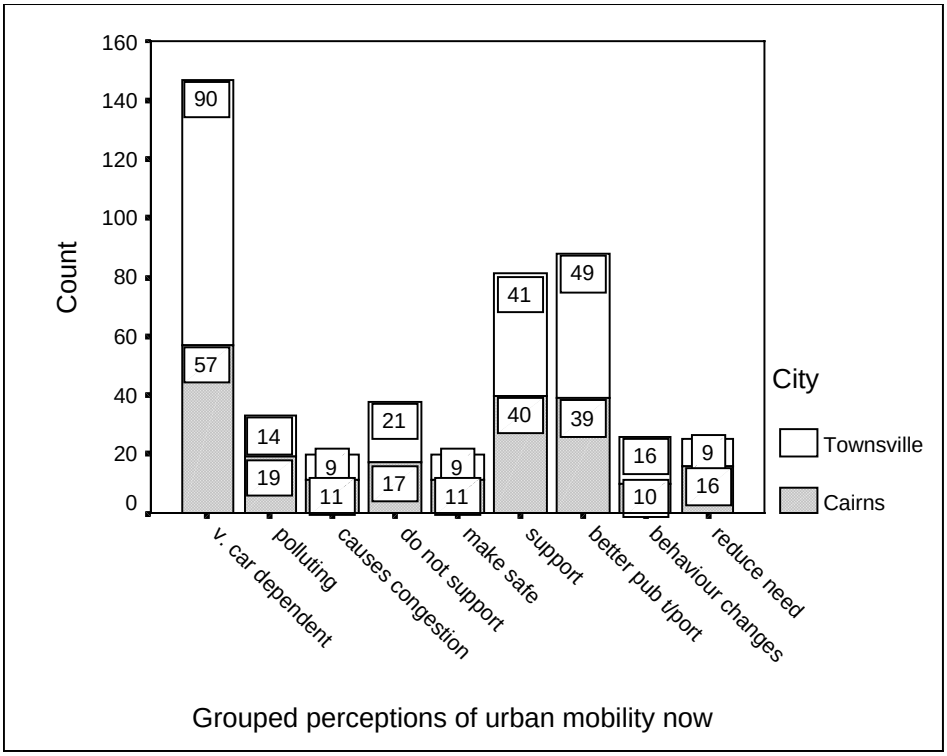


Grouped connection between urban design and car travel needed



Grouped connection between urban design and car travel needed



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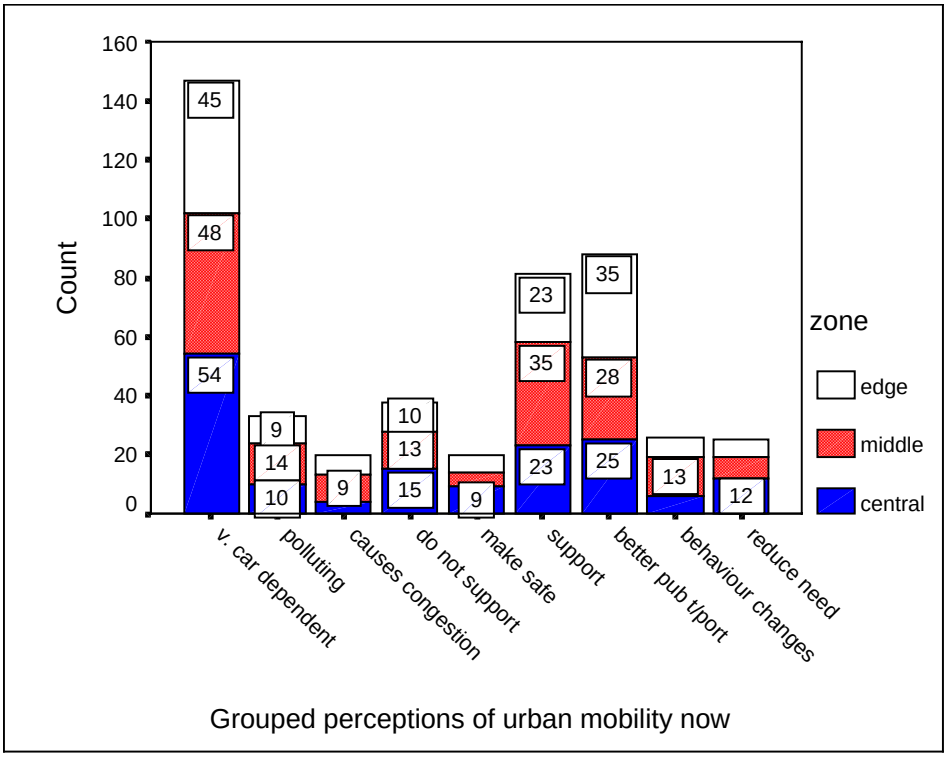
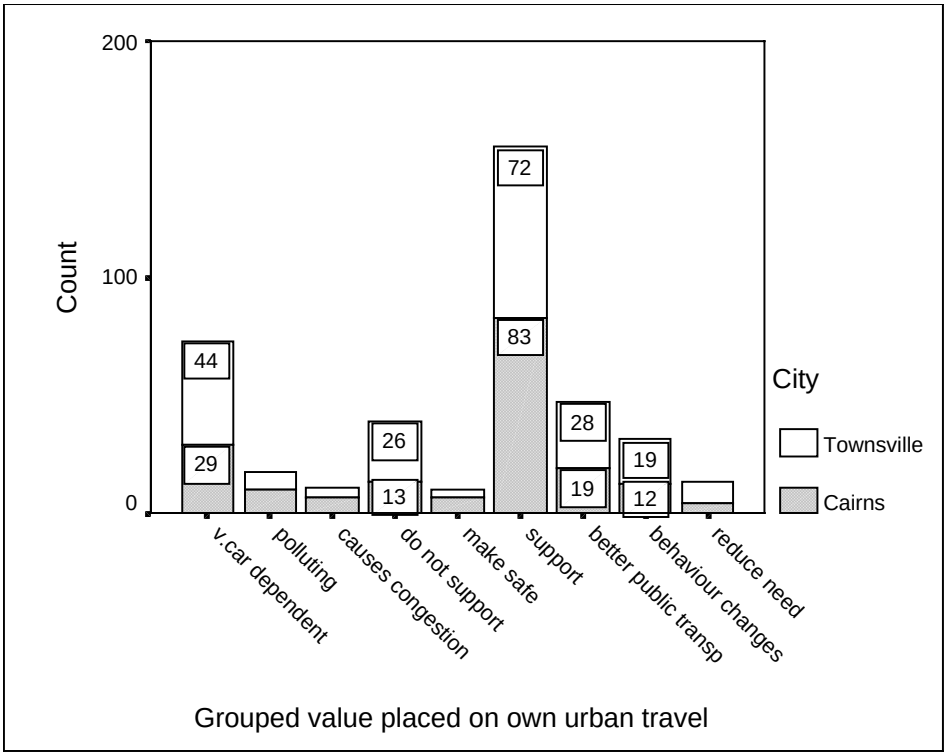


Grouped perceptions of urban mobility now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City
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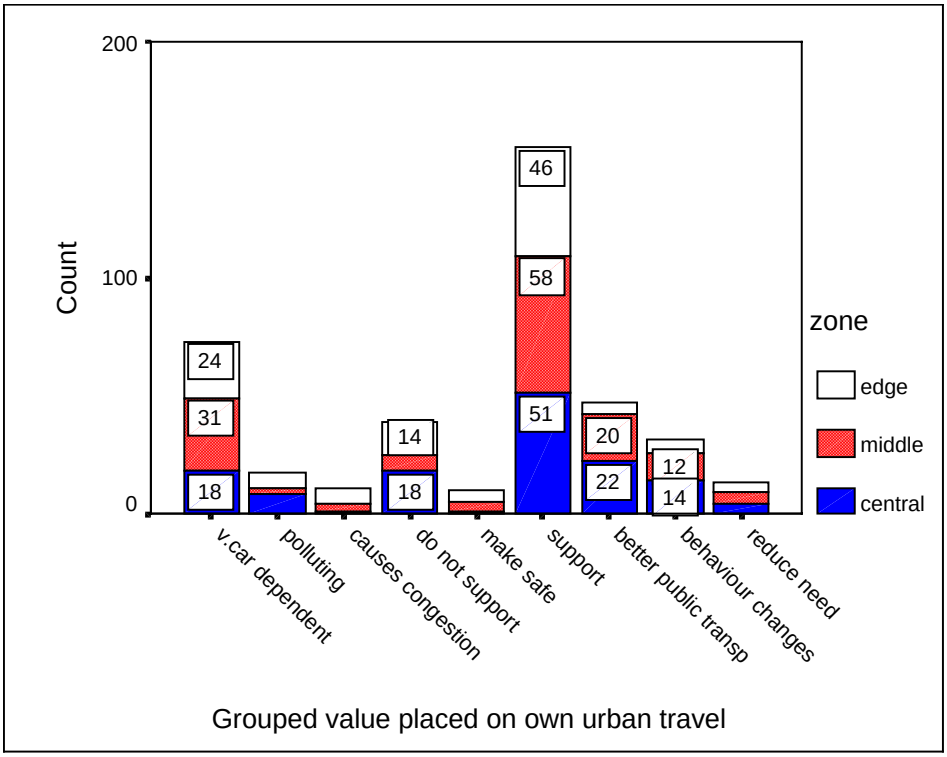
polluting
causes congestion
do not support
make safe
support
better public transp
behaviour changes
reduce need
Grouped value placed on own urban travel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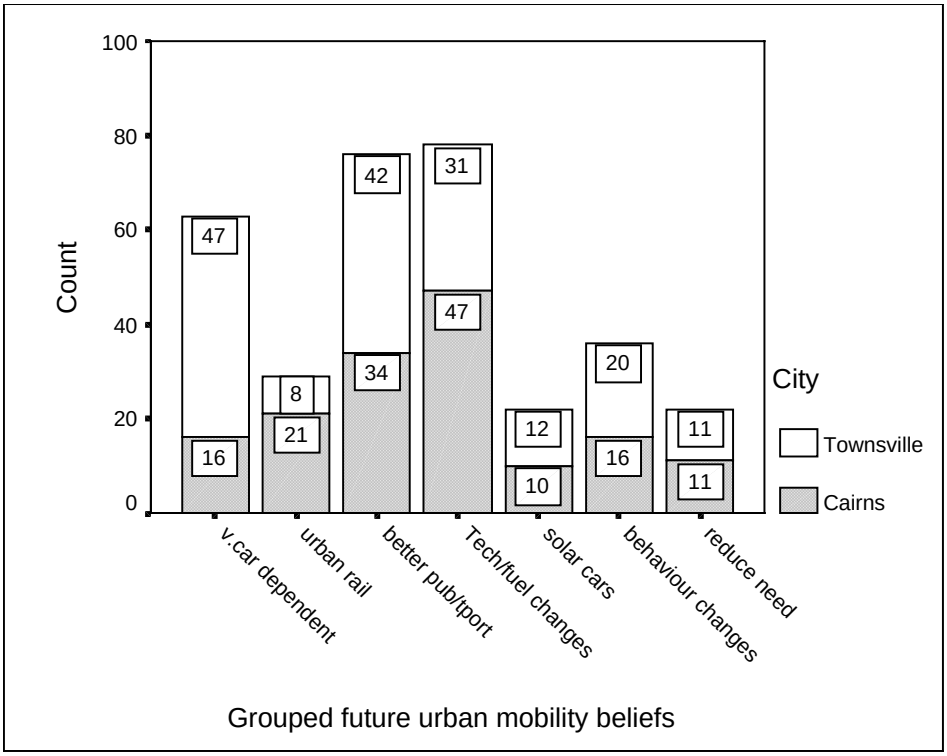
v.car dependent
polluting
causes congestion
do not support
make safe
support
better public transp
behaviour changes
reduce need
Grouped value placed on own urban travel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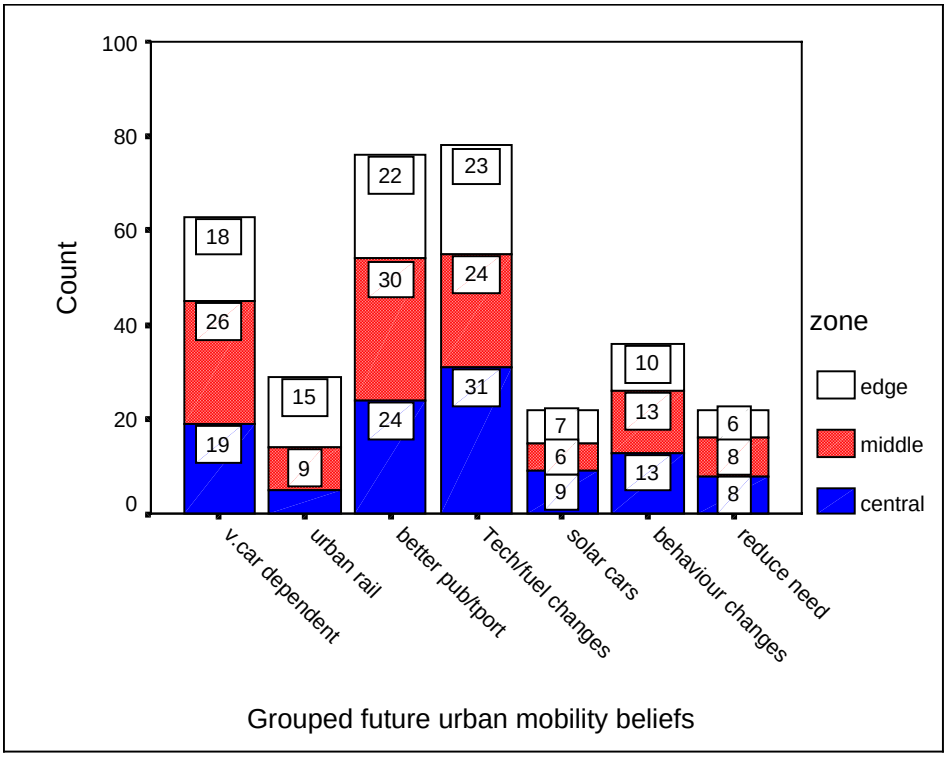
Cairns
v.car dependent
urban rail
better pub/tport
Tech/fuel changes
solar cars
behaviour changes
reduce need
Grouped future urban mobility beliefs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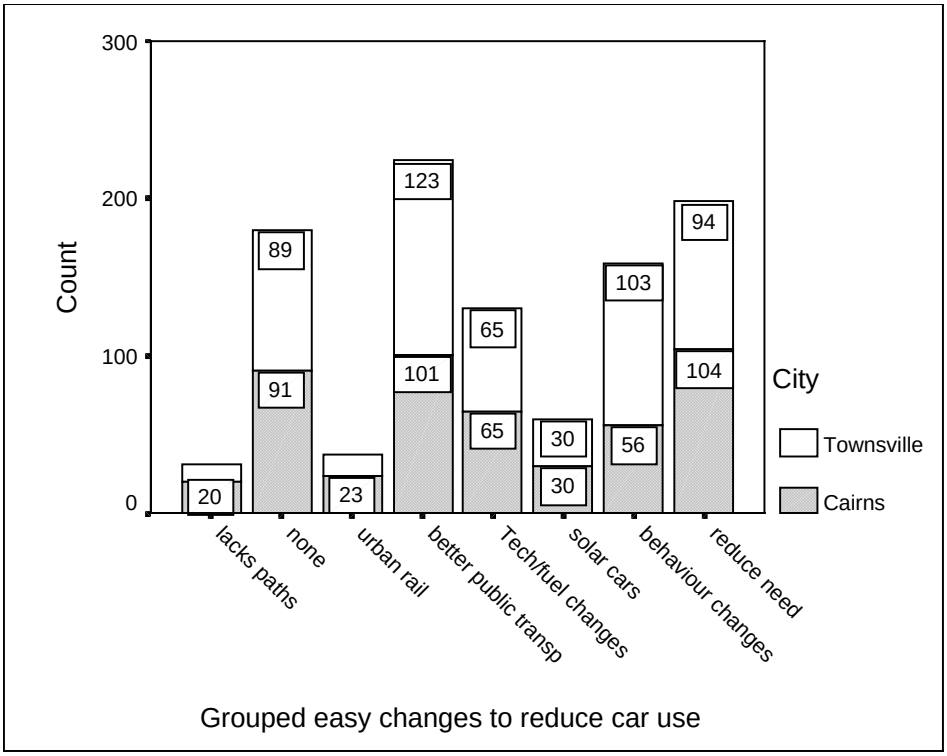
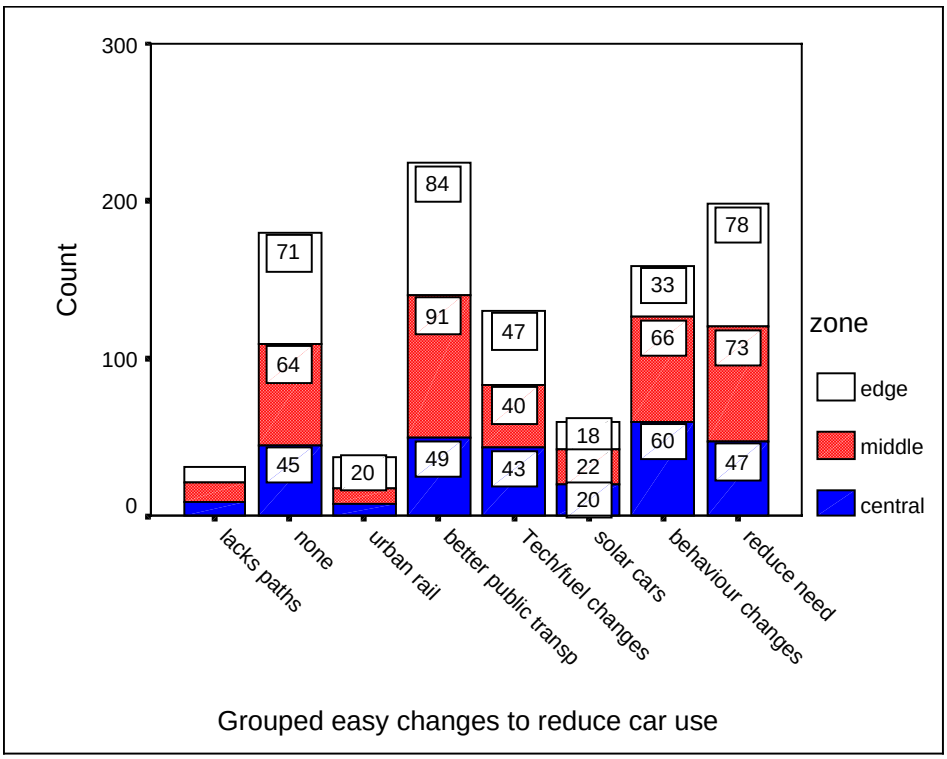
urban rail
better pub/tport
Tech/fuel changes
solar cars
behaviour changes
reduce need
Grouped future urban mobility beliefs



Grouped easy changes to reduce car use



Grouped easy changes to reduce car use

Group travel perceptions

About 30% of Cairns and 45% of Townsville respondents saw some clear link between urban design and resultant car use. Ten and 20% respectively saw no connection. About 10% noted a felt need for some planning changes, while about 13% noted support for the current urban arrangement. Later responses strengthen this basic satisfaction. The perceived link between urban design and car use is most acutely felt by outer urban dwellers, least by mid urban dwellers. Mid urban dwellers showed the highest level of support for the current arrangement.

When asked to write comments on how they viewed their current urban travel, 45% of Townsville respondents and 30% of Cairns people again stressed how car dependent they were. About 20% supported things the way they were, while 22% of respondents wrote that they would like a better public transport system. Some written responses are presented below (Box A18.1) to illustrate some of the points made above, and to underline the fact that many in the population are aware and articulate about sustainability and urban planning issues. A broad range of written responses to the 17 open ended questions are provided in Appendix 6 (Cairns) and 12 (Townsville)

Box A18.1 Written responses to the question: Your perceptions of urban mobility now (what you think of the way we travel around at present):

House Hold #	Response
101	I acknowledge that too often single occupant trips are made. This creates huge demand on resources including road maintenance, and creates unacceptable levels of pollution levels. Solution? Better public transport, pollution free fuels, more efficient ride sharing.
102	Existing public transport is irregular, slow and expensive. Some main roads could be improved and railway crossings having boom gates or lights instead of stop signs.
415	A sort of insanity which cannot be maintained. Moving a tonne and a half of metal and rubber to transport a 70Kg person is a massive waste of energy. Most people however have no practical alternative.
104	Cars are too powerful and too expensive to buy and maintain - simpler, slower and cheaper cars would serve us just as well.
107	Still reliant on cheap fossil fuels. Some good mass transit in big cities.
111	Far too reliant on cars/car parking - problem with public perception of "having to catch a bus", safety considerations with public transport and night time use (worry for women and personal safety).
404	Too many cars, trucks and buses. The air in Cairns city is smelly these days, because of vehicle engine fumes.
409	We (Australians) rely far too heavily on personal transport: that is, we tend to use cars too much for too few (usually only the driver).
410	Suburbs should be laid out with low and medium density housing, local shops, church, sport, parks, primary education and kindergartens accessed by closes, sub collector roads, collector roads, sub arterials: "A structured road system".
907	Problems exist for too long before rectification - should be pro-active not re-active.
103	Too many cars.
105	Cairns public transport is limited, run at certain times. That's why a large percentage of people drive cars.

When asked directly how much they values their own urban travel, about 40% gave clear support to the current arrangements, although about 18% again noted the car dependence. About 12% called for better public transport, 10% did not like the current arrangements, and 7% saw the need for behavioural changes. Inner urban dwellers felt the least car dependent.

When asked about future urban mobility, about 20% saw the need for technical or fuel changes, and for more attractive public transport. Future car dependence was projected

by 25% of Townsville, and 8% of Cairns respondents. Behaviour changes were anticipated by about 10% of respondents. Some of these responses are shown in Box A18.2.

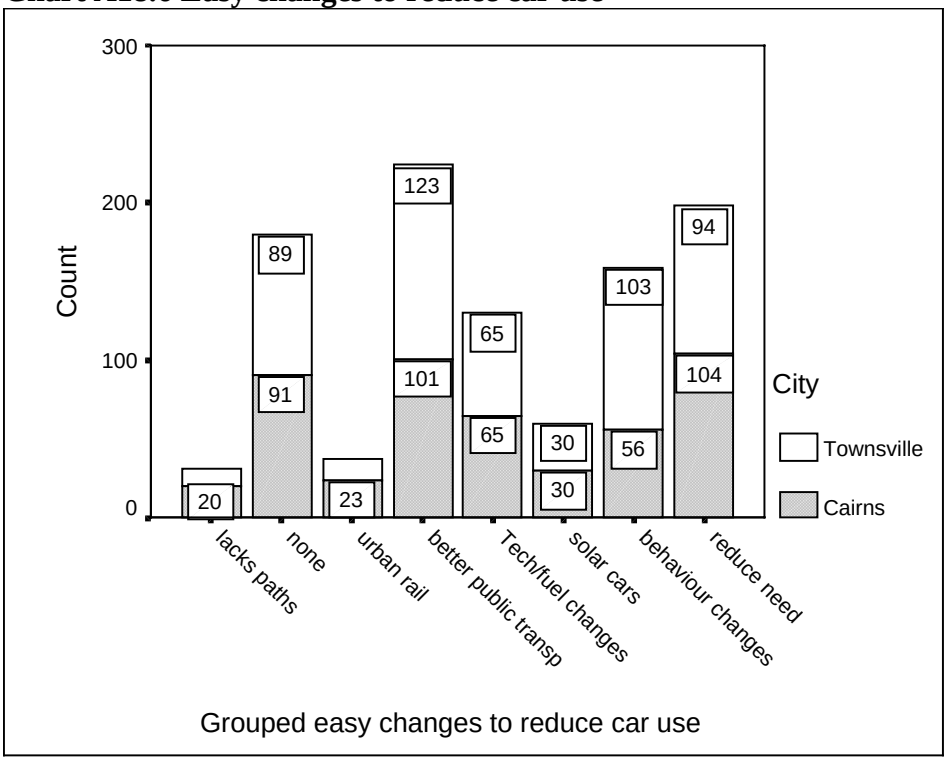
Box A18.2 Future urban travel

House Hold #	Response
111	I can't see it changing until personal safety is assured - I wouldn't go walking with my family at night.
110	It's going to be a lot better.
114	Would be improved with better public transport.
407	Electric cars.
408	More public transport will be needed (not buses, perhaps tram/train).
410	For information based professions - technology may allow us to work from home more. Computers, video links, modems etc. Will make communications easy. The road network may be used more for delivery and recreation.
412	The bus system has improved 100%. Cars will still be used as the main form of transport.
417	People are unlikely to give up their mobility even if the costs rise (its their God-given right). Therefore, as cost rise there will be a demand for and willingness to pay for alternatives.
418	Fuel from sugar, magnet power, and solar power.
425	A lot more money and planning needs to be done. We do not use rail enough. Eg, sugar from outer areas should be by rail, and also a lot of heavy transport could be done by rail or ship.
102	More public transport, walkways, and push bike tracks, more rational road planning
107	More mass transit; work from home, fuel efficiency.
404	I think we need to utilize our rail lines, bring back the motor rail, and clean up the air, keep private vehicles out of town, more push bikes.
415	In the short term we must stop building more roads and start making public transport cheaper, more efficient and more convenient for all. Humans won't stop being mobile, so in the longer term we need clean renewable energy sources.
416	With the changes in technology, telecommuting and other interactive services combine with the depletion of resources, mobility will become more leisure activities for those who can afford it. Similar to the turn of the century.
422	More public transport. Why not govt. Cars to share - pay more than bus - ie comm. Type or those with trailers to take the shopping home. Pay for distance travelled on public transport (not a one fare system).
623	Will be difficult in Cairns if growth is not capped. Geography does not suit further development.
1.1	We will always want mobility now that we have it. So consciousness has

	to be raised in the wider community about taking steps to minimise the impact - walk when you can, share ride when you can - live close to facilities, and Govt. and industry have to take bold steps. If alternatives are not found, then attitudes will have to change about our mobility.

The final responses reported here describe how people thought they could reduce their car use. The level of response was prompted through five related questions. About 55% of respondents claimed that better public transport would help reduce car use, a further 45% felt there were no ways to reduce car use, or that they could generally diminish their need. Behaviour and technical changes were also prominent responses, as shown in Chart A18.6 below.

Chart A18.6 Easy changes to reduce car use



Middle and outer urban dwellers most felt the need for better public transport, and most felt that their car use was at a minimum necessary already. These groups most felt that reducing their travel needs would help. Some of the written responses shown in Box A18.3 show real anguish at the thought of reduced car use. Many people love their cars, and have work and leisure lifestyles which would be virtually impossible without personal and convenient motorised transport.

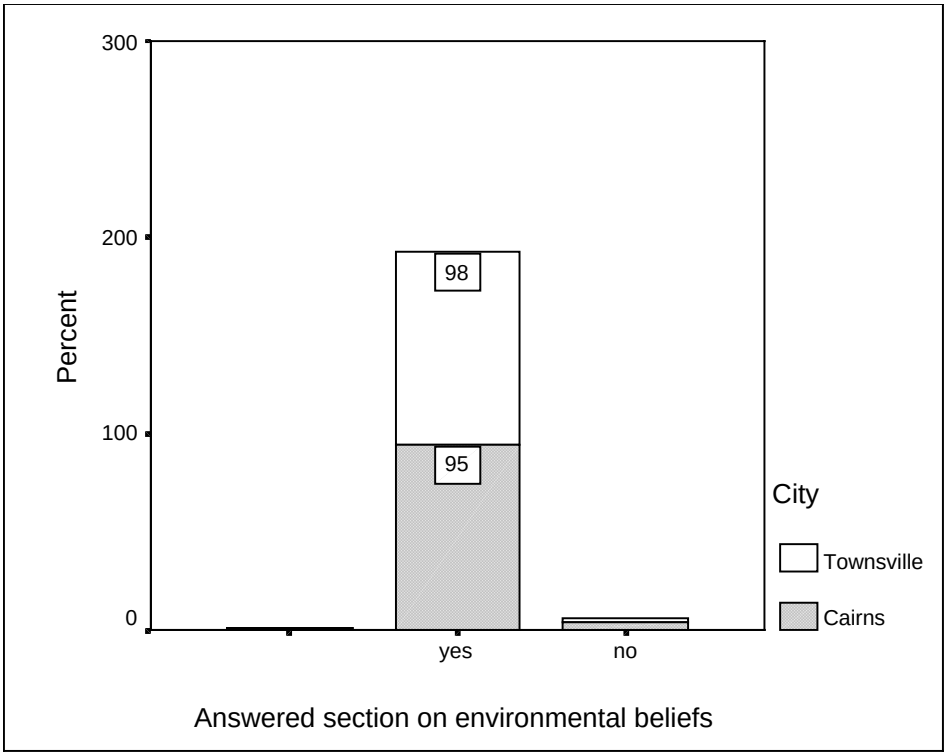
Box A18.3 Easy ways to reduce car use

house	**Response**

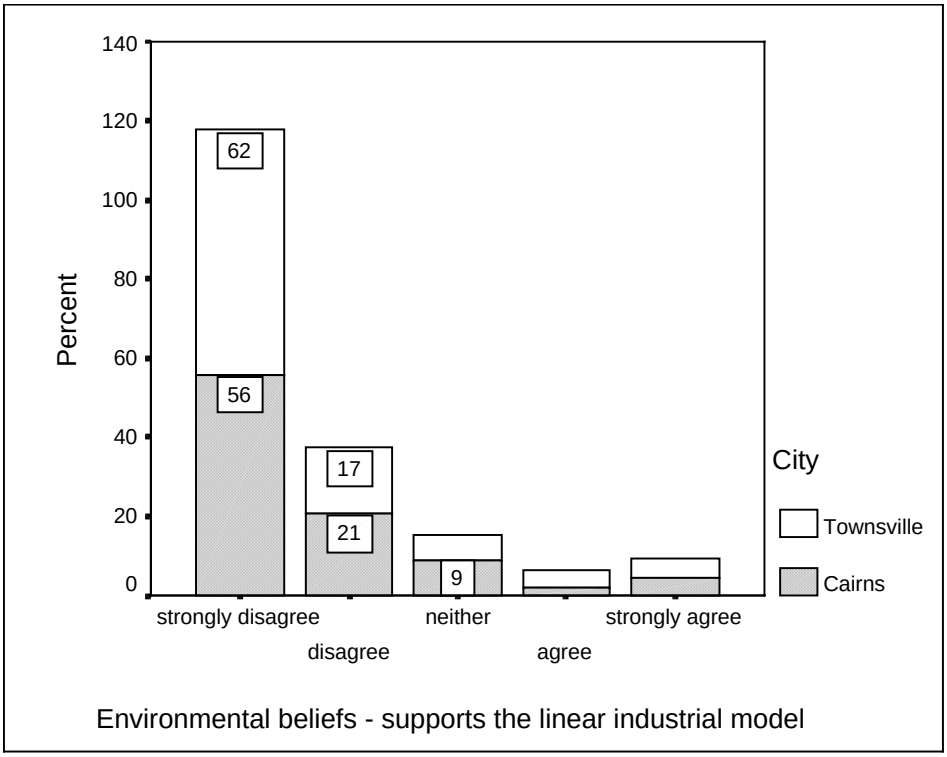
hold #	
101	None
109	We don't use the car sufficiently to warrant any changes.
121	Don't use much.
401	Don't know. No easy changes currently available.
106	Greater organisation within the household would cut down on the occasional car use.
107	If my kids biked to school, I wouldn't have to drive them.
114	Better household delivery.
402	Better school bus service to our area.
403	More public transport.
408	Car pooling and more info. Regarding bus services (perhaps letter drop).
426	Other people sharing taking the children to school.
412	No easy changes. I try to avoid car usage so that when I take children to school in the morning I do errands then. I try to use it once going into town. [already rationalises trips]
424	A good bus service.
425	Bike lanes. Rail transport.
414	Change employment.
111	Increase petrol and rego and insurance fees, but please don't!
202	Increase taxes on [fuels] to reflect the true costs. Eg pollution, deaths (accidents), stress on pedestrians etc. At 75 cents per litre is <u>much</u> too cheap. Milk (renewable resource) is $1.20 per litre, so is mineral water!
209	Showers at place of work, somewhere to secure bike.
409	Cheaper public transport/more information on timetables/more shelters at stops and a run to work.
421	Direct shuttle, safe and reliable for young school children would remove heaps of morning and afternoon traffic from our roads.
422	More regular bus services. Specific destinations ie shops, cinemas, schools, with feeder links to those buses.
603	[Need] 8 seat mini-buses in Cairns. It could run frequently inside the suburbs. Air conditioned in summer. Tickets could be bulk purchased. Costs need to be developed with passengers {paraphrased}.
416	Decentralisation and fast tracking of technologies. Educate commuters as to the efficiencies of car pooling. Establishing a hybrid urban light rail and monorail (city) transit system.
421	Direct shuttle, safe and reliable for young school children. This would remove heaps of morning and afternoon traffic from our roads.
611	Large cheap/free parking lots on edge of city centre to park there and then have frequent very cheap (all day/weekly/monthly)/ free city travel by public transport.
115	Encourage more push bike use.
420	Go out once and do everything.
122	Make more bike lanes away from the roads. New subdivisions should be made to include separate bike lanes. Many people will not ride bikes with the current road system.
422	Car sharing, more home delivery services from supermarkets (you ring

	order in, they deliver for a fee).[*use set of fuel reduction strategies from 4.122]
104	Ride my motor cycle more often.
105	Walk and ride a bike.
114	Increase public transport.
115	Just go to shops once per week.
122	If the prices go up, I would not go out as much.
403	More public transport, otherwise too much financial pressure on families and family outings would have to be curtailed.
412	Because of my sole reliance on the car I would have to cop the increase, but I would try to further reduce use.
415	More planning of trips to reduce mileage. [* Use in methods discussion to show advantages of multiple prompting.]
420	Walk more.
421	Only to make essential journeys - no treats.
424	Get more organised with travel.
101	Probably very few. Perhaps combine more trips. Be more efficient with trip use. Ride a bike.
404	More bike tracks, or USE THE EXISTING RAIL LINES - PLEASE.
417	Even more fuel efficient car, cycle lanes, more buses/trains.
422	Car pool, use public transport, arrange shopping on a roster basis with friends.
4.116	Increase reliance on public transport and establish a car pool plan, better to reduce the amount of travel required and ideally purchase a vehicle with better fuel economy.

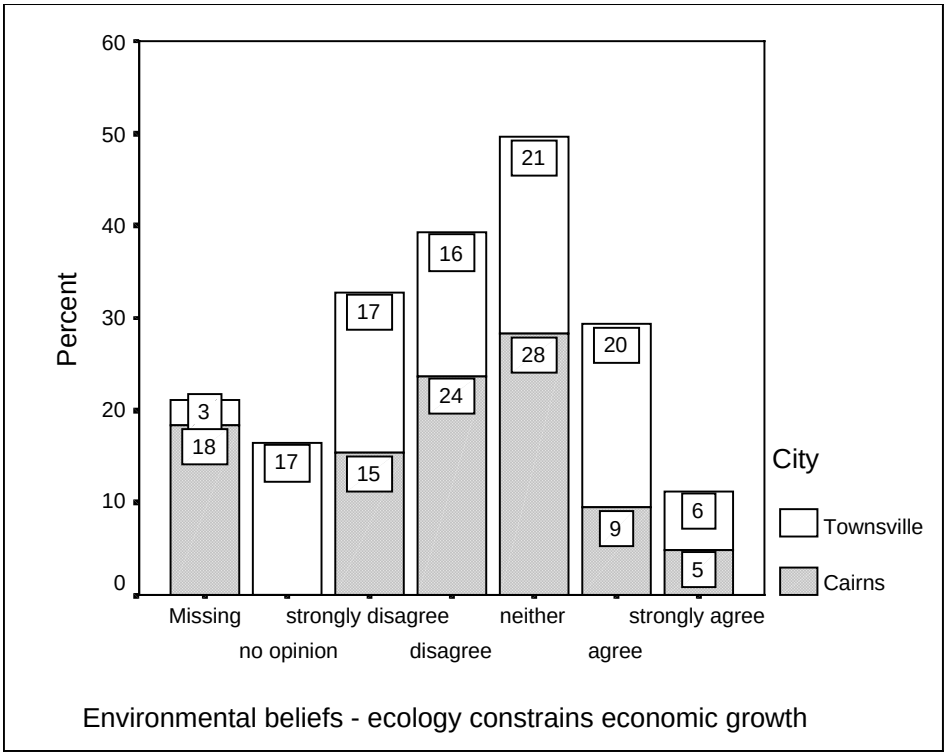
Appendix 19
North Queensland environmental beliefs and travel details



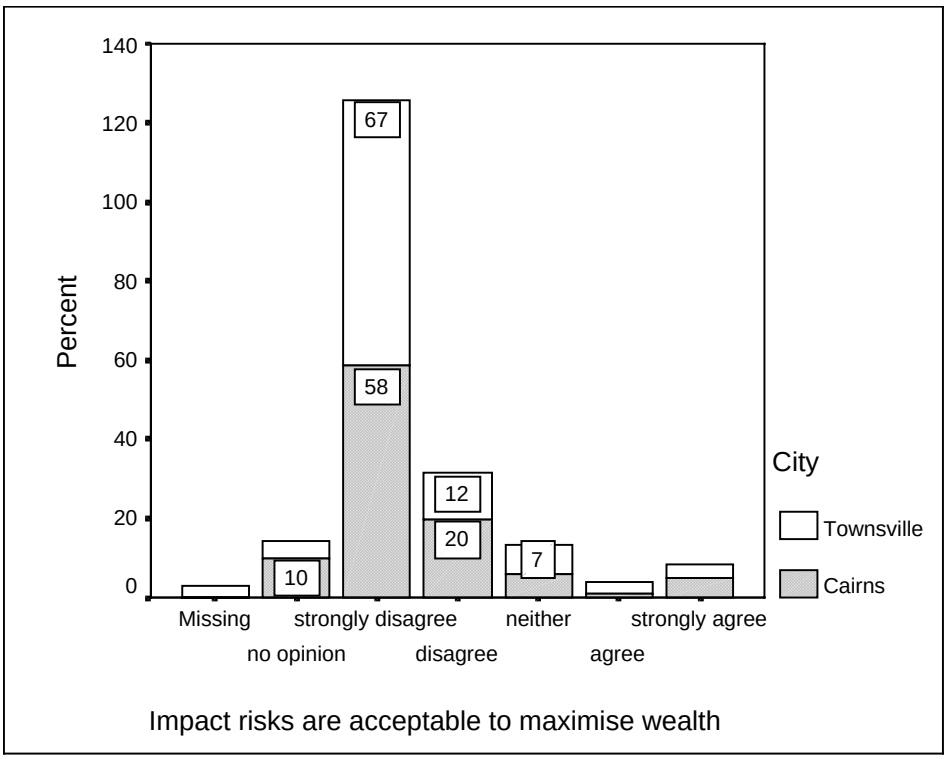
Answered section on environmental beliefs



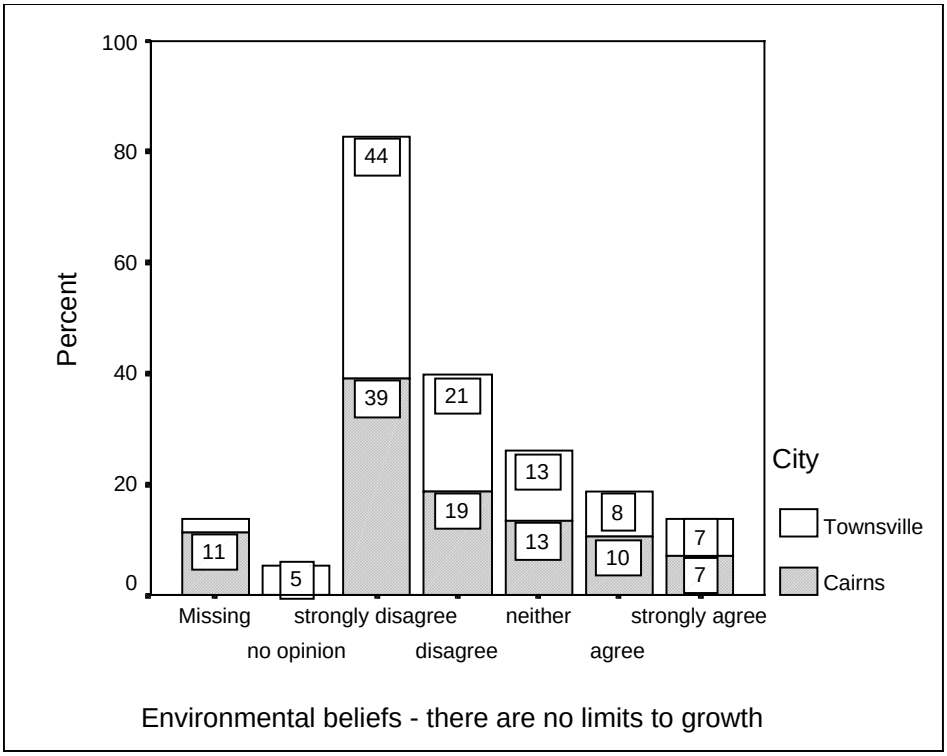
Environmental beliefs - supports the linear industrial model



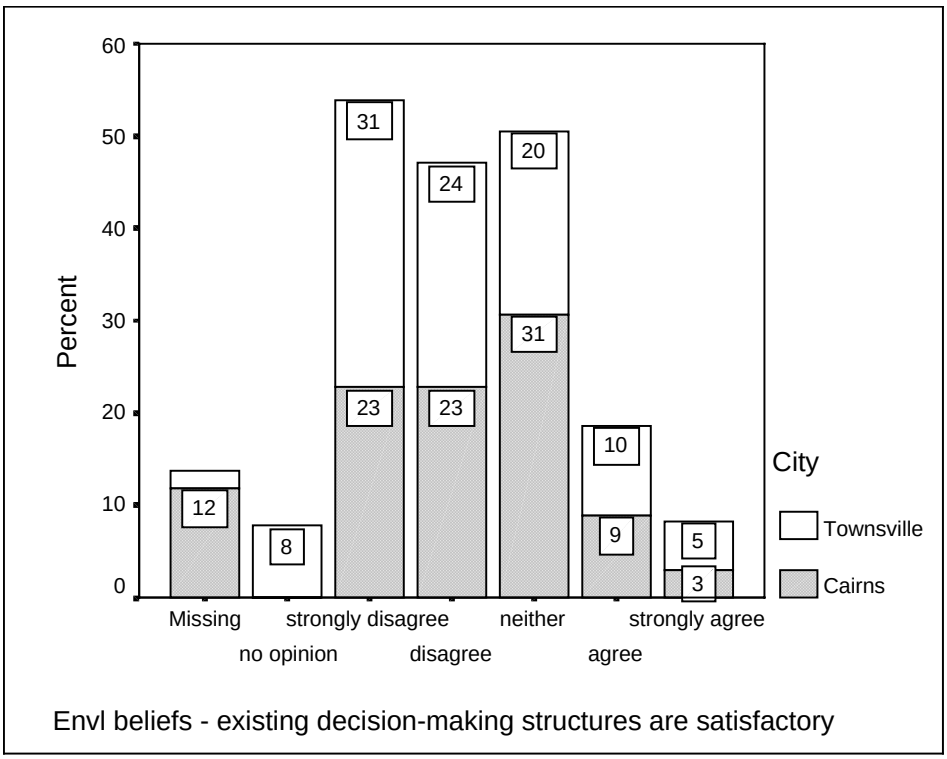
Environmental beliefs - ecology constrains economic growth



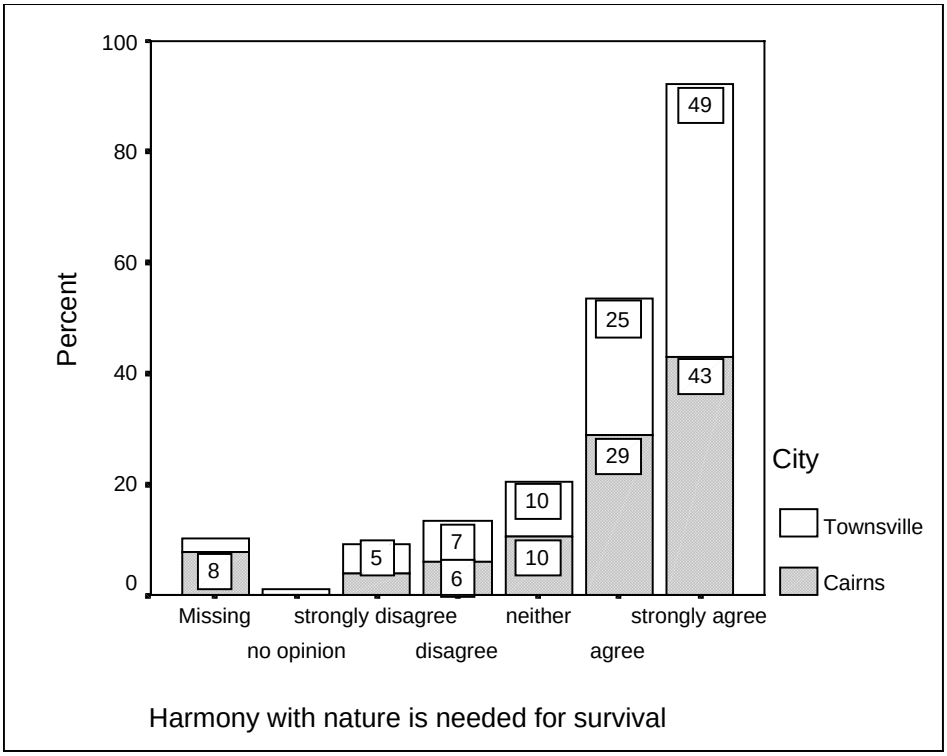
Impact risks are acceptable to maximise wealth



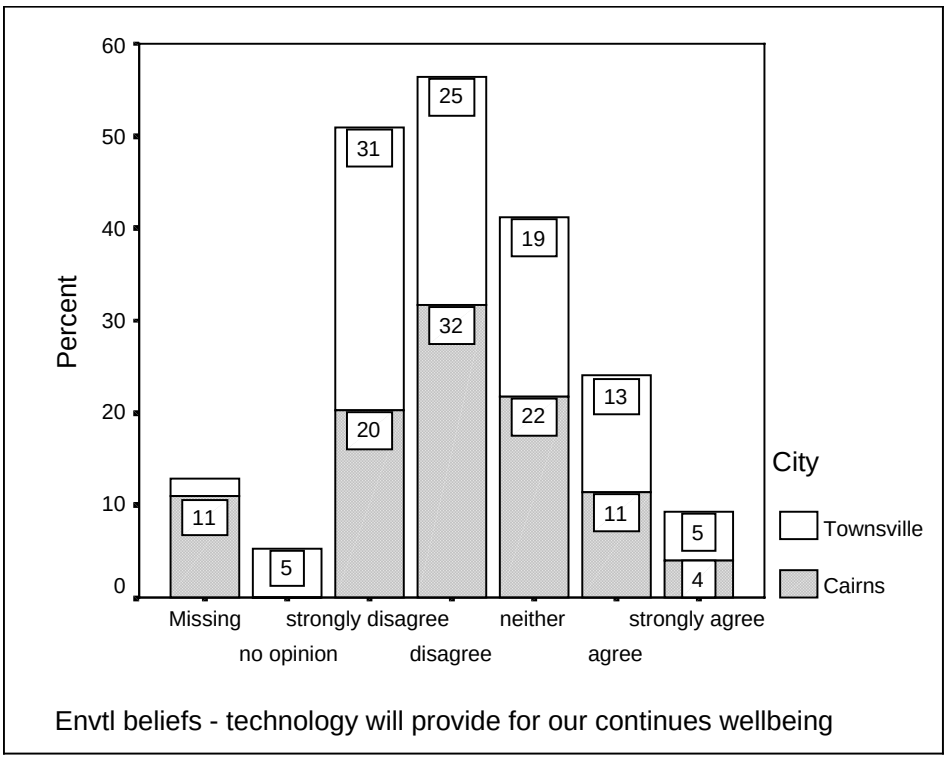
Environmental beliefs - there are no limits to growth



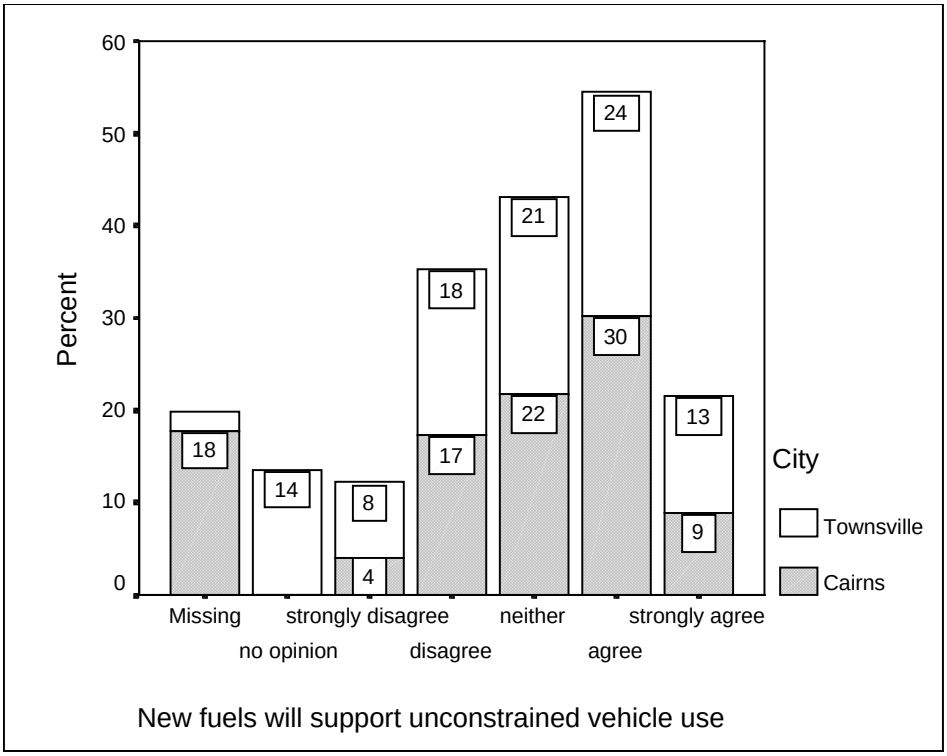
Envl beliefs - existing decision-making structures are satisfactory



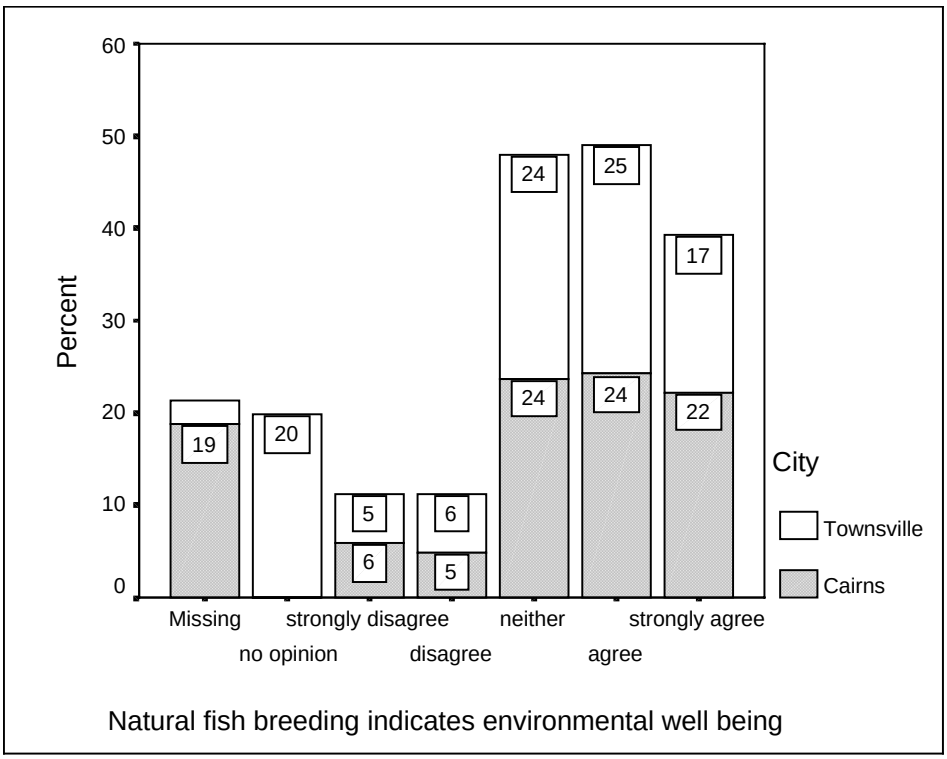
Harmony with nature is needed for survival



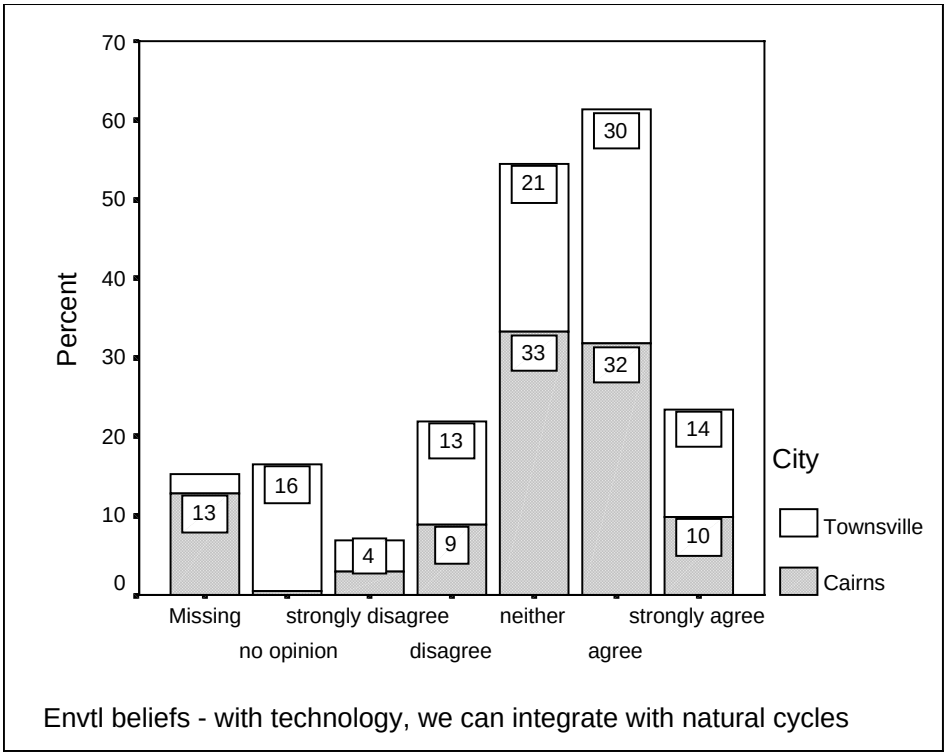
Envtl beliefs - technology will provide for our continues wellbeing



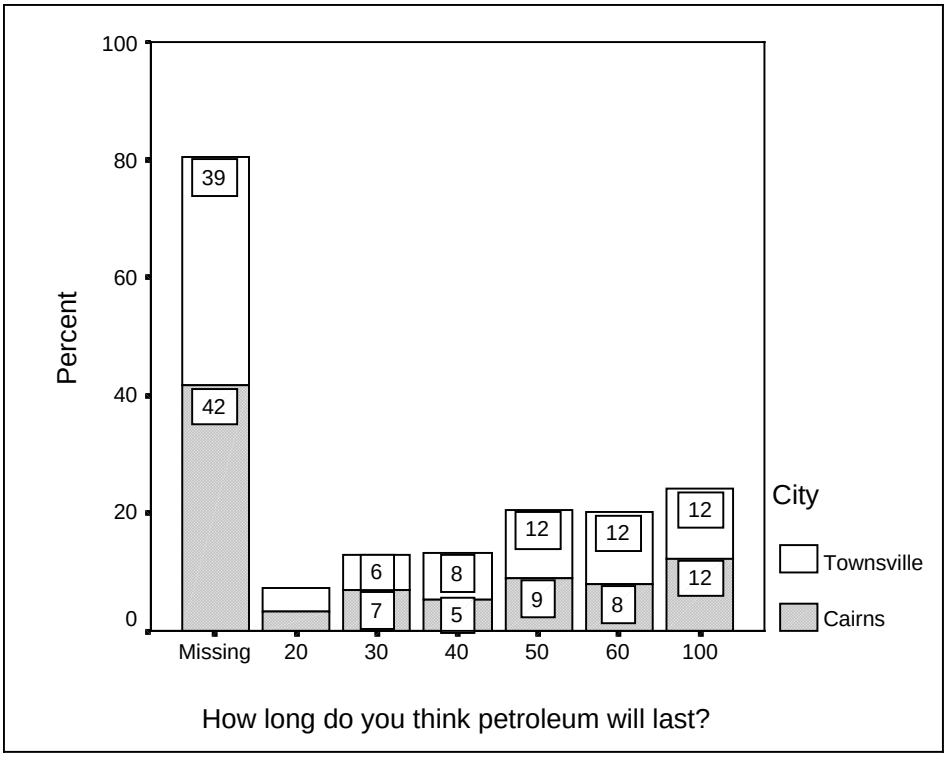
New fuels will support unconstrained vehicle use



Natural fish breeding indicates environmental well being



Envtl beliefs - with technology, we can integrate with natural cycles



How long do you think petroleum will last?

Figures of North Queensland travel details

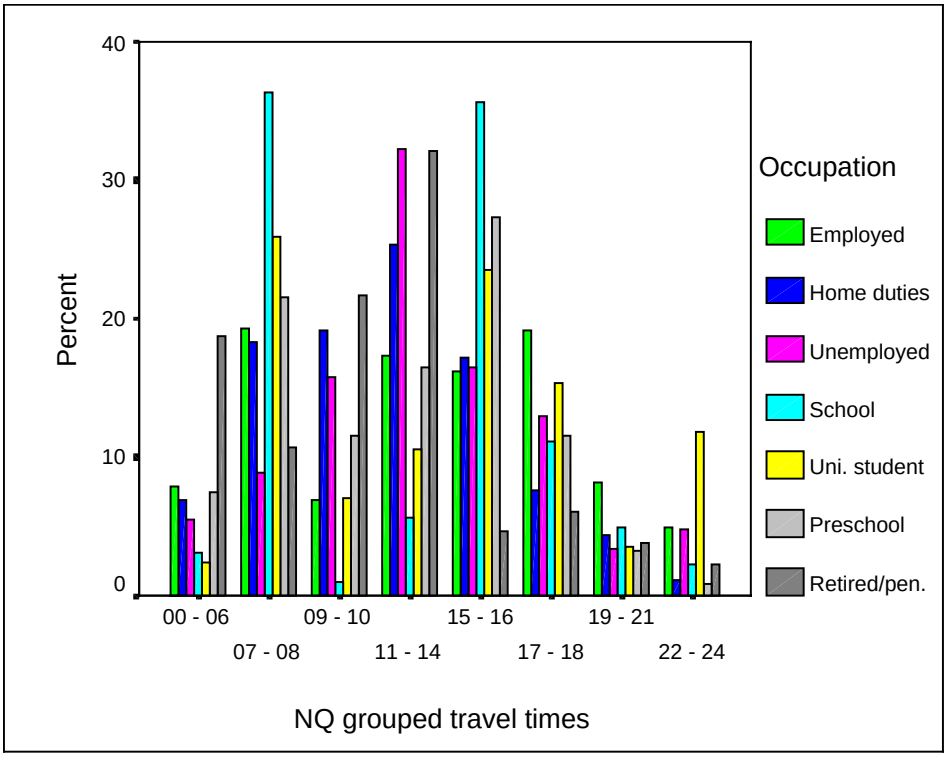
Table A19. Xx Travel Destination

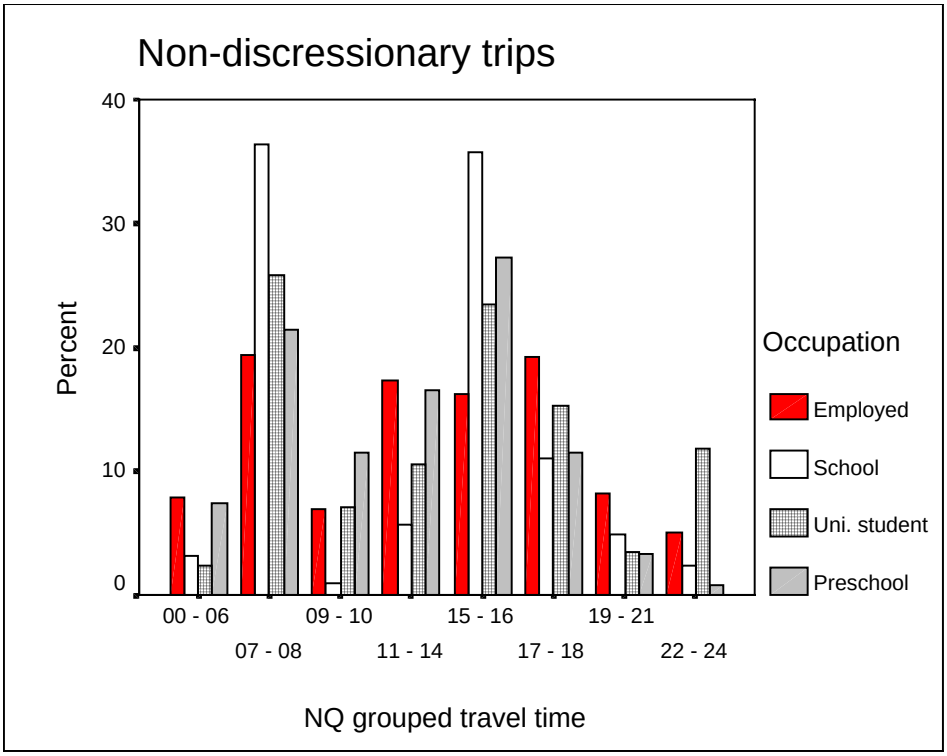
	Frequency	Percent
0	84	2.4
Work - centre	145	4.1
Work - industrial	74	2.1
Work - dispersed	231	6.6
Work - tourism	15	.4
Other home based	15	.4
University	22	.6
TAFE	17	.5
School	350	10.0
Preschool	83	2.4
Supermarket	183	5.2
Shopping	360	10.3
Social	438	12.5
Exercise	94	2.7
Home	1347	38.5
Lavarack Barracks	18	.5
RAAF/airport	24	.7
Total	3500	100.0

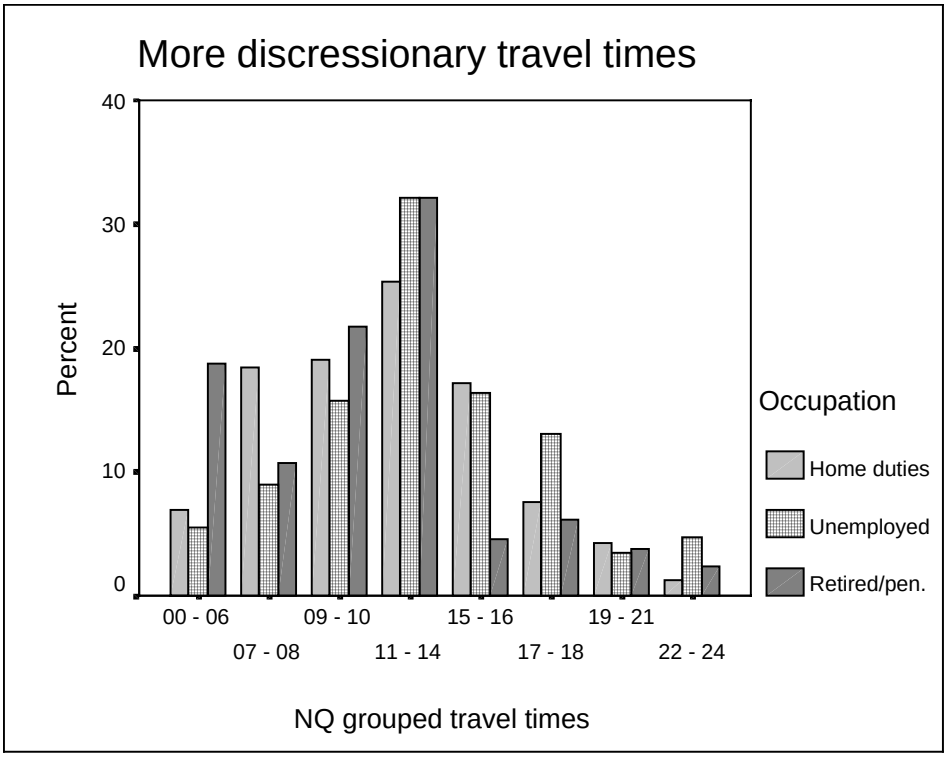
Table A19 x Percentage comparison of travel modes for the two centres

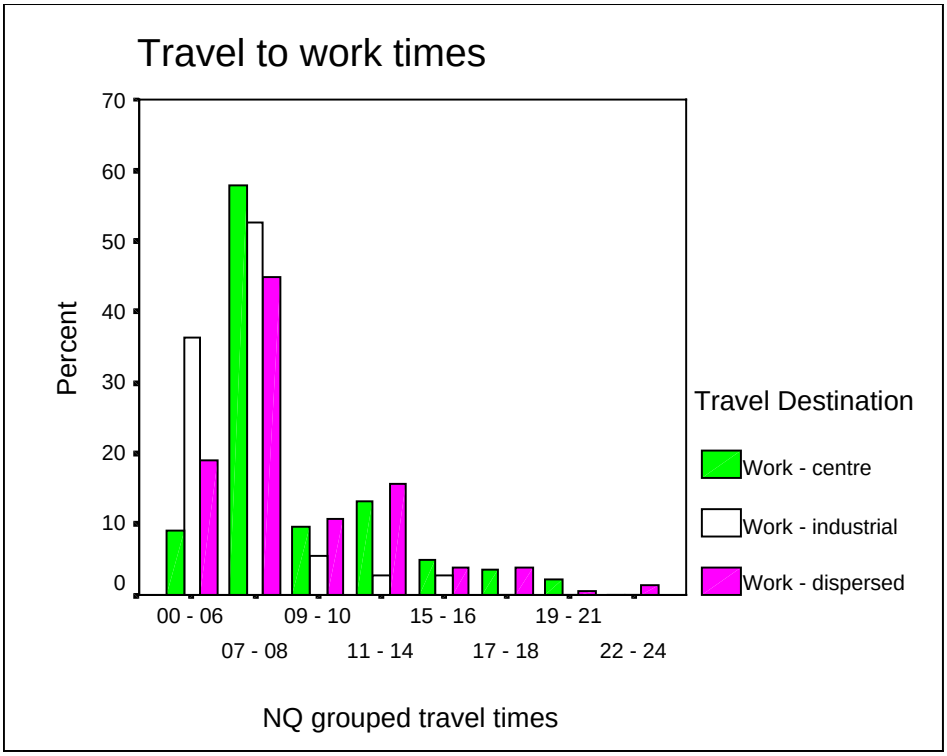
Mode		CITY		Total
		Cairns	Townsville	
Stay at home	Count	42	41	83
	% within TMODE	50.6%	49.4%	100.0%
	% within CITY	2.5%	2.3%	2.4%
	% of Total	1.2%	1.2%	2.4%
Car, solo	Count	581	622	1203
	% within TMODE	48.3%	51.7%	100.0%
	% within CITY	34.2%	34.6%	34.4%
	% of Total	16.6%	17.8%	34.4%
Car, driver with passenger	Count	269	267	536
	% within TMODE	50.2%	49.8%	100.0%
	% within CITY	15.8%	14.8%	15.3%
	% of Total	7.7%	7.6%	15.3%
Car, passenger	Count	502	470	972
	% within TMODE	51.6%	48.4%	100.0%
	% within CITY	29.5%	26.1%	27.8%
	% of Total	14.3%	13.4%	27.8%
Bus	Count	26	30	56
	% within TMODE	46.4%	53.6%	100.0%
	% within CITY	1.5%	1.7%	1.6%
	% of Total	.7%	.9%	1.6%
Bus, school	Count	48	49	97
	% within TMODE	49.5%	50.5%	100.0%
	% within CITY	2.8%	2.7%	2.8%
	% of Total	1.4%	1.4%	2.8%
Bus, private	Count	12		12
	% within TMODE	100.0%		100.0%
	% within CITY	.7%		.3%
	% of Total	.3%		.3%
Walk	Count	89	189	278
	% within TMODE	32.0%	68.0%	100.0%
	% within CITY	5.2%	10.5%	7.9%
	% of Total	2.5%	5.4%	7.9%
Cycle	Count	89	88	177
	% within TMODE	50.3%	49.7%	100.0%
	% within CITY	5.2%	4.9%	5.1%
	% of Total	2.5%	2.5%	5.1%
Taxi	Count	33	25	58
	% within TMODE	56.9%	43.1%	100.0%
	% within CITY	1.9%	1.4%	1.7%
	% of Total	.9%	.7%	1.7%
Motor cycle	Count	9	10	19
	% within TMODE	47.4%	52.6%	100.0%
	% within CITY	.5%	.6%	.5%
	% of Total	.3%	.3%	.5%
Ferry	Count		6	6

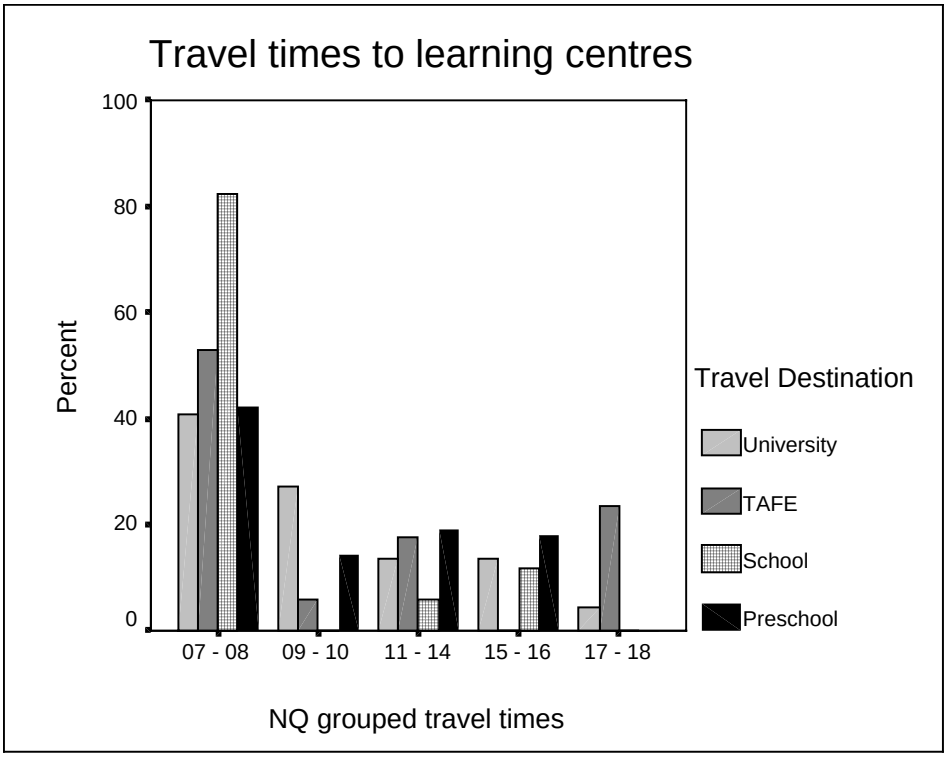
	% within TMODE		100.0%	100.0%
	% within CITY		.3%	.2%
	% of Total		.2%	.2%
Wheel chair	Count		3	3
	% within TMODE		100.0%	100.0%
	% within CITY		.2%	.1%
	% of Total		.1%	.1%
Totals	Count	1700	1800	3500
	% within TMODE	48.6%	51.4%	100.0%
	% within CITY	100.0%	100.0%	100.0%
	% of Total	48.6%	51.4%	100.0%

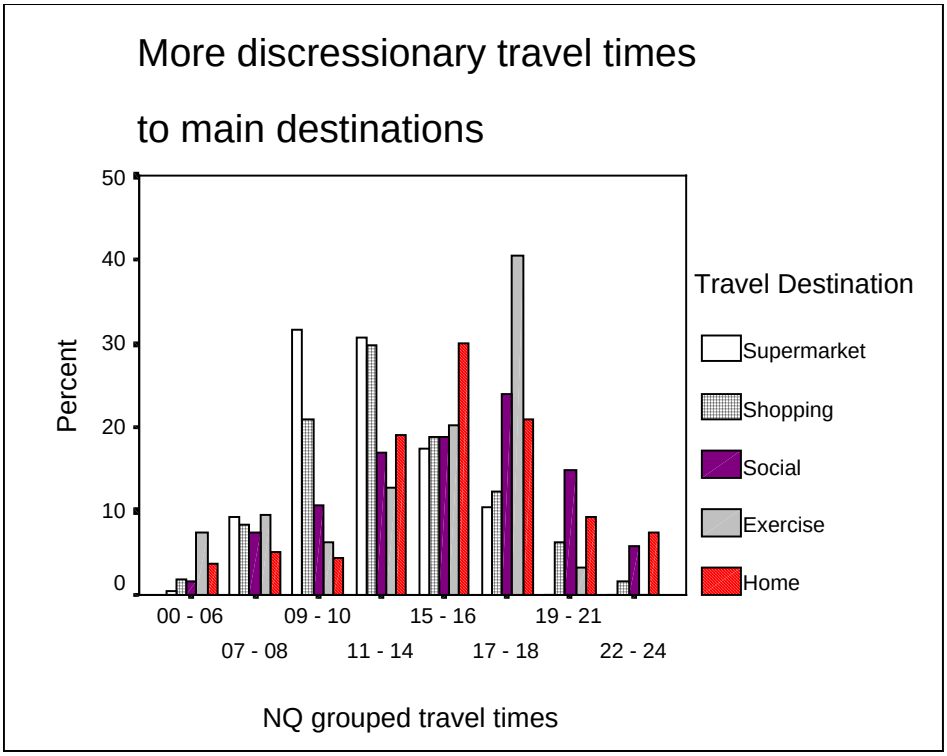


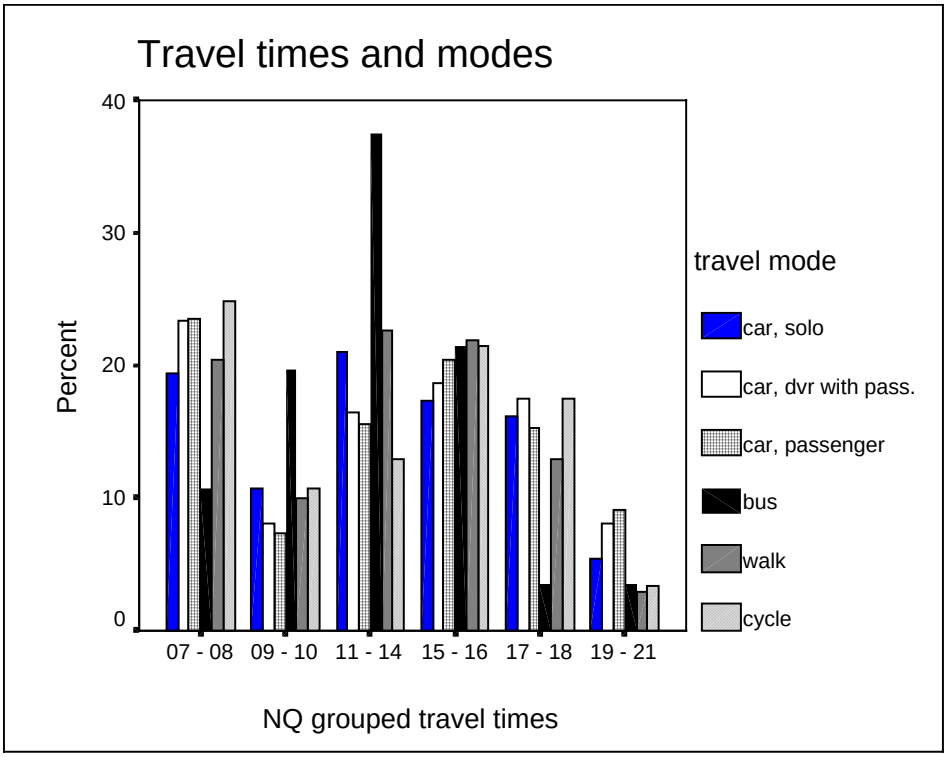

Non-discressionary trips
Percent
40
30
20
10
0
00 - 06
07 - 08
09 - 10
11 - 14
15 - 16
17 - 18
19 - 21
22 - 24
NQ grouped travel time
Occupation
Employed
School
Uni. student
Preschool

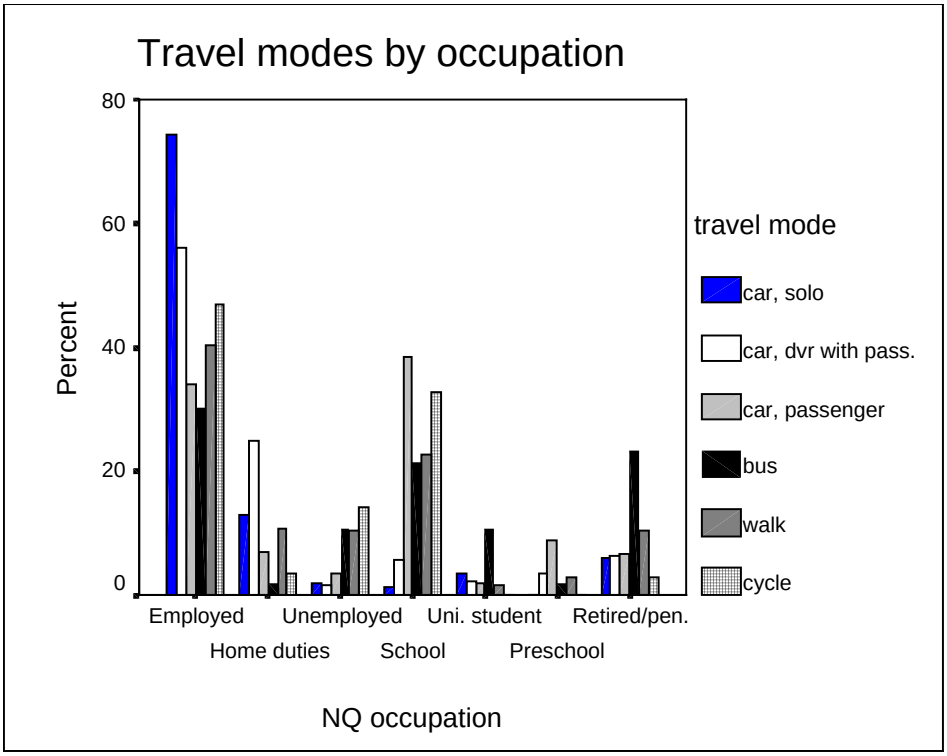

More discressionary travel times
Percent
40
30
20
10
0
00 - 06
07 - 08
09 - 10
11 - 14
15 - 16
17 - 18
19 - 21
22 - 24
NQ grouped travel times
Occupation
Home duties
Unemployed
Retired/pen.

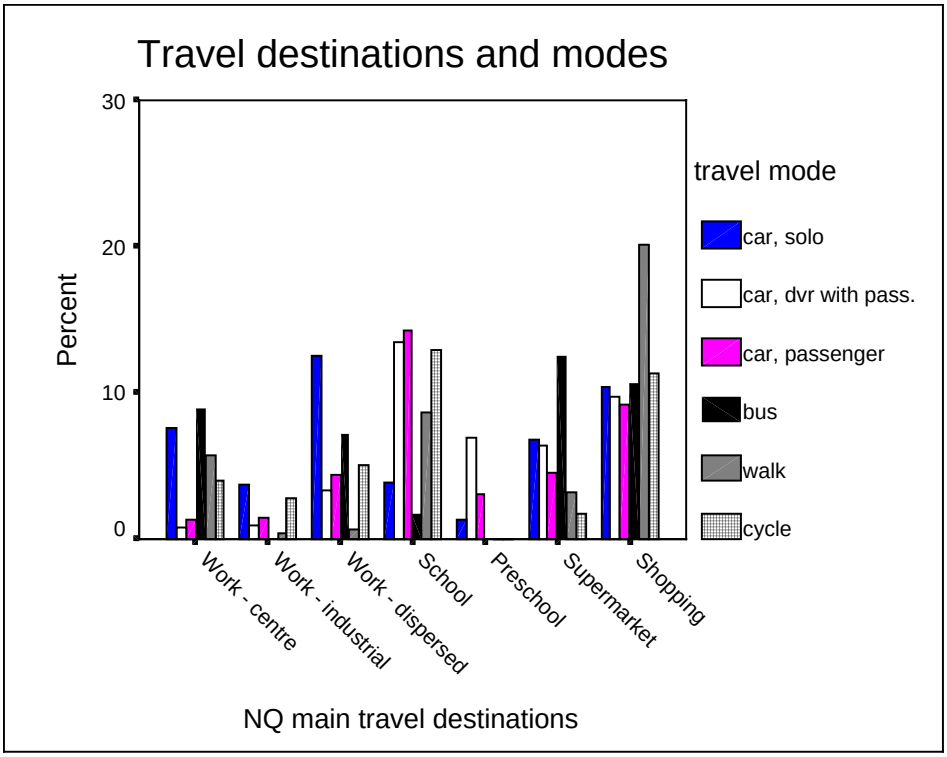

Travel to work times
Percent
70
60
50
40
30
20
10
0
00 - 06
07 - 08
09 - 10
11 - 14
15 - 16
17 - 18
19 - 21
22 - 24
NQ grouped travel times
Travel Destination
Work - centre
Work - industrial
Work - dispersed


Travel times to learning centres
Percent
100
80
60
40
20
0
07 - 08
09 - 10
11 - 14
15 - 16
17 - 18
NQ grouped travel times
Travel Destination
University
TAFE
School
Preschool


More discressionary travel times
to main destinations
Percent
50
40
30
20
10
0
00 - 06
07 - 08
09 - 10
11 - 14
15 - 16
17 - 18
19 - 21
22 - 24
NQ grouped travel times
Travel Destination
Supermarket
Shopping
Social
Exercise
Home


Travel times and modes
Percent
40
30
20
10
0
07 - 08
09 - 10
11 - 14
15 - 16
17 - 18
19 - 21
NQ grouped travel times
travel mode
car, solo
car, dvr with pass.
car, passenger
bus
walk
cycle


Travel modes by occupation
Percent
80
60
40
20
0
travel mode
car, solo
car, dvr with pass.
car, passenger
bus
walk
cycle
Employed
Unemployed
Uni. student
Retired/pen.
Home duties
School
Preschool
NQ occupation


Travel destinations and modes
Percent
30
20
10
0
travel mode
car, solo
car, dvr with pass.
car, passenger
bus
walk
cycle
Work - centre
Work - industrial
Work - dispersed
School
Preschool
Supermarket
Shopping
NQ main travel destinations

Appendix 20
North Queensland urban travel correlations

The following correlations are essentially grouped as variables correlating with zonal distance from the CBD, or variables correlating with each other. The summary of this Appendix is presented in the body of the text within Chapter 5.2, Correlations.

The following Spearman's rank correlation, ranging from –1 full negative (as one value goes up, the other goes down in an exact linear relationship), through to +1, full positive correlation. Any numeric value (+ or -) of > .3 may be considered a weak , meaningful correlation where the statistical significance (p) < .05; .3 to .7 as strong; > .7 as very strong. Spearman's rank correlations are used because some of the variables are interval quality, but some are ranked, such as perception of how difficult it would be to get to usual destinations without a car. All variables are listed in Appendix 4.

To make sense of the sign associated with the correlations, take note of the rated meaning of the questions where respondents are asked to give their views or assessments. For example, the question on *Frequency of driving* was coded where 1 = > 10 times per week, while 5 = rarely.

Table A 20.1 Ranked correlation of zone and car use and dependency

Variable	Statistic	ZONE	Distance to CBD (Km)	Driving frequency	Ease of shopping w/o car	Ease of mobility w/out car
ZONE	Corr. Coef.	1.000	**.944**	**-.158**	**-.210**	**-.343**
	Sig. (2-tailed)	.	.000	.002	.000	.000
Distance from CBD (Km)	Corr. Coef.	**.944**	**1.000**	**-.149**	**-.234**	**-.324**
	Sig. (2-tailed)	.000	.	.004	.000	.000
Driving frequency	Corr. Coef.	**-.158**	**-.149**	1.000	.006	**.185**
	Sig. (2-tailed)	.002	.004	.	.908	.000
Ease of getting to shops w/o car	Corr. Coef.	**-.210**	**-.234**	.006	1.000	**.244**
	Sig. (2-tailed)	.000	.000	.908	.	.000
Ease of travel without a car	Corr. Coef.	**-.343**	**-.324**	.185	.244	1.000
	Sig. (2-tailed)	.000	.000	.000	.000	.

N = 400
Any correlation where sig. (p) >.01 is considered significant (2-tailed).

Table A 20.2 Ranked correlation of zone and neighbourhood attachment

Variable	Statistic	ZONE	Visit neighbours in their homes	Leave neighbourhood for travel reasons
ZONE	Correlation Coefficient	1.000	**-.155**	**-.121**

	Sig. (2-tailed)	.	.002	.016

N = 400

Note 1: *Visit neighours*; and *leave neighbourhood* code: 1= strongly agree, 5 = strongly disagree.

Note 2: Neither reliability of buses or cycle security at bus stops correlated with either of the above variables.

Table A 20.3 Ranked correlation of zone and building issues

Variable	Statistic	ZONE	Building age	Dwelling tenure	Years with current employer
ZONE	Correlation Coefficient	1.000	**-.576**	**-.207**	.094
	Sig. (2-tailed)	.	.000	.000	.112
Building age	Correlation Coefficient	**-.576**	1.000	-.039	.058
	Sig. (2-tailed)	.000	.	.448	.338
Dwelling tenure	Correlation Coefficient	**-.207**	-.039	1.000	**-.374**
	Sig. (2-tailed)	.000	.448	.	.000
Years with current employer	Correlation Coefficient	.094	.058	**-.374**	1.000
	Sig. (2-tailed)	.112	.338	.000	.

N = 400

Note 1: Dwelling tenure code: 1 = own outright, 2 = mortgage, 3 = renting.

Note 2: For *Education*, years were numerically transferred, TAFE was coded as 13, degree as 14, higher degree as 15. There was no significant correlation between education level and any of the above variables.

Table A 20.4 Ranked correlation of zone and vehicle data

Variable	Statistic	ZONE	Total veh. owned	Age of vehicle 1	Age of vehicle 2	Age of vehicle 3
ZONE	Corr. Coefficient	1.000	**.216**	**-.125**	-.064	.105
	Sig. (2-tailed)	.	.000	.018	.406	.556
Tot. veh. owned	Corr. Coefficient	**.216**	1.000	.081	**.152**	.096
	Sig. (2-tailed)	.000	.	.127	.047	.588
Age of vehicle 1	Corr. Coefficient	**-.125**	.081	1.000	.114	.057
	Sig. (2-tailed)	.018	.127	.	.138	.747
Age of vehicle 2	Corr. Coefficient	-.064	**.152**	.114	1.000	**.424**
	Sig. (2-tailed)	.406	.047	.138	.	.012
Age of vehicle 3	Corr. Coefficient	.105	.096	.057	**.424**	1.000
	Sig. (2-tailed)	.556	.588	.747	.012	.

N = 400

Table A 20.5 Ranked correlation of zone and financial issues

Variable	Statistic	ZONE	Car from employer	Weekly HH Fuel cost	Annual HH income
ZONE	Corr. Coeff	1.000	.021	**.332**	.070
	Sig. (2-tailed)	.	.680	.000	.166
Car provided by employer	Corr. Coeff.	.021	1.000	-.048	**-.200**
	Sig. (2-tailed)	.680	.	.374	.000
	N	374	374	344	369
Weekly household cost of fuel	Corr. Coeff.	**.332**	-.048	1.000	**.335**
	Sig. (2-tailed)	.000	.374	.	.000
	N	358	344	358	353
Annual household income	Corr. Coeff.	.070	**-.200**	**.335**	1.000
	Sig. (2-tailed)	.166	.000	.000	.
	N	396	369	353	396

Note 1: In this correlation matrix, N does not equal 400. Respondents were discouraged from answering question of little interest to them.
Note 2: Weekly parking costs did not correlate with any of the above variables.

Table A 20.6 Ranked correlation of zone, bikes, Resident numbers and local shopping distances

Variable	Statistic	ZONE	Bikes owned	Bikes used	No. of residents	Distance to nearest shop
ZONE	Corr. Coefficient	1.000	.070	.041	**.186**	**.578**
	Sig. (2-tailed)	.	.157	.412	.000	.000
Pushbikes owned	Corr. Coefficient	.070	1.000	**.731**	**.515**	.084
	Sig. (2-tailed)	.157	.	.000	.000	.095
Pushbikes used > once/week	Corr. Coefficient	.041	**.731**	1.000	**.368**	.054
	Sig. (2-tailed)	.412	.000	.	.000	.286
Number of residents	Corr. Coefficient	**.186**	**.515**	**.368**	1.000	**.127**
	Sig. (2-tailed)	.000	.000	.000	.	.011
Distance to nearest store	Corr. Coefficient	**.578**	.084	.054	**.127**	1.000
	Sig. (2-tailed)	.000	.095	.286	.011	.

N = 400

Table A 20.7 Ranked correlation of zone and travel details

Variable	Statistic	ZONE	Grouped departure times	Travel Destns	Mode of travel	Grouped Travel distances
ZONE	Corr. Coefficient	1.000	-.004	.023	**-.117**	**.459**
	Sig. (2-tailed)	.	.808	.183	.000	.000
Grpd depart times	Corr. Coefficient	-.004	1.000	**.526**	**.082**	**.075**
	Sig. (2-tailed)	.808	.	.000	.000	.000
Travel destinations	Corr. Coefficient	.023	**.526**	1.000	**.145**	**.091**
	Sig. (2-tailed)	.183	.000	.	.000	.000
Mode of travel	Corr. Coefficient	**-.117**	**.082**	**.145**	1.000	**-.151**
	Sig. (2-tailed)	.000	.000	.000	.	.000
Grpd trav distances	Corr. Coefficient	**.459**	**.075**	**.091**	**-.151**	1.000
	Sig. (2-tailed)	.000	.000	.000	.000	.

N = 400

Note: The grouped times were coded where 1 = Mn – 6 am, 2 = 7 – 8 am, 3 = 9 – 10 am etc., while destinations were coded with work occupying the first three codes, hence the high departure/destination correlation. What does have meaning is the .46 correlation coefficient between zone and travel distance.

Table A 20.8 Ranked correlation summary (Spearman's)

Zonal correlate	Sig. Corr. coefficient	Comment related to distance from CBD
Driving frequency	.16	Slight link
Ease of getting to shop without a car	-.21	Harder further out
Ease of urban mobility without a car	-.34	Harder further out
Visit neighbours in their homes	.16	More neighbourly further out
Leave neighbourhood for travel related reasons	.12	Travel seen as slight deterrent to live further out
Building age (as a standard test of process)	-.58	Building age drops as move from city centre
Ownership of home	.21	Ownership increases slightly toward fringe
Number of vehicles in household	.22	Vehicles per dwelling increases toward edge
Age of first designated vehicle	-.13	Fleet age slightly lower away from centre
Fuel costs	.33	Clear link between distance from CBD and fuel use
Number of residents	.19	Slightly lower as move toward centre
Distance to nearest convenience store	.58	Strong correlation to distance from CBD
Distance travelled	.46	Strong link between zone and distance travelled.

N = 400.

Note 1: Some of the signs have been reversed to clarify relationships.

Table A 20.9 Ranked correlation of non-zonal variables

Variable a	Variable b	Corr. Coeff.	Comments
Ease of mobility w/o car	Driving frequency	.19	Those who drive most are most car dependent
	Ease of shopping if carless	.24	As above
Years working	Home ownership	.37	Those working the longest are most likely to own their home outright
Age of designated vehicle 2	Age of designated vehicle 3	.42	Any second or third vehicle tend to be of similar age
Car from employer	HH income	.2	Weak link between increased income and likelihood that employer provides vehicle
Fuel costs	HH income	.34	Clear correlation between income and $ spent on fuel. Link with Zone?
No. of residents	Pushbikes used	.37	As expected, but not zone-based.
Perceptions of walking	Perceptions of cycling	.36	Clear link between these two 'non-motorised' urban travel forms
Perception of working from home	Perception of ride sharing	.2	Seen in a similar way.

N = 400.

Table A 20.10 Proximity Matrix – summary correlations
Correlation between Vectors of Values

Variable	FREQ_DVE	CARLESS	NGHVISIT	BLDAGE	TOTVEH	FUELCOST	HHINC	DISHOP	ZONE
FREQ_DVE		.185	-.078	.034	-.111	**-.205**	**-.250**	-.093	-.135
CARLESS	.185		.057	.062	-.168	**-.252**	-.059	**-.264**	**-.261**
NGHVISIT	-.078	.057		.147	.076	-.119	.039	-.160	-.140
BLDAGE	.034	.062	.147		.006	**-.194**	.049	**-.275**	**-.576**
TOTVEH	-.111	-.168	.076	.006		**.419**	**.327**	.095	.067
FUELCOST	-.205	-.252	-.119	-.194	.419		**.296**	**.285**	.323
HHINC	-.250	-.059	.039	.049	.327	.296		-.013	.001
DISHOP	-.093	-.264	-.160	-.275	.095	.285	-.013		**.515**
ZONE	-.135	-.261	-.140	-.576	.067	.323	.001	.515	

KEY

code name	Variable
FREQ_DVE	Driving frequency ranked from 1 = >10x per week …. 5 = rarely
CARLESS	Ranked difficulty of urban travel without a car, 1 = very difficult, … 5 = very easy
NGHVISIT	Ranking of "I visit my neighbours in their homes" 1 = strongly agree …
BLDAGE	Age of building
TOTVEH	Total number of vehicles in usually garaged at residence
FUELCOST	Estimate of weekly private fuel bill
HHINC	Grouped annual household income
DISHOP	Distance to nearest convenience store
ZONE	Inner, middle or outer (coded 1, 2 and 3 respectively)

This is a similarity matrix

Appendix 21
ANOVA of ease of travel, neighbourhood attachment, bus assessment, environmental values and grouped responses to home location choices, travel modes and mobility issues

This Appendix provides analysis delivered in Chapter 5.5 , launching the secondary analysis of the whole Townsville/Cairns data set. The focus is an Analysis of Variance (ANOVA) comparison of zones and the two population centres. Similarities and differences of means and variance are given for three groups of Likert scale responses on neighbourhood attachment, views of the bus service and environmental values and beliefs. This Appendix also develops indices comparing coded responses about choice of home location, views of all travel modes and perceptions of current and future urban travel.

Table A 21.1 ANOVA by zone of perceived ease of travel to destinations without a car

Destination		Sum of Squares	Df	Mean Square	F	Sig.
City	Between Groups	151.888	2	75.944	**40.306**	**.000**
	Within Groups	749.898	398	1.884		
Entertainment	Between Groups	94.457	2	47.228	**26.627**	**.000**
	Within Groups	702.385	396	1.774		
Work	Between Groups	86.537	2	43.268	**17.216**	**.000**
	Within Groups	990.229	394	2.513		
Usual mall/Supermarket	Between Groups	58.454	2	29.227	**14.593**	**.000**
	Within Groups	789.123	394	2.003		
Recreation	Between Groups	56.449	2	28.225	**15.969**	**.000**
	Within Groups	699.932	396	1.768		
Friends	Between Groups	29.927	2	14.964	**8.335**	**.000**
	Within Groups	707.302	394	1.795		
Local shop	Between Groups	32.116	2	16.058	**10.579**	**.000**
	Within Groups	601.072	396	1.518		
Public transport	Between Groups	27.361	2	13.680	**4.874**	**.008**
	Within Groups	1111.496	396	2.807		
School	Between Groups	25.966	2	12.983	**3.367**	**.035**
	Within Groups	1527.031	396	3.856		

Note: Values indicate clear differences when F (ratio of between zone variations to within zone variations) are larger, and there is statistically significance (sig.) differences of mean between zones when sig.<.05.

As shown in Table A21.1, most of the perceived ease of travel is zone dependent. This table does not describe the patterns of difference across zones, just that there are differences. Hence the need for some further display of differences, in this case, graphic. The next section provides a comparison of rank correlation by zone and absolute distance from the city centre to show that those two measures are largely interchangeable. Then a series of graphs are presented to display the distribution of significantly different means across zones and comparisons between the two city centres using line graphs.

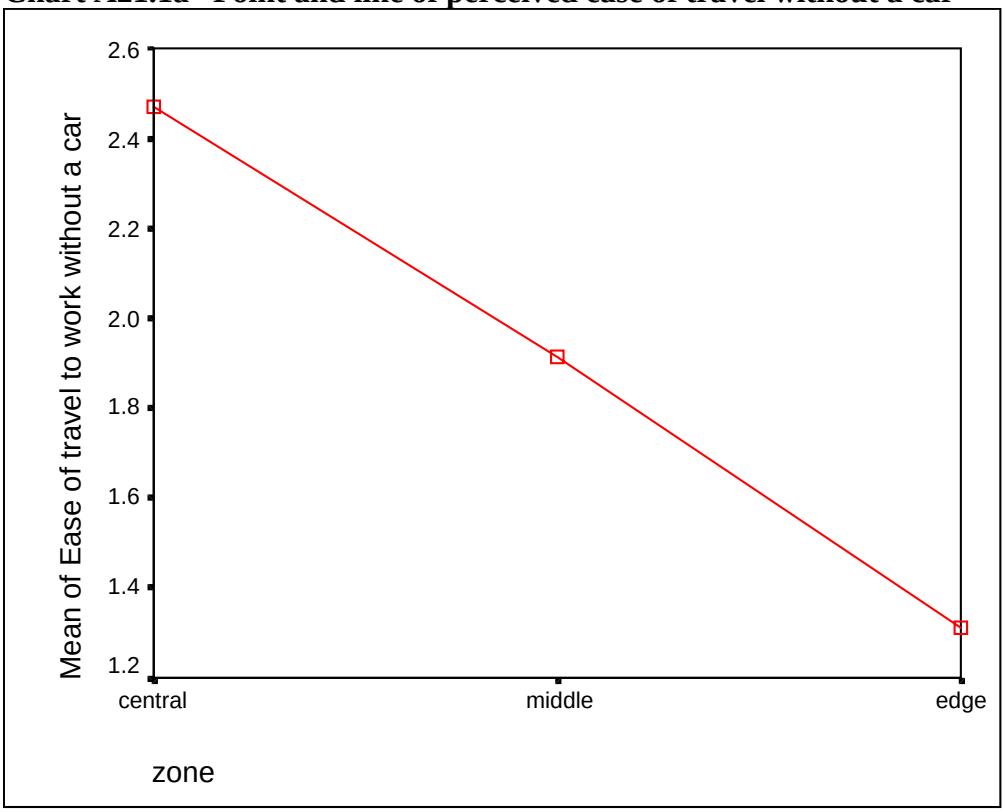
The correlation matrix (Table A21.2) is included for the reader to compare nonparametric relationships between zones and absolute distances from the CBD (ranging from .8 to 57Km) using responses to the block of questions on ease of travel if without a car. Comparisons of Tables A21.1 and .2 show that correlations and the F value are related (ranked order of F values and zonal correlations, with one reversal – mall/work-, are identical for the nine destinations) each indicating degrees of differences across zones. The following three graphics of perceived *Ease of travel to work without a car* are included to illustrate various ways of delivering this data.

Table A21.2 Spearman's non parametric correlations if without a car, by zone and physical distance from CBD

Destination		**ZONE**	**DISTANCE (ranked for the 18 CDs)**
City	Correlation Coefficient	**-.411**	**-.442**
	Sig. (2-tailed)	.000	.000
Entertainment	Correlation Coefficient	**-.356**	**-.374**
	Sig. (2-tailed)	.000	.000
Recreation	Correlation Coefficient	**-.273**	**-.281**
	Sig. (2-tailed)	.000	.000
Usual mall	Correlation Coefficient	**-.244**	**-.316**
	Sig. (2-tailed)	.000	.000
Work	Correlation Coefficient	**-.246**	**-.251**
	Sig. (2-tailed)	.000	.000
Local shop	Correlation Coefficient	**-.210**	**-.234**
	Sig. (2-tailed)	.000	.000
Friends	Correlation Coefficient	**-.208**	**-.204**
	Sig. (2-tailed)	.000	.000
School	Correlation Coefficient	.011	-.008
	Sig. (2-tailed)	.822	.874
Public transport	Correlation Coefficient	-.005	-.044
	Sig. (2-tailed)	.914	.378

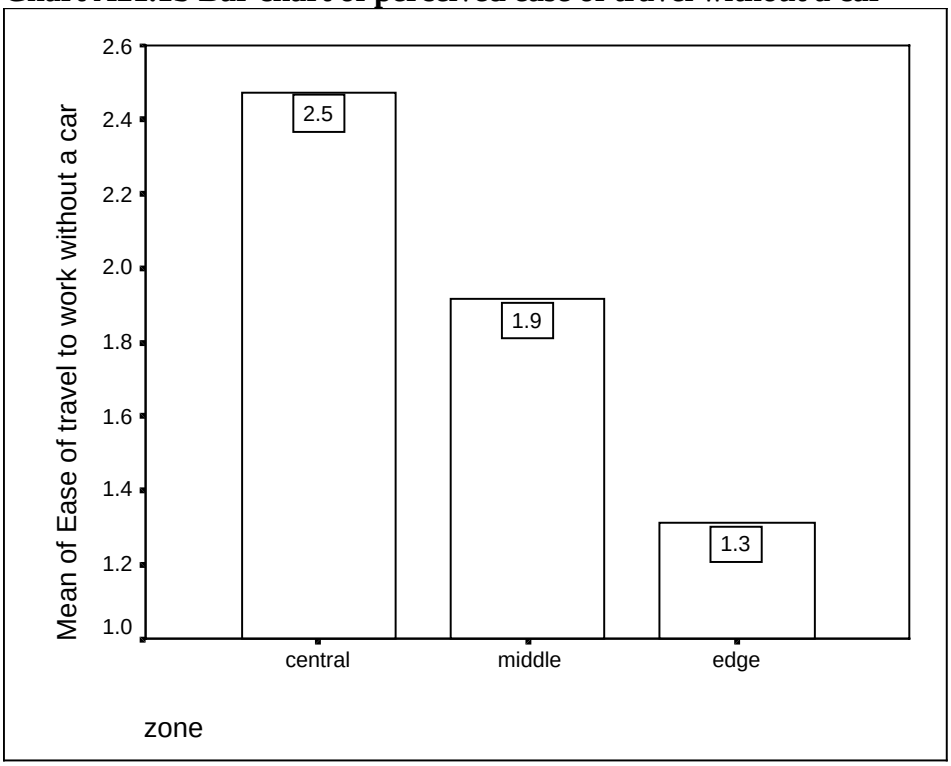
Note: N = 400

Chart A21.1a Point and line of perceived ease of travel without a car



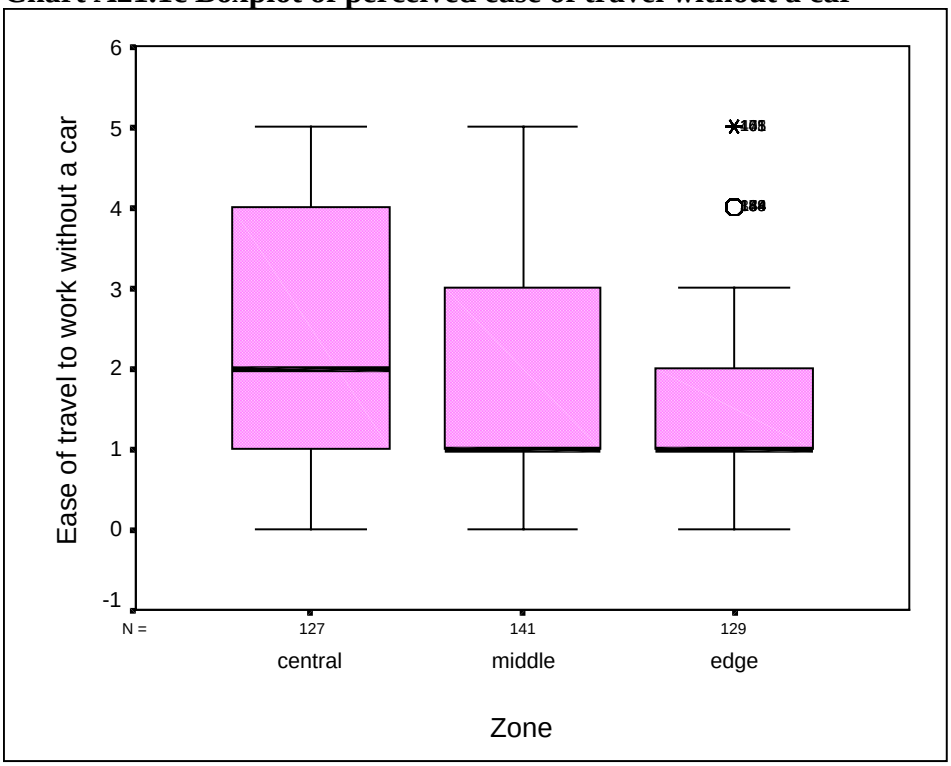
Note: 1 = very difficult, 5 = very easy

Chart A21.1b Bar chart of perceived ease of travel without a car



Note: 1 = very difficult, 5 = very easy

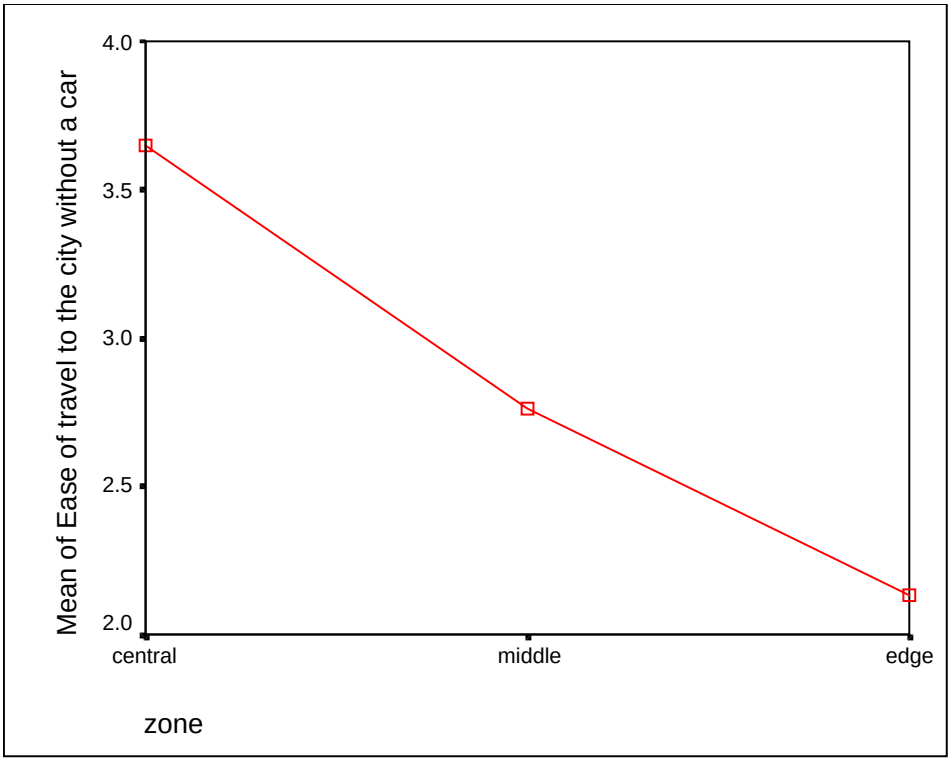
Chart A21.1c Boxplot of perceived ease of travel without a car



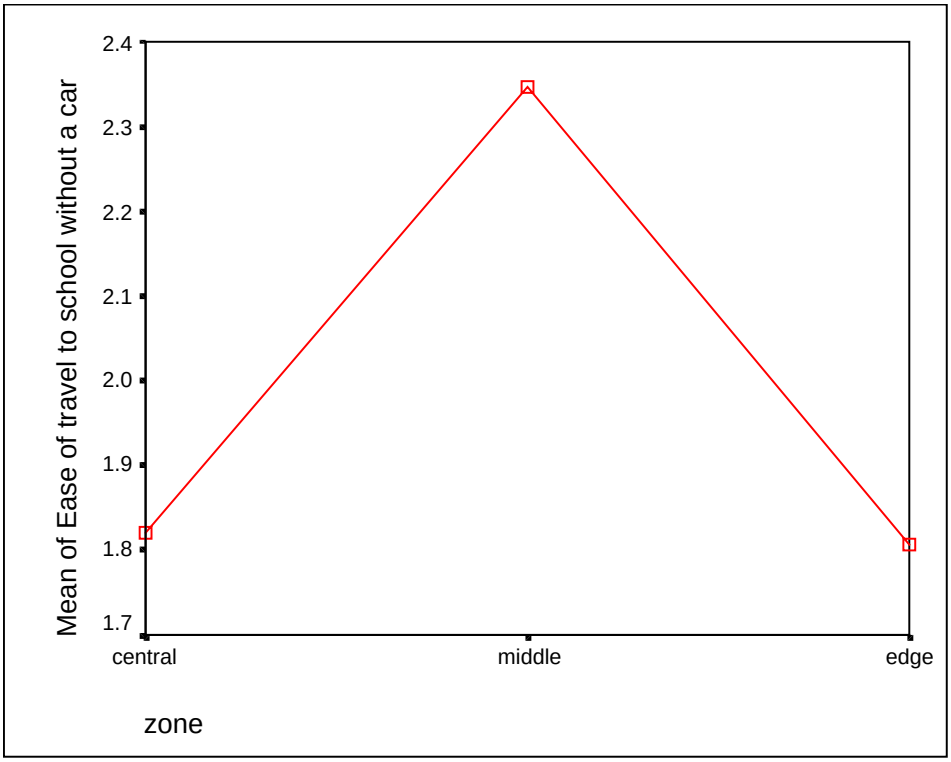
Note 1: *1 = very difficult … 5 = very easy*
Note 2: This box plot shows the median, Quartiles (shaded 50%), extreme values and outliers.

Perhaps box plots show the data most clearly, but points and lines most strongly indicate differences and trends across the zones and cities. The bar graphs are also an honest depiction of comparisons, but are a little bulky when only two or three points are includes on the graphs. Readers are invited to interpret the following charts as indicators of trends, to be read in conjunction with the preceding tables.

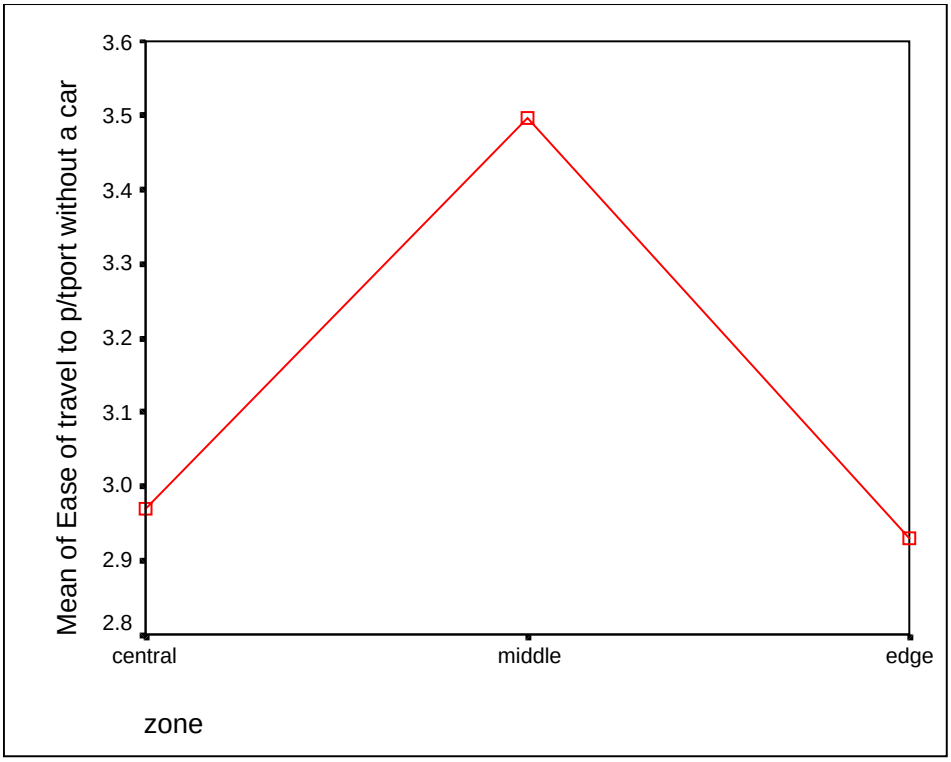
A final guiding note. Although significant differences are graphed, the most significant finding is that for most of these indicators of "internal space", there are no statistical differences between the centres, or the zones. Perceptions of buses, for instance, are generally shares irrespective of geographic location in either of the North Queensland population centres (with the exception of perceived convenience and affordability, lower in Townsville. This is discussed in chapter 6, linking this finding with earlier work by the author.



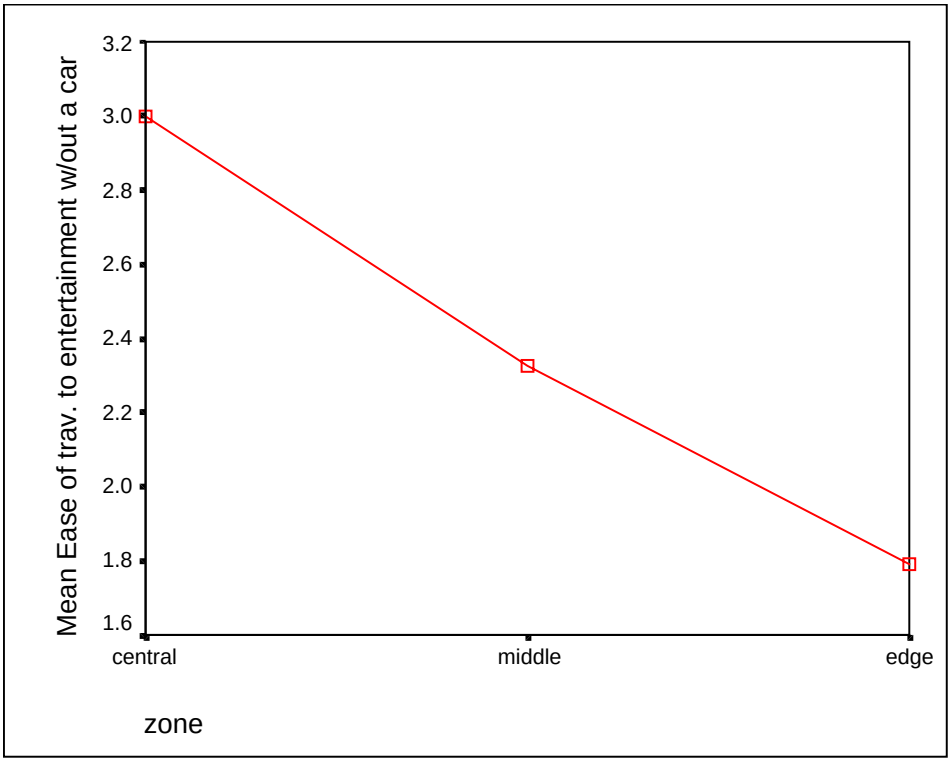
Note: 1 = very difficult, 5 = very easy



Note: 1 = very difficult, 5 = very easy



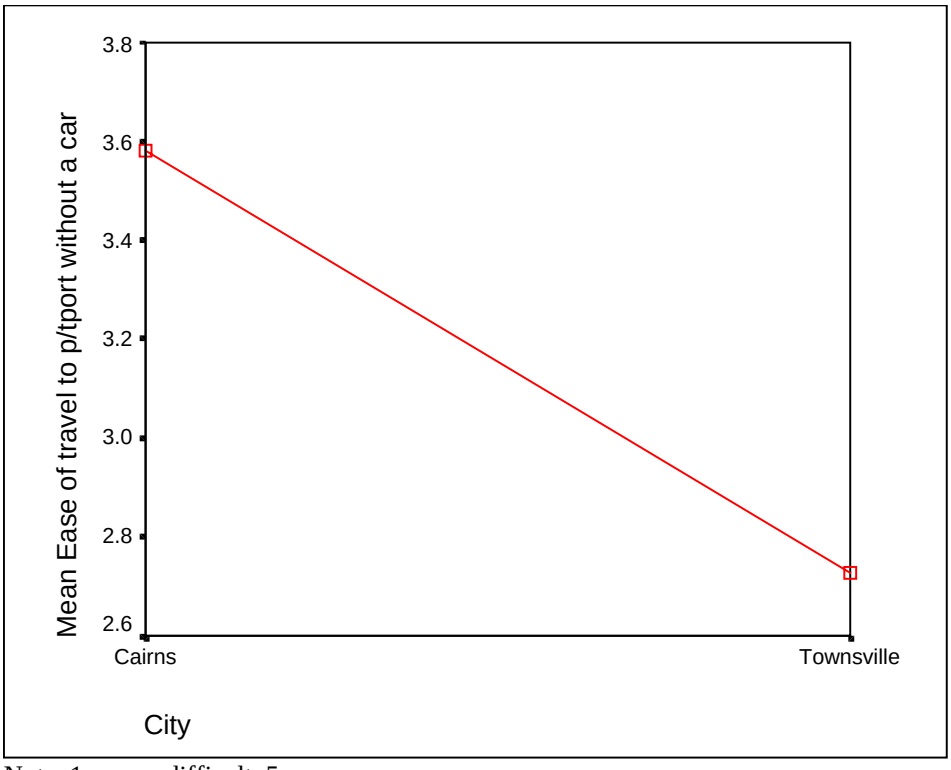
Note: 1 = very difficult, 5 = very easy



Note: 1 = very difficult, 5 = very easy

Table A21.3 ANOVA – by cities of perceived ease of travel without a car

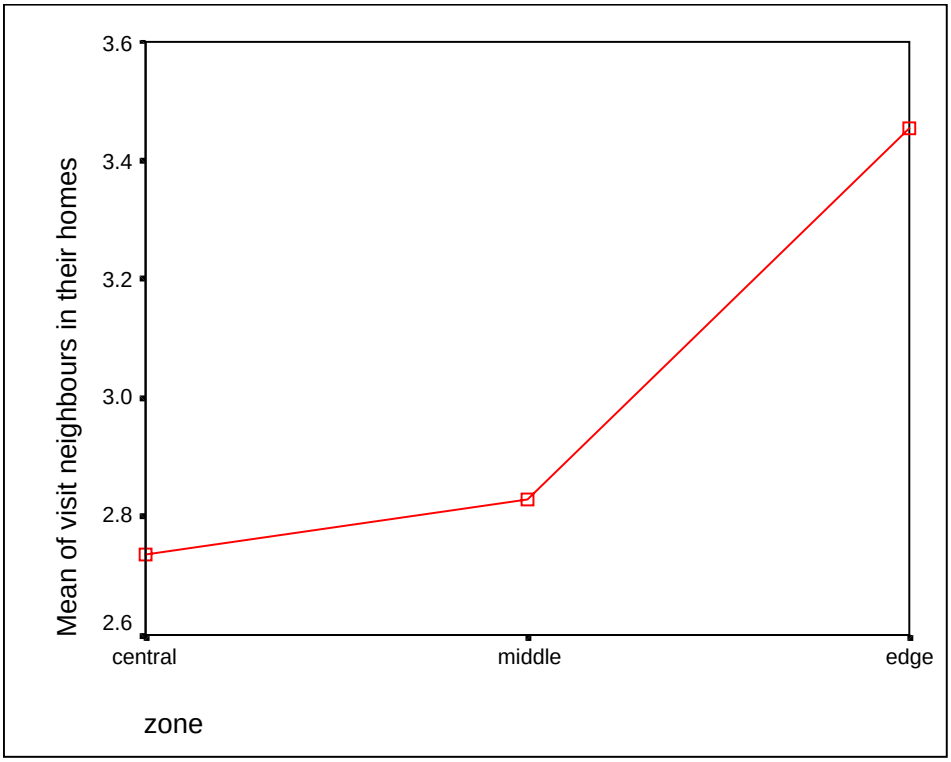
Destination	Comparisons	Sum of Squares	df	Mean Square	F	Sig.
Public transport	Between Groups	72.712	1	72.712	**27.076**	**.000**
	Within Groups	1066.145	397	2.686		
Local shop	Between Groups	24.023	1	24.023	**15.656**	**.000**
	Within Groups	609.165	397	1.534		
Usual mall	Between Groups	11.430	1	11.430	5.400	.021
	Within Groups	836.147	395	2.117		
City	Between Groups	10.400	1	10.400	4.655	.032
	Within Groups	891.385	399	2.234		
Entertainment	Between Groups	3.927	1	3.927	1.966	.162
	Within Groups	792.915	397	1.997		
Friends	Between Groups	.895	1	.895	.480	.489
	Within Groups	736.334	395	1.864		
Recreation	Between Groups	.402	1	.402	.211	.646
	Within Groups	755.979	397	1.904		
Work	Between Groups	.238	1	.238	.087	.768
	Within Groups	1076.528	395	2.725		
School	Between Groups	.123	1	.123	.032	.859
	Within Groups	1552.874	397	3.912		



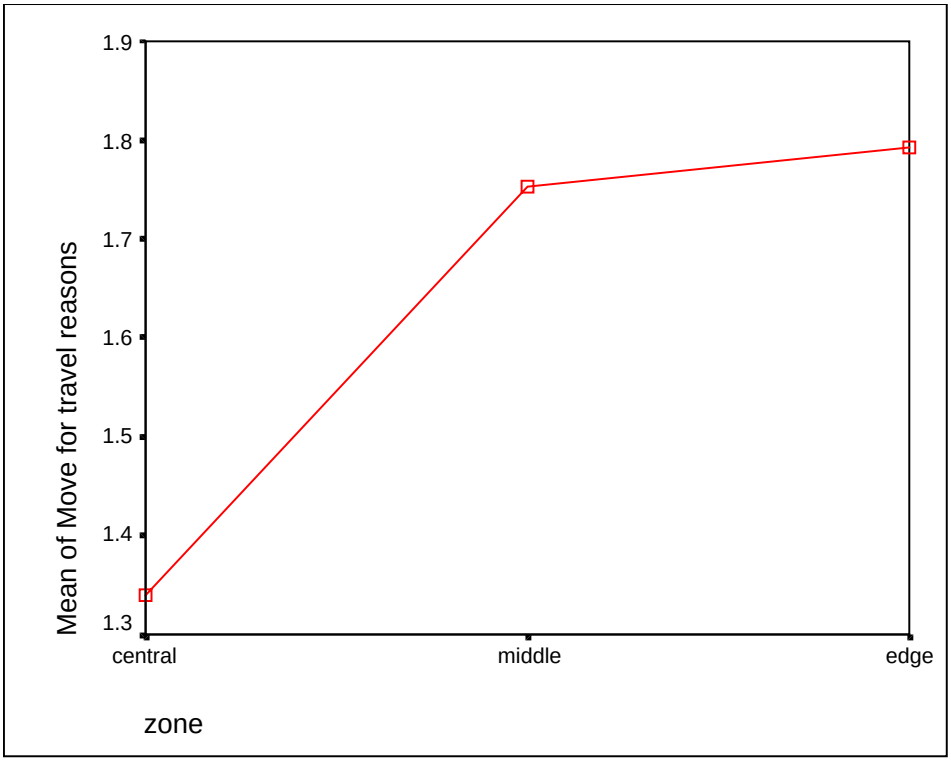
Note: 1 = very difficult, 5 = very easy

Table A21.4 ANOVA of neighbourhood attachment by zones

Statement	Comparison	Sum of Squares	Df	Mean Square	F	Sig.
I visit my neighbours in their homes	Between Groups	22.396	2	11.198	**5.757**	**.003**
	Within Groups	760.602	391	1.945		
	Total	782.997	393			
Considering travel time and costs, I/we would like to move from this neighbourhood	Between Groups	10.591	2	5.296	**3.996**	**.019**
	Within Groups	519.545	392	1.325		
	Total	530.137	394			
I would like to move from this neighbourhood	Between Groups	6.312	2	3.156	1.949	.144
	Within Groups	631.647	390	1.620		
	Total	637.959	392			
I regularly stop and talk with people in my neighbourhood.	Between Groups	3.252	2	1.626	1.104	.333
	Within Groups	586.319	398	1.473		
	Total	589.571	400			
I believe my neighbours would help me in an emergency	Between Groups	2.213	2	1.106	.912	.402
	Within Groups	487.481	402	1.213		
	Total	489.694	404			
I am similar to other people who live in this neighbourhood	Between Groups	.406	2	.203	.142	.867
	Within Groups	566.092	397	1.426		
	Total	566.498	399			



Note: 1 = strongly disagree, 5 = strongly agree



Note: 1 = strongly disagree, 5 = strongly agree

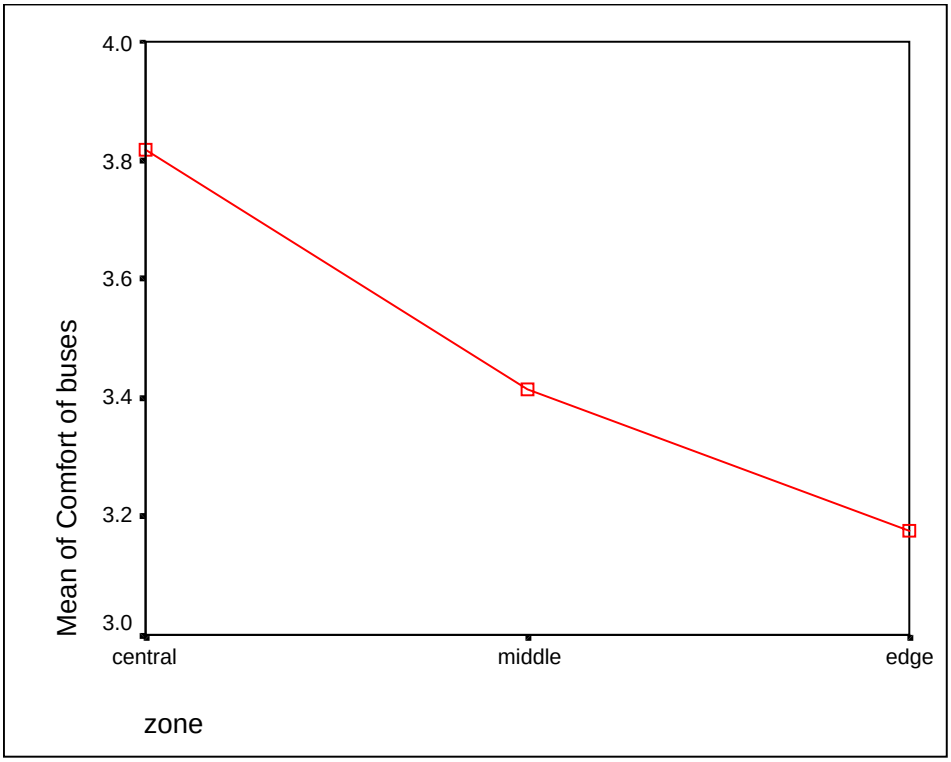
Table A21.5 ANOVA of neighbourhood attachment by cities

Statement	Comparison	Sum of squares	Df	Mean square	F	Sig.
I would like to move from this neighbourhood	Between Groups	4.475	1	4.475	2.762	.097
	Within Groups	633.485	391	1.620		
	Total	637.959	392			
I visit my neighbours in their homes	Between Groups	3.472	1	3.472	1.746	.187
	Within Groups	779.525	392	1.989		
	Total	782.997	393			
I regularly stop and talk with people in my neighbourhood.	Between Groups	1.790	1	1.790	1.215	.271
	Within Groups	587.781	399	1.473		
	Total	589.571	400			
I believe my neighbours would help me in an emergency	Between Groups	1.262	1	1.262	1.041	.308
	Within Groups	488.432	403	1.212		
	Total	489.694	404			
I am similar to other people who live in this neighbourhood.	Between Groups	1.154	1	1.154	.812	.368
	Within Groups	565.344	398	1.420		
	Total	566.498	399			
Considering travel time and costs, I/we would like to move from this neighbourhood.	Between Groups	2.184E-02	1	2.184E-02	.016	.899
	Within Groups	530.115	393	1.349		
	Total	530.137	394			

Buses

Table A21.6 ANOVA of buses by zones

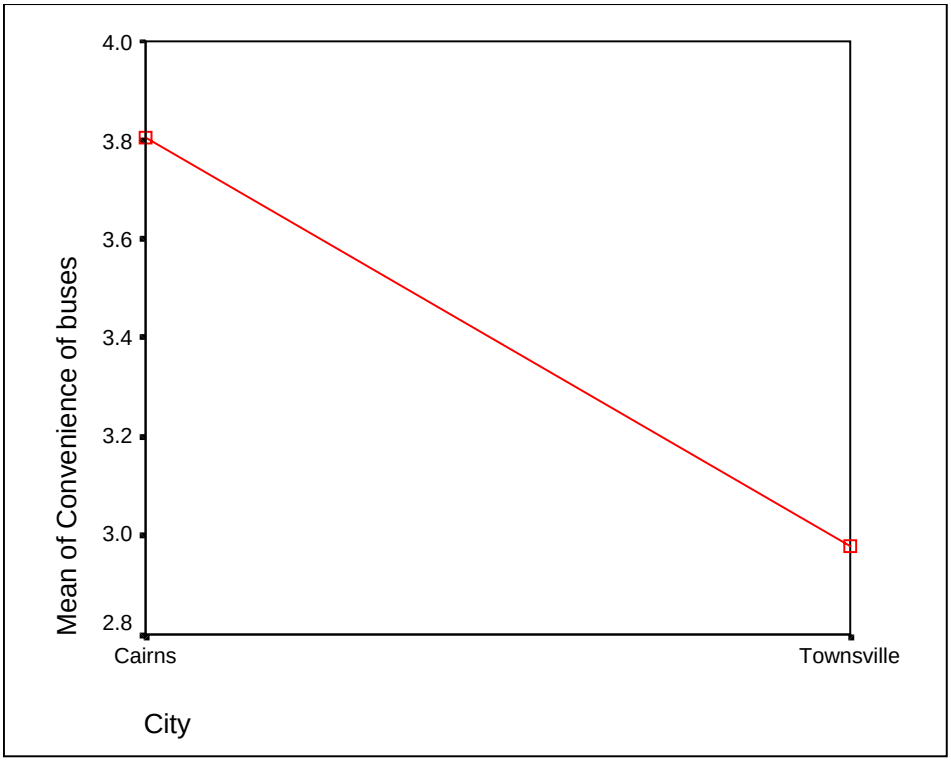
Feature		Sum of Squares	df	Mean Square	F	Sig.
Comfort	Between Groups	7.559	2	3.780	**3.481**	**.034**
	Within Groups	133.552	123	1.086		
Speed	Between Groups	4.766	2	2.383	2.041	.134
	Within Groups	144.762	124	1.167		
Convenient drop-off and pick-up	Between Groups	2.851	2	1.426	.860	.426
	Within Groups	185.723	112	1.658		
Reliability	Between Groups	5.109	2	2.555	1.669	.192
	Within Groups	195.883	128	1.530		
Passenger information	Between Groups	4.665	2	2.333	1.427	.244
	Within Groups	202.736	124	1.635		
Connections	Between Groups	3.322	2	1.661	1.266	.286
	Within Groups	162.647	124	1.312		
Frequency	Between Groups	3.138	2	1.569	1.054	.352
	Within Groups	192.105	129	1.489		
Affordability	Between Groups	1.452	2	.726	.502	.607
	Within Groups	183.817	127	1.447		



Note: 1 = very poor, 5 = very good

Table A21.7 ANOVA of buses by city

Feature		Sum of Squares	df	Mean Square	F	Sig.
Convenient drop-off and pick-up	Between Groups	19.117	1	19.117	**12.748**	**.001**
	Within Groups	169.457	113	1.500		
Affordability	Between Groups	9.325	1	9.325	**6.784**	**.010**
	Within Groups	175.944	128	1.375		
Frequency	Between Groups	9.261	1	9.261	6.473	.012
	Within Groups	185.982	130	1.431		
Speed	Between Groups	5.185	1	5.185	4.490	.036
	Within Groups	144.343	125	1.155		
Passenger information	Between Groups	5.102	1	5.102	3.152	.078
	Within Groups	202.300	125	1.618		
Comfort	Between Groups	2.115	1	2.115	1.887	.172
	Within Groups	138.996	124	1.121		
Connections	Between Groups	2.090	1	2.090	1.594	.209
	Within Groups	163.879	125	1.311		
Reliability	Between Groups	1.717	1	1.717	1.111	.294
	Within Groups	199.275	129	1.545		



Note: 1 = very poor, 5 = very good

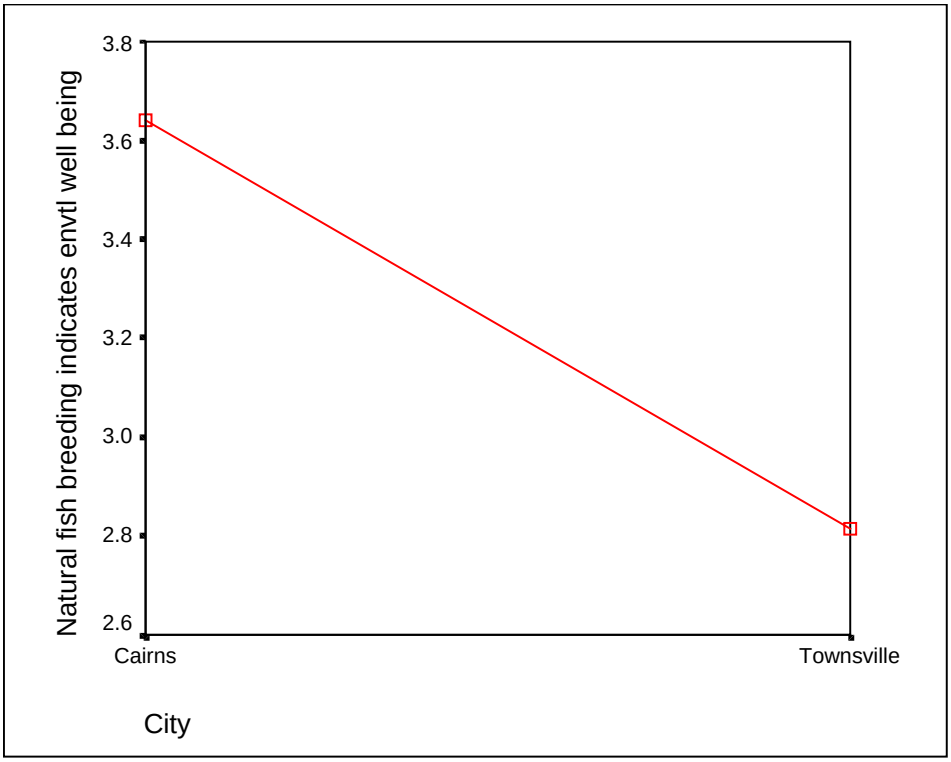
Table A21.8a ANOVA of environmental attitudes by zone

Variable	Comparison	Sum of Squares	df	Mean Square	F	Sig.
Supports disposable consumerism	Between Groups	7.538	2	3.769	3.104	.046
	Within Groups	466.358	384	1.214		

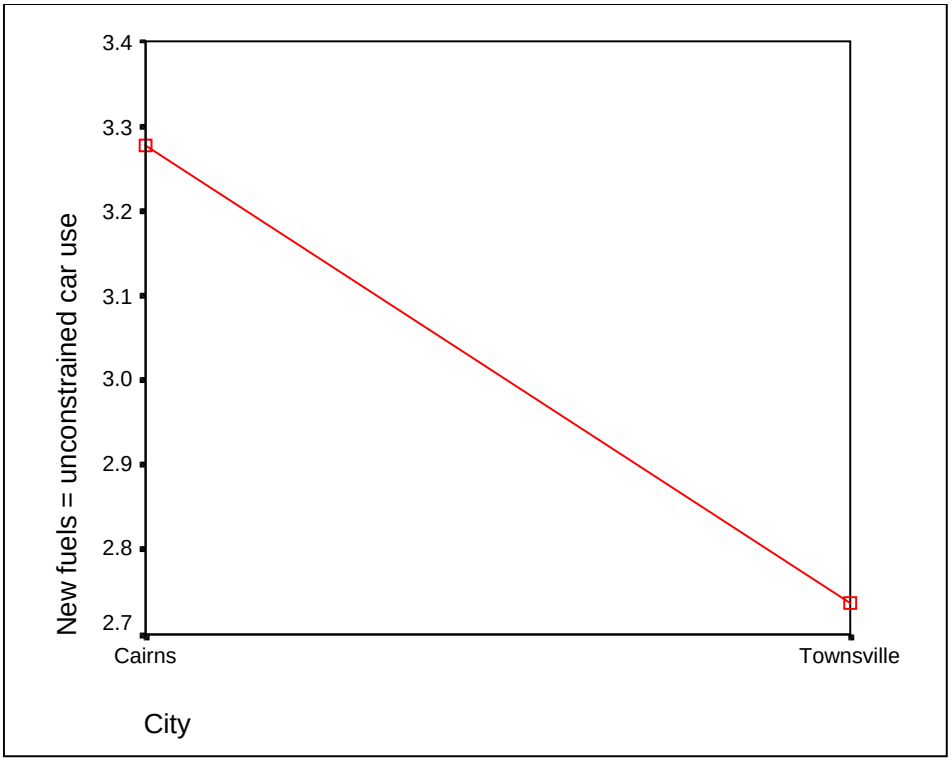
No significance at .01 level for environmental attitudes across zones.

Table A21.8b ANOVA of environmental attitudes by city

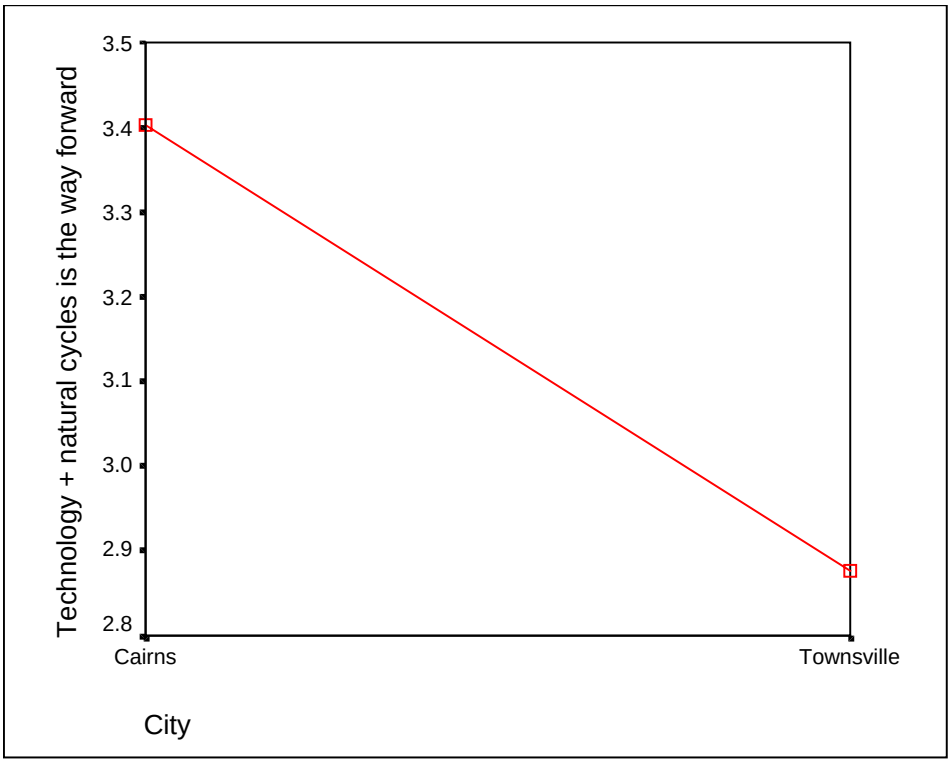
Variable	Comparison	Sum of Squares	df	Mean Square	F	Sig.
Natural fish breeding near cities indicates some sustainable behaviour	Between Groups	61.368	1	61.368	**26.840**	**.000**
	Within Groups	829.963	363	2.286		
New fuels will fully replace fossil fuels	Between Groups	26.520	1	26.520	**14.183**	**.000**
	Within Groups	684.347	366	1.870		
We can integrate technology and natural cycles	Between Groups	26.139	1	26.139	**14.160**	**.000**
	Within Groups	692.249	375	1.846		



Note 1 = strongly disagree, 5 = strongly agree



Note 1 = strongly disagree, 5 = strongly agree



Note 1 = strongly disagree, 5 = strongly agree

This section compares some contrasting variables from the above four data blocks.

Table A21.9 Summary of main ANOVA by zone

Variable	Comparison	Sum of Squares	df	Mean Square	F	Sig.
Ease of getting to the city without a car	Between Groups	151.888	2	75.944	**40.306**	**.000**
	Within Groups	749.898	398	1.884		
	Total	901.786	400			
Ease of getting to entertainment without a car	Between Groups	94.457	2	47.228	**26.627**	**.000**
	Within Groups	702.385	396	1.774		
	Total	796.842	398			
Ease of getting to shops without a car	Between Groups	32.116	2	16.058	**10.579**	**.000**
	Within Groups	601.072	396	1.518		
	Total	633.188	398			
Statement: I visit my neighbours in their homes	Between Groups	22.396	2	11.198	**5.757**	**.003**
	Within Groups	760.602	391	1.945		
	Total	782.997	393			

Table A21.10 Summary of main ANOVA by city

Variable	Comparison	Sum of Squares	df	Mean Square	F	Sig.
Ease of getting to public transport without a car	Between Groups	72.712	1	72.712	**27.076**	**.000**
	Within Groups	1066.145	397	2.686		
Ease of getting to shops without a car	Between Groups	24.023	1	24.023	**15.656**	**.000**
	Within Groups	609.165	397	1.534		
New fuels will fully replace fossil fuels	Between Groups	26.520	1	26.520	**14.183**	**.000**
	Within Groups	684.347	366	1.870		
We will use technology to integrate with natural cycles	Between Groups	26.139	1	26.139	**14.160**	**.000**
	Within Groups	692.249	375	1.846		
Convenience of buses	Between Groups	19.117	1	19.117	**12.748**	**.001**
	Within Groups	169.457	113	1.500		

Appendix 22
Factorial and hierachial analysis, database queries and final relationships of full data set

Like earlier analysis, this Appendix follows the sequence used in the Questionnaire (Appendix 1). Factor and hierachial analysis are used in a similar way to the relevant Cairns analysis of Sections 3.4 (see Table 3.4.2) and, more comprehensively, 3.7, where the technique is described.

Table 22.1 Factor analysis of ease of travel without a car

Variable		**Component**	
Code	**Destination**	1	2
EENT	Entertainment	.808	-.322
EMALL	Shopping mall	.783	-1.321E-02
EREC	Recreation	.762	-.285
ECITY	City	.758	-6.565E-02
EFRIENDS	Visit friends	.714	-.275
ESHOP	Local shop	.605	.435
EWORK	Work	.513	-.112
EPUBPTP	Public transport	.499	.653
ESCHOOL	School	.457	.445

Extraction Method: Principal Component Analysis. 2 components extracted.

Table A22.1 shows that ease of getting to school or to public transport do not contribute a great deal to overall considerations of car dependence. Further, recreation, entertainment and visits to friends may be grouped as "social" destinations, and the mid-value 'Recreation', used to represent social destinations. Table A22.2 shows the reduced indicators of car dependence.

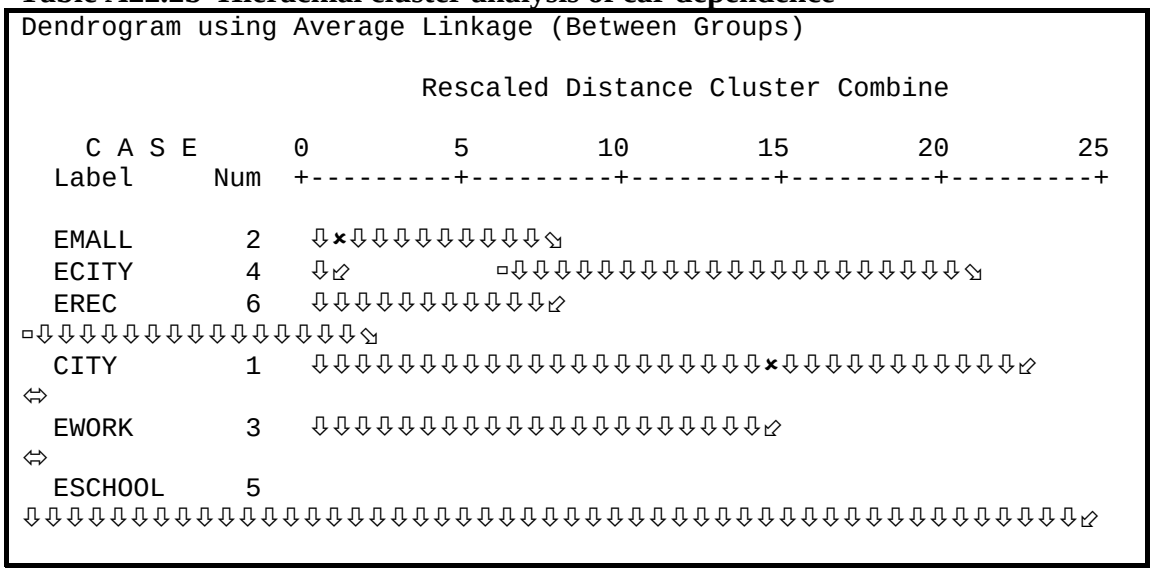
Table A22.2a Factor analysis of car dependence

Measure of car dependence	**Component 1**		
Ease of attaining destination	**Cairns**	**Townsville**	**Total**
Mall/shopping centre	.756	.871	.831
City	.763	.825	.802
Recreation/social	.664	.781	.732
Shops	.582	.681	.653
Work	.622	.570	.580
% explained by 1 component	46	56	52

Table A22.2a shows that adjudged difficulty of getting to a shopping mall/supermarket is the clearest single measure of overall car dependence from the block of 9 destinations

originally polled. Unless the study population was from a structurally different food-procurement culture, this result shows that future urban travel research could just ask about dependence to get to the supermarket, and perhaps the city and recreation. A hierachial cluster analysis (Table A22.2b) confirms this analysis.

Table A22.2b Hierachial cluster analysis of car dependence



Neighbourhood attachment

Table A22. 3 Indices of measured neighbourhood cohesion

Variable name and meaning		Component		
		1	2	3
NGHVISIT	Visit neighbours	.690	.585	-.416
NGHTALK	Talk to neighbours	.681	.267	.334
NGHTRVTM	Move for travel reasons	-.606	.739	.175
NGHMOVE	Move because do not like neighbourhood	-.554	.494	-5.682E-02
NGHSIMIL	Similar to neighbours	.543	.107	.564
NGHELP	Neighbours would help	.506	.241	.438

Extraction Method: Principal Component Analysis. 3 components extracted.

Table A22.3 shows that wanting to move from the suburb is very separate from other assessments of the neighbourhood. Otherwise, component 1 is dominated by interaction with neighbours. Table A 22.4a show the analysis without the considerations of leaving the neighbourhood. This indicates that the degree of dialogue with neighbours is the clearest single measure of linkage between respondents and their neigbourhood, and the findings are reinforced from the cluster analysis of Table A22.4b. Again (and this applies to the following analysis as well), this can be used in a reduced version of this type of questionnaire (see Appendix 25).

Table A 22.4a Elements of neighbourhood linkage

Variable name and meaning		Component
		1
NGHTALK	Talk to neighbours	.816
NGHELP	Neighbours would help	.694
NGHSIMIL	Similar to neighbours	.690
NGHVISIT	Visit neighbours	.645

Extraction Method: Principal Component Analysis. 1 component extracted
Note 1: Component 1 explains 51% of variance.

Table A 22.4b Hierachial analysis of elements of neighbourhood linkage

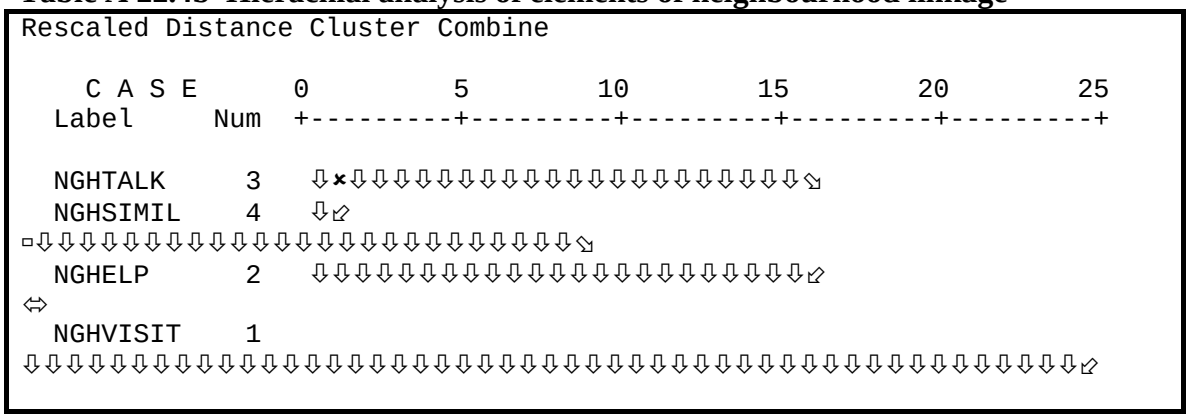


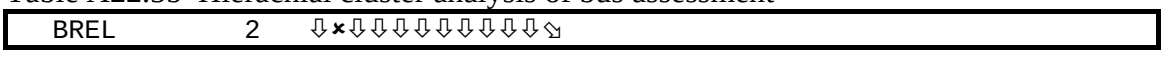
Table A22.5a Component Matrix of bus assessment

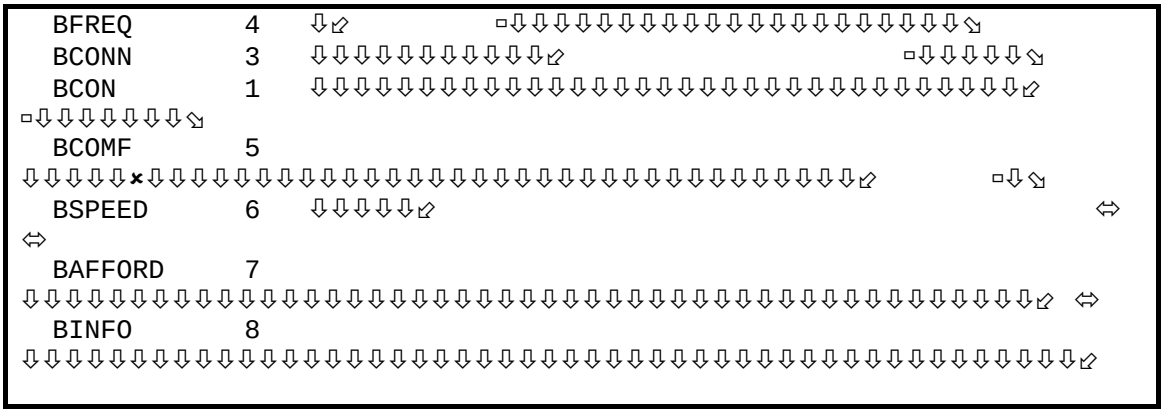
Variable name and meaning		Component	
		1	2
BCONN	Connections	.802	-.101
BFREQ	Frequency	.807	-.390
BREL	Reliability	.772	-.317
BSPEED	Speed	.694	.553
BINFO	Passenger information	.675	.328
BCON	Convenience	.672	-.396
BCOMF	Comfort	.631	.530
BAFFORD	Affordability	.540	-6.203E-02

Extraction Method: Principal Component Analysis. 2 components extracted.
Note: component 1 accounts for 50%, 2 for 14% variance.

Table A22.5a shows that the scheduled pattern of routes is considered most important. Table A22.5b more clearly demonstrates the grouping of variables, showing that convenience is of primary importance, linked with scheduling and arrival time issues (reliability, frequency and connectivity). Comfort and speed (ride quality) were seen in a similar way, while information to passengers and affordability (input to or from passengers) were judged to play the least role in residents' assessment of the bus service.

Table A22.5b Hierachial cluster analysis of bus assessment



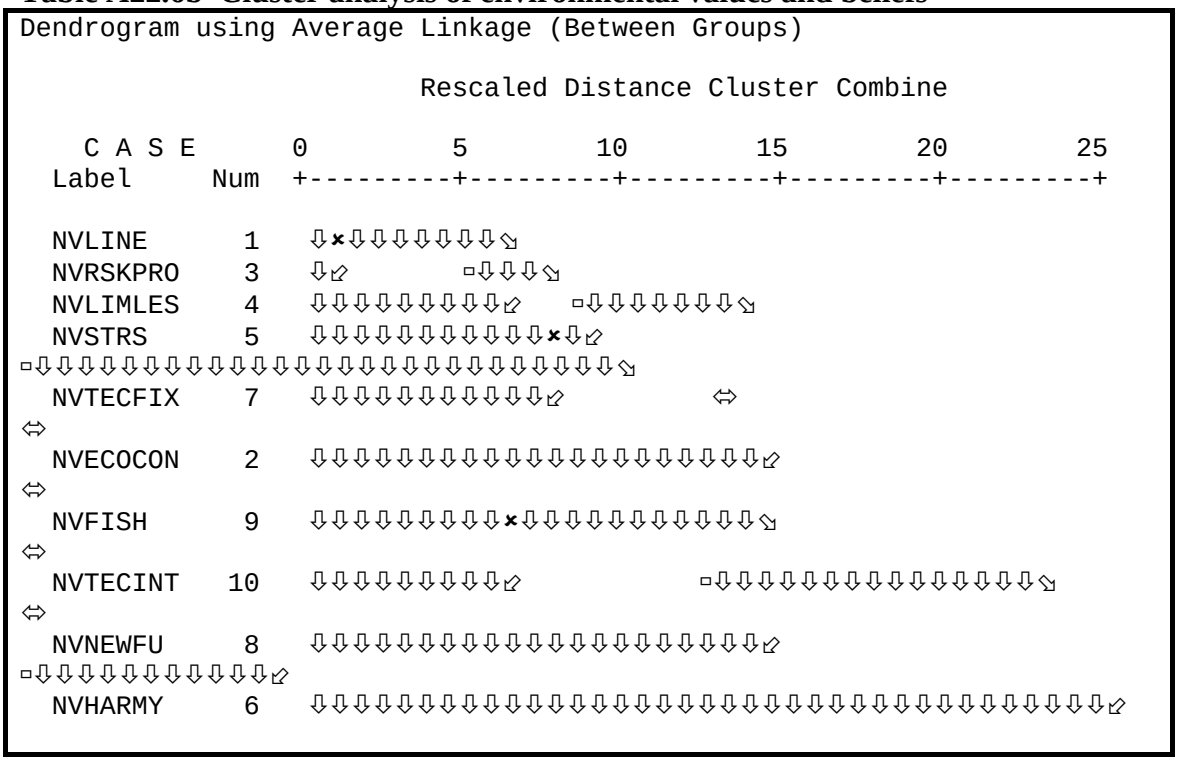


Environmental values and beliefs

Table A22.6a Factor analysis of environmental values and beliefs

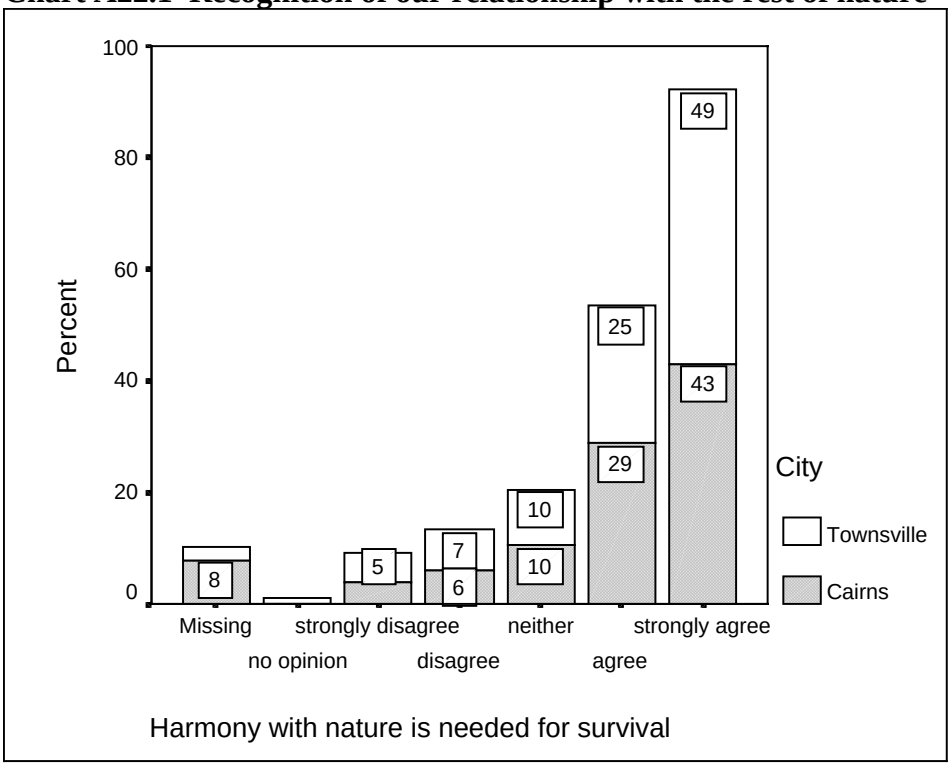
Var. name	Variable	Component	
		1	2
NVTECFIX	Technology will overcome all obstacles to our continued well being.	.642	-6.758E-02
NVLIMLES	There are no limits to growth.	.653	-.239
NVLINE	Humans have the absolute right to dominate, acquire, use and discard natural resources.	.599	-.343
NVNEWFU	With new fuels, we will continue using vehicles as we do at present.	.536	.337
NVSTRS	Present decision-making structures and institutions are satisfactory.	.514	-5.863E-02
NVECOCON	Ecology constrains economic growth.	.505	.132
NVRSKPRO	Putting people and nature at possible risk is acceptable to maximise wealth.	.487	-.394
NVTECINT	With technology, we can integrate with natural cycles.	.365	.748
NVFISH	Continued abundant natural fish breeding in near-city mangroves is one useful measure of a sustainable urban environment.	.293	.729
NVHARMY	Humans must live in harmony with nature in order to survive.	-.219	.487

Table A22.6b Cluster analysis of environmental values and beliefs



Tables A22.6a and b show two distinct factors in environmental beliefs: belief that new fuels and use of technology integrating with natural cycles (the sustainable path) will allow life to continue the way we are used to, while rejecting unconstrained consumerism, optomism and human arrogance of factor 1). The clearest contributor to the second factor is the support for a harmonious relationship with nature in order to survive. Indeed, the raw data (see chart A22.1) shows that clearly. A third factor emerges: rejection of linear (disposable) consumerism, growth without limit, techno-fixes and present decision-making structures. The connection between these expressed beliefs and values and actual behaviour is the crux of sustainability at the time of writing, and clearly has been for decades, for centuries.

Chart A22.1 Recognition of our relationship with the rest of nature



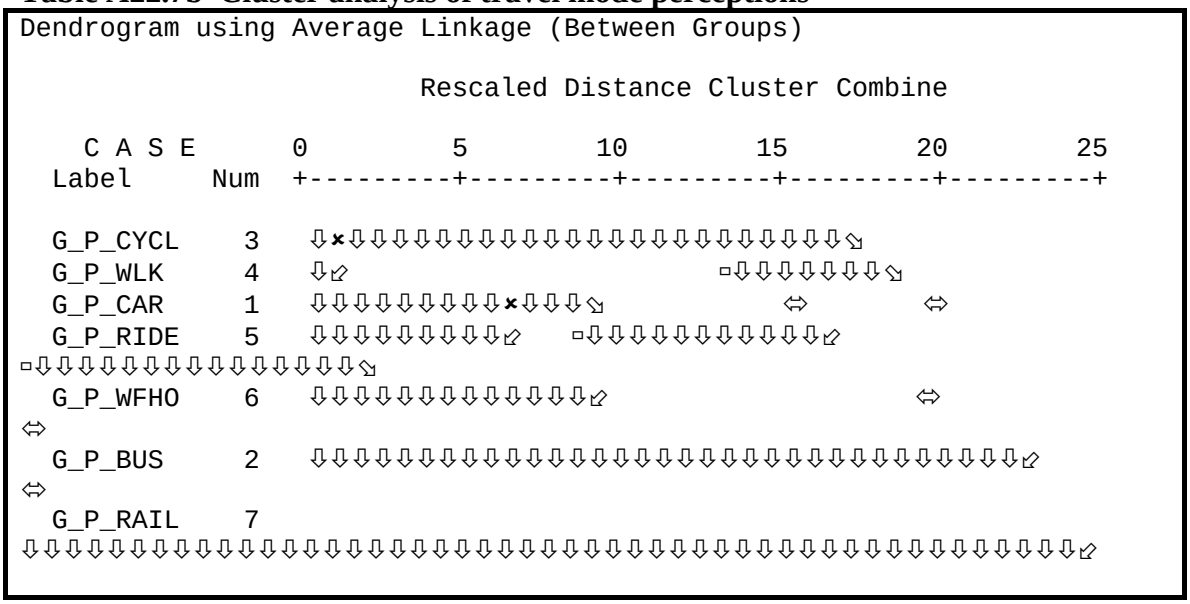
Travel modes and broader urban travel issues

Table A22.7a Factor analysis of travel mode perceptions

Grouped perceptions of:	Component		
	1	2	3
Walking	.694	-.311	.335
Cycling	.686	-.425	-6.399E-02
Ride-sharing	.636	.389	-.217
Working from home	.478	.337	-.648
Car use	.407	.222	.317
Bus use	.202	.560	.605
Potential rail use	.166	-.629	4.604E-02

Extraction Method: Principal Component Analysis.
3 components extracted, explaining 25, 18 and 15% of variance.

Table A22.7b Cluster analysis of travel mode perceptions



Although the relationships are all weak, Tables A22.7a and b show that the non-motorised modes are closely allied in peoples' views, as were working from home and ride sharing. The factor analysis shows that views on public transport (bus or potential urban train use) were seen similarly. Car use is, in many ways, in a class of its own, laying between potential rail use and all other modes in the cluster analysis, but centrally placed in components 1 and 3 (small scale low impact movement and vehicle use respectively) in the factor analysis. The relationships (correlations) of broader travel issues were too weak to warrant detailed analysis (the strongest correlation was .06 with $p = .26$ between value current travel and easy changes to reduce car use. There is no meaningful way to compare this set of date without explicit ranked questions.

Appendix 23
North Queensland urban travel final analysis output

Table A23.1 Age and home choice reasons of outer suburb residents who speak frequently with neighbours

Respondent age group	Grouped home choices	Number
20-29	like suburb	3
20-29	natural features	3
20-29	social links	3
30-39	close to work	3
30-39	good price	4
30-39	like property	7
30-39	like suburb	12
30-39	natural features	10
30-39	near local needs	3
30-39	social links	9
40-49	close to work	2
40-49	good price	2
40-49	like property	3
40-49	like suburb	7
40-49	natural features	5
40-49	near local needs	2
40-49	social links	5
50-59	like suburb	4
50-59	natural features	10
60-69	like property	2
60-69	like suburb	3
60-69	natural features	4
70-79	like property	2
70-79	like suburb	3
70-79	natural features	3

Table A23.2 Close destinations as main home location choices for zones where there is strong neighbourhood dialogue and strong support of integration with natural cycles

Zone	Grouped home choices - proximity	Number of cases
Central	close to city	7
	close to shops	4
	close to school	5
	close to work	1
Middle	close to work	2
	close to school	2
	close to shops	2
Edge	close to work	2
	close to shops	1
	close to school	1

Table A23.3 Zonal analysis of respondents who saw cars as convenient, and their asssessment of access to the supermarket without a car

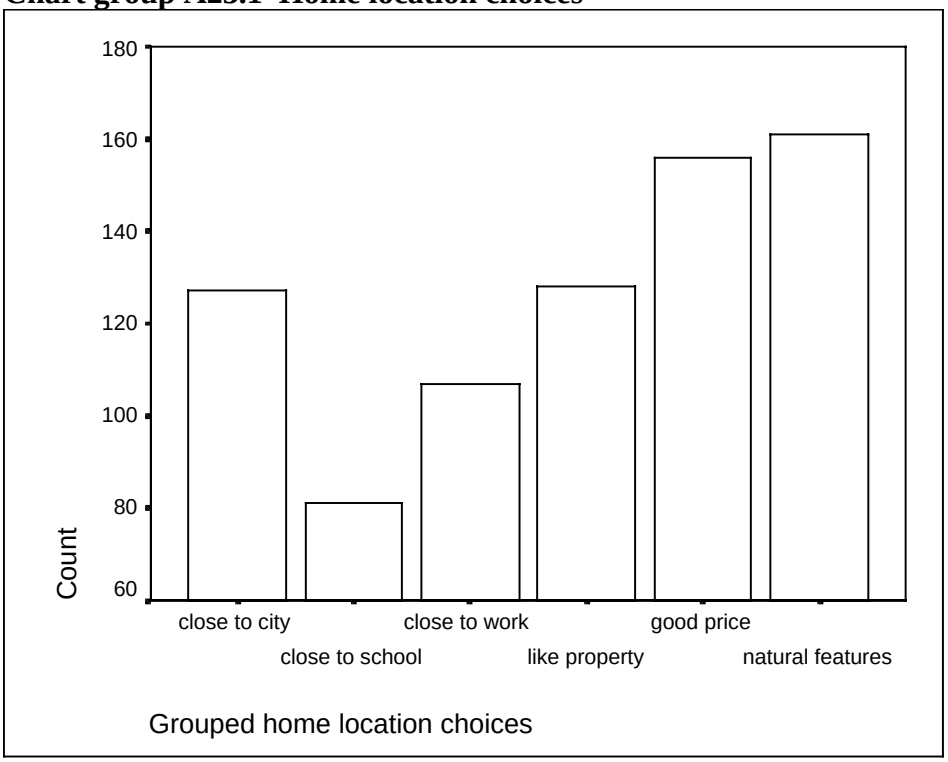
Zone	Get to supermarket	Number
Central	very difficult	6
Central	very easy	9
Middle	very difficult	12
Middle	very easy	16
Edge	very difficult	24
Edge	very easy	5

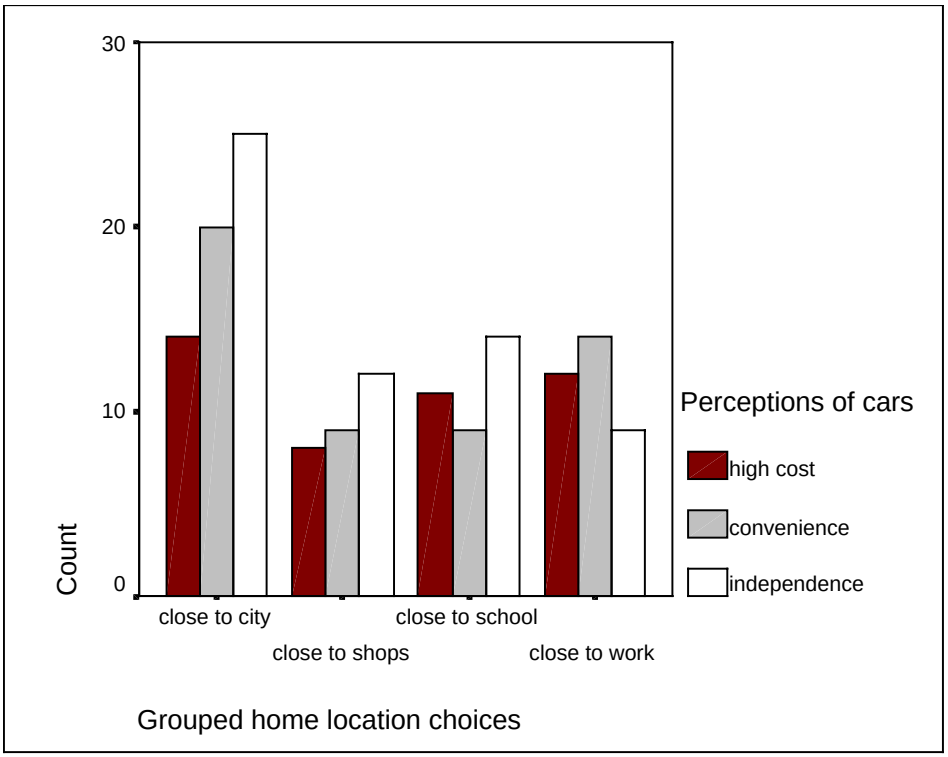
Table A23.4 Zonal perceptions of walking from respondents who had strong neighbourhood links and were highly car dependent

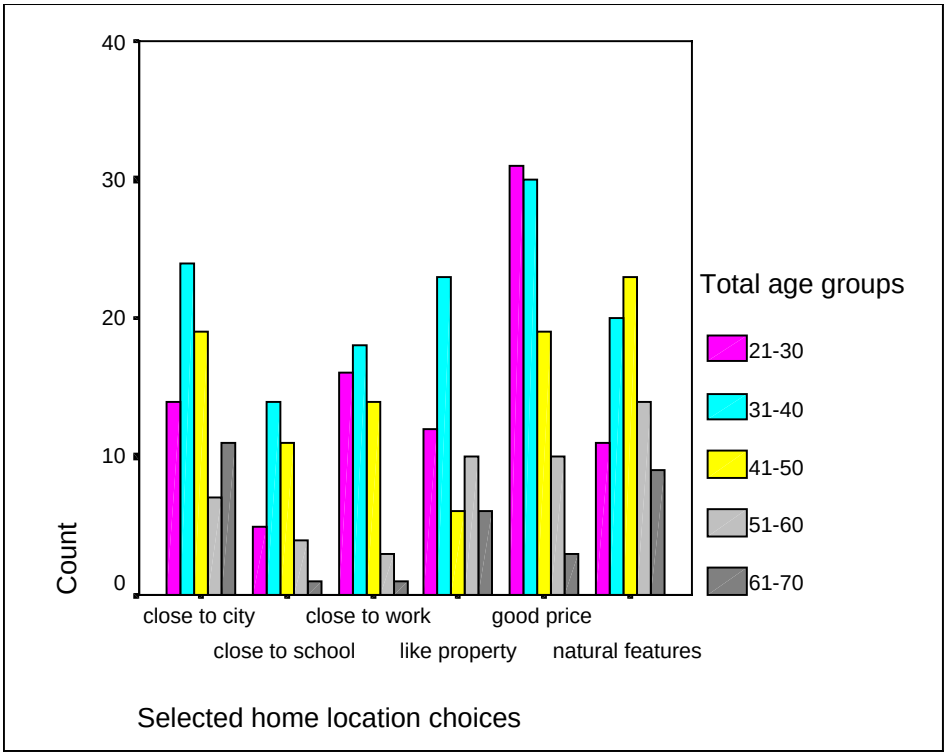
Zone	Age (yrs)	Perceptions of walking	Number
Central	30-39	dangerous	
Central	30-39	lacks paths	
Central	40-49	exercise/healthy	
Central	60-69	dangerous	
Central	60-69	enjoyable	
Central	60-69	plenty of paths	
Middle	20-29	weather deters	
Middle	20-29	cannot carry loads	
Middle	20-29	exercise/healthy	
Middle	30-39	enjoyable	
Middle	30-39	relaxing	
Middle	40-49	weather deters	
Middle	40-49	cannot carry loads	
Middle	40-49	exercise/healthy	
Middle	50-59	causes congestion	
Middle	50-59	dangerous	2
Middle	50-59	lacks paths	
Middle	60-69	weather deters	
Middle	60-69	cannot carry loads	
Middle	60-69	dangerous	2
Middle	60-69	easier parking	
Middle	60-69	enjoyable	
Middle	60-69	exercise/healthy	
Middle	60-69	lacks paths	
Edge	20-29	weather deters	
Edge	20-29	cheap	
Edge	20-29	exercise/healthy	
Edge	20-29	inefficient	
Edge	30-39	weather deters	2
Edge	30-39	dangerous	2
Edge	30-39	enjoyable	3
Edge	30-39	exercise/healthy	3
Edge	30-39	too far	
Edge	40-49	weather deters	
Edge	40-49	cannot carry loads	
Edge	40-49	cheap	
Edge	40-49	dangerous	
Edge	40-49	enjoyable	
Edge	40-49	exercise/healthy	2
Edge	40-49	relaxing	
Edge	40-49	too far	
Edge	50-59	weather deters	
Edge	50-59	cheap	
Edge	50-59	exercise/healthy	2
Edge	50-59	not possible	
Edge	50-59	too far	
Edge	60-69	exercise/healthy	
Edge	60-69	too far	

From SPSS NQ final combination charts

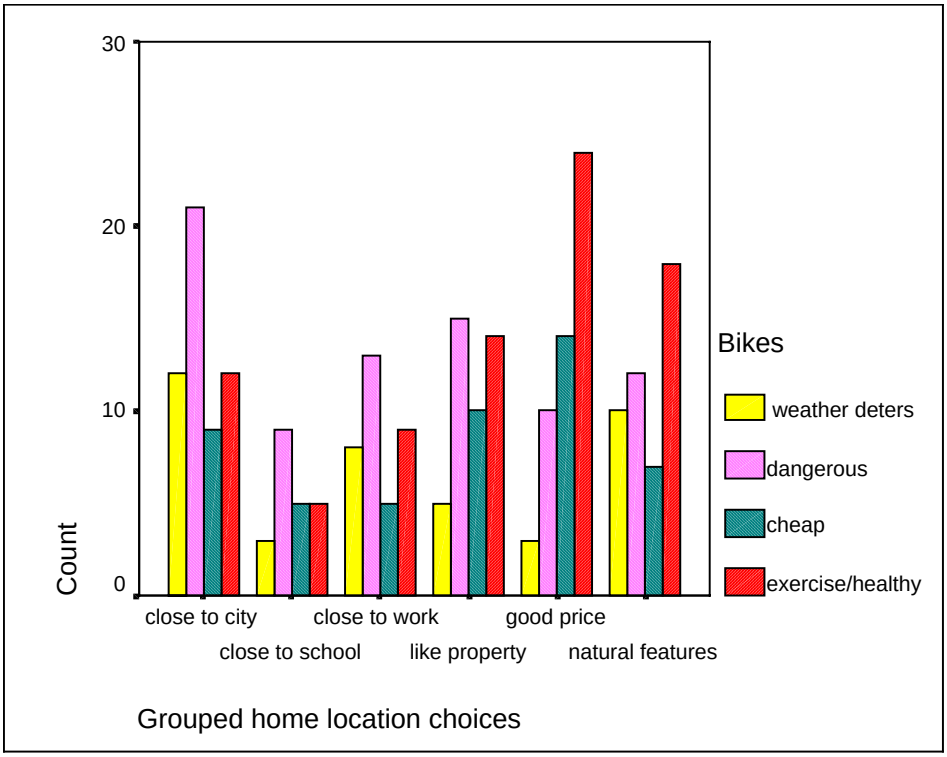
Chart group A23.1 Home location choices







Selected home location choices



Grouped home location choices

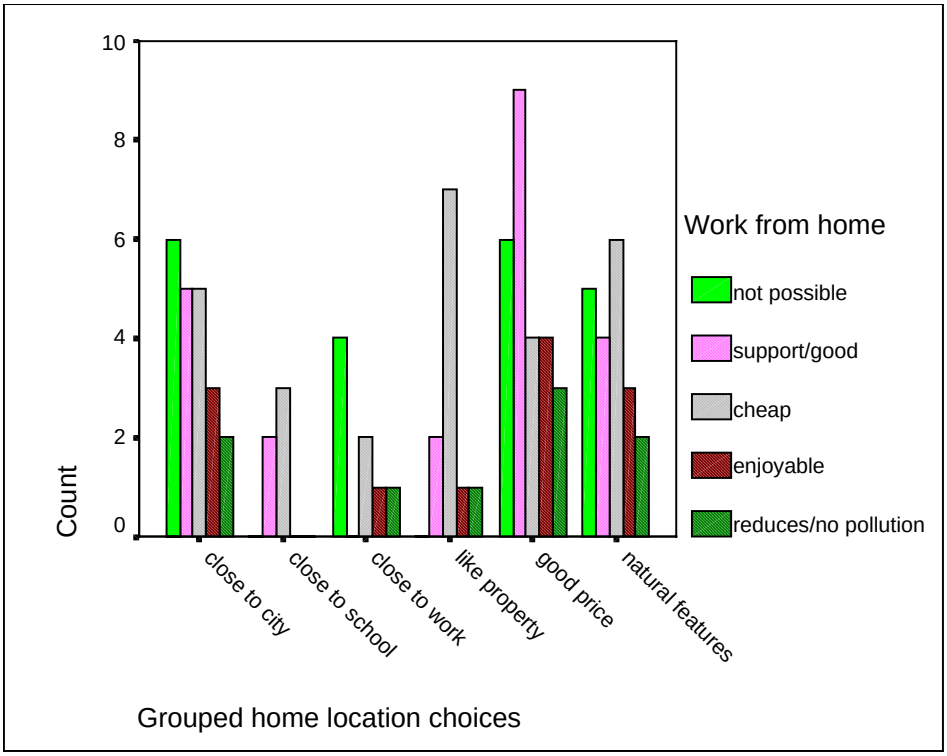
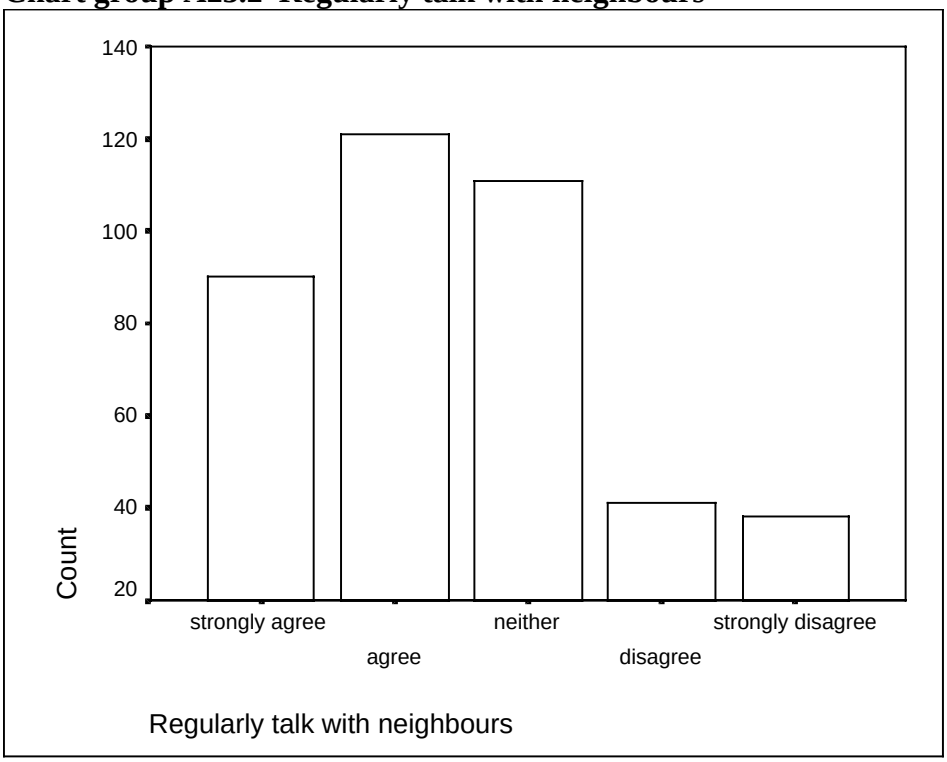
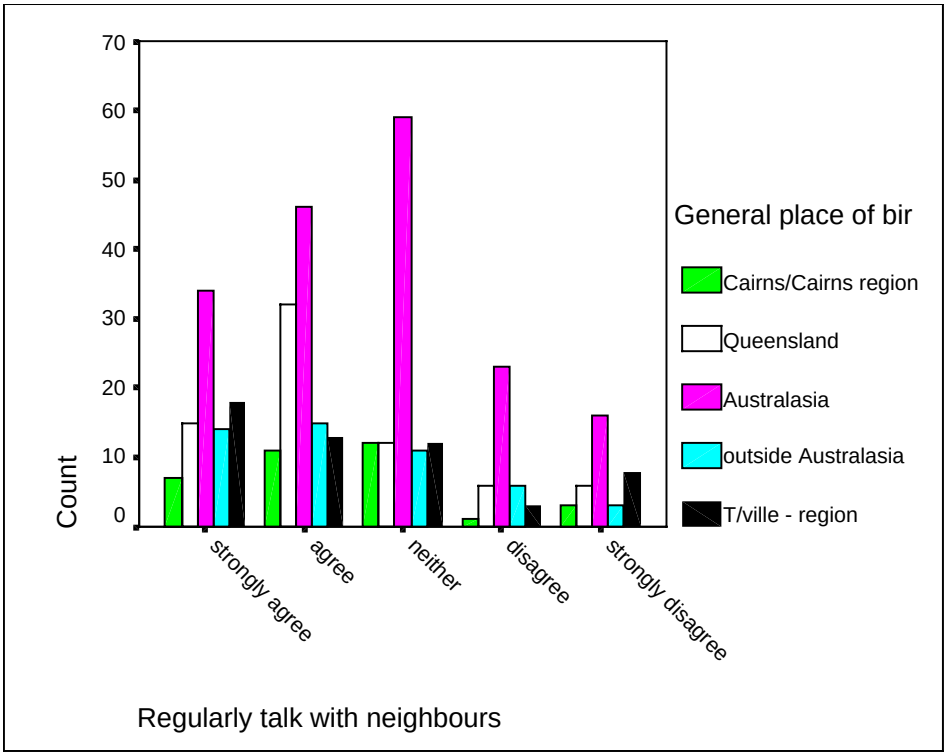
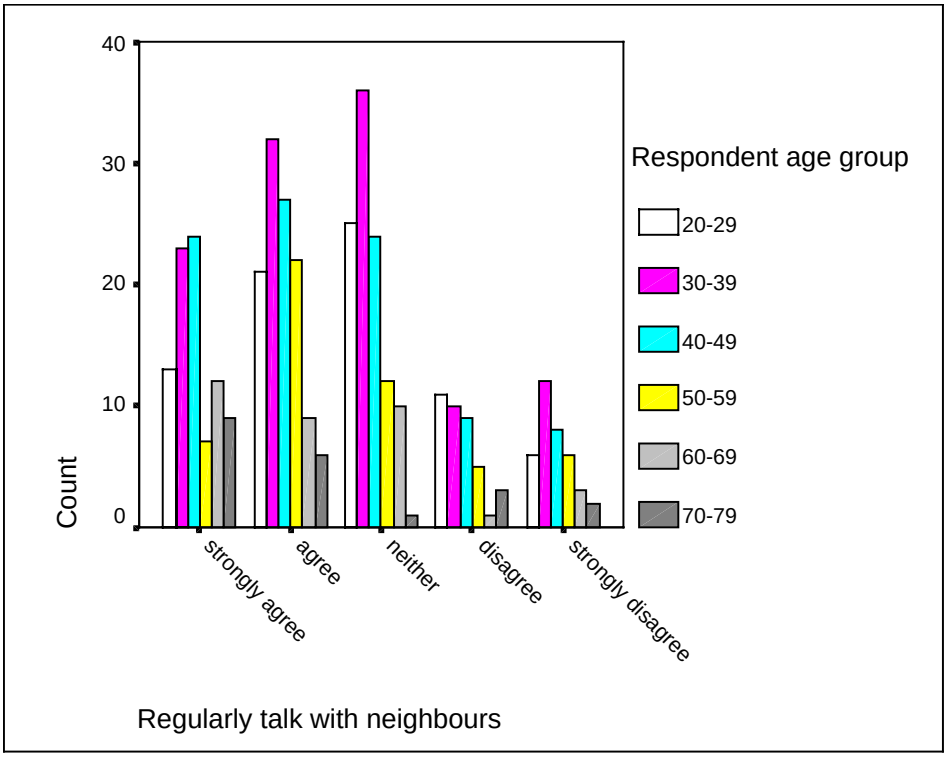
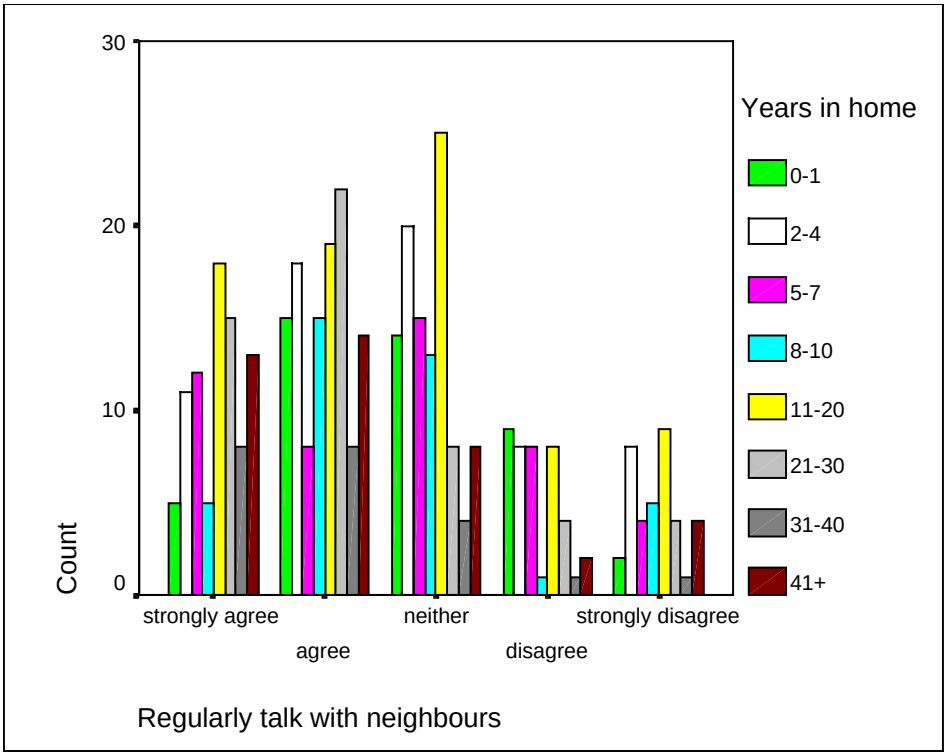


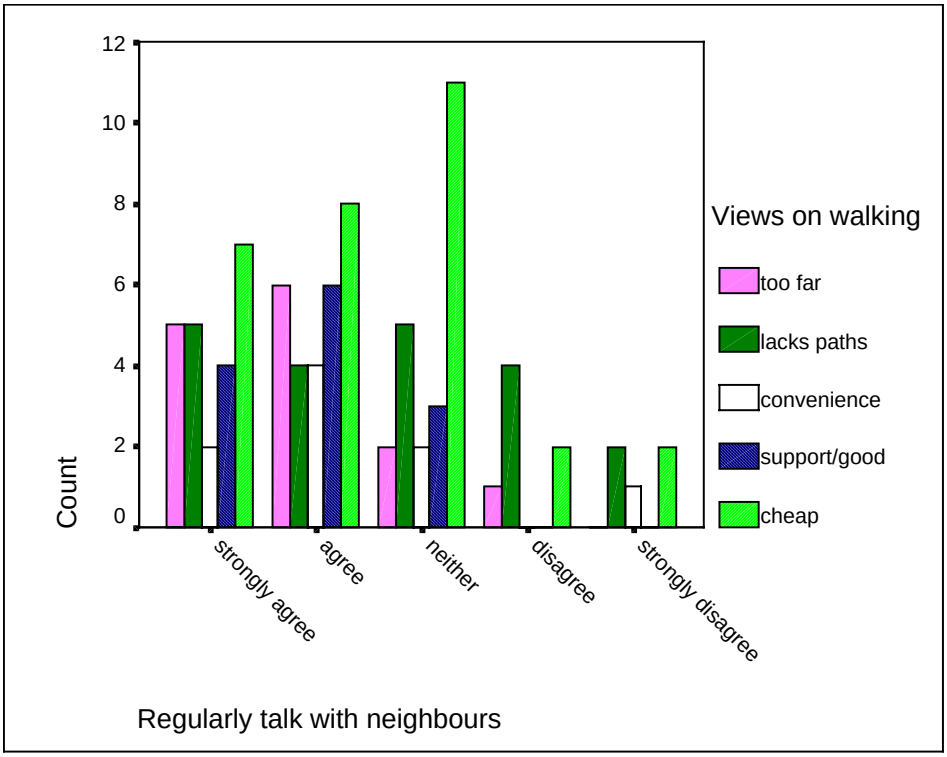
Chart group A23.2 Regularly talk with neighbours




70
60
50
40
30
20
10
0
Count
strongly agree
agree
neither
disagree
strongly disagree
General place of bir
Cairns/Cairns region
Queensland
Australasia
outside Australasia
T/ville - region
Regularly talk with neighbours


40
30
20
10
0
Count
strongly agree
agree
neither
disagree
strongly disagree
Respondent age group
20-29
30-39
40-49
50-59
60-69
70-79
Regularly talk with neighbours


30
20
10
0
Count
Years in home
0-1
2-4
5-7
8-10
11-20
21-30
31-40
41+
strongly agree
agree
neither
disagree
strongly disagree
Regularly talk with neighbours


12
10
8
6
4
2
0
Count
Views on walking
too far
lacks paths
convenience
support/good
cheap
strongly agree
agree
neither
disagree
strongly disagree
Regularly talk with neighbours

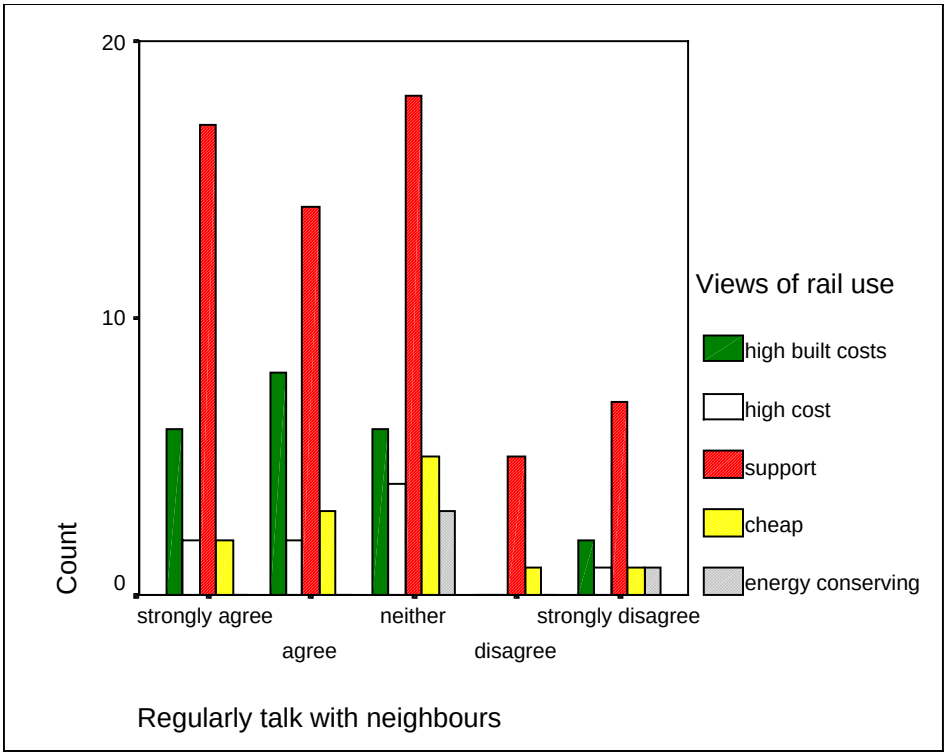
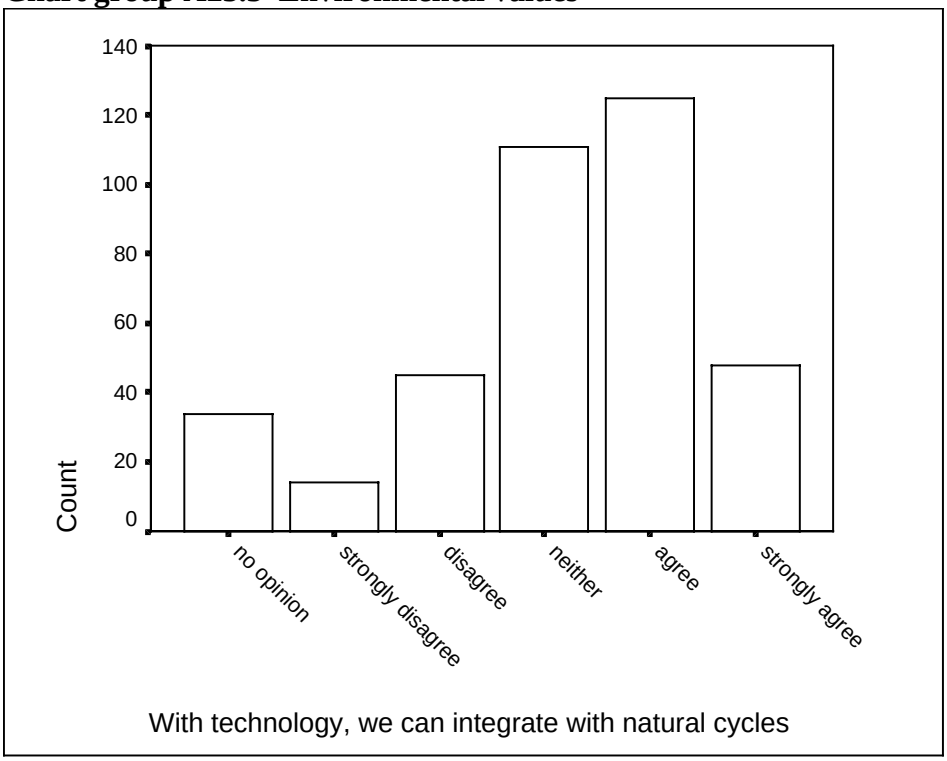
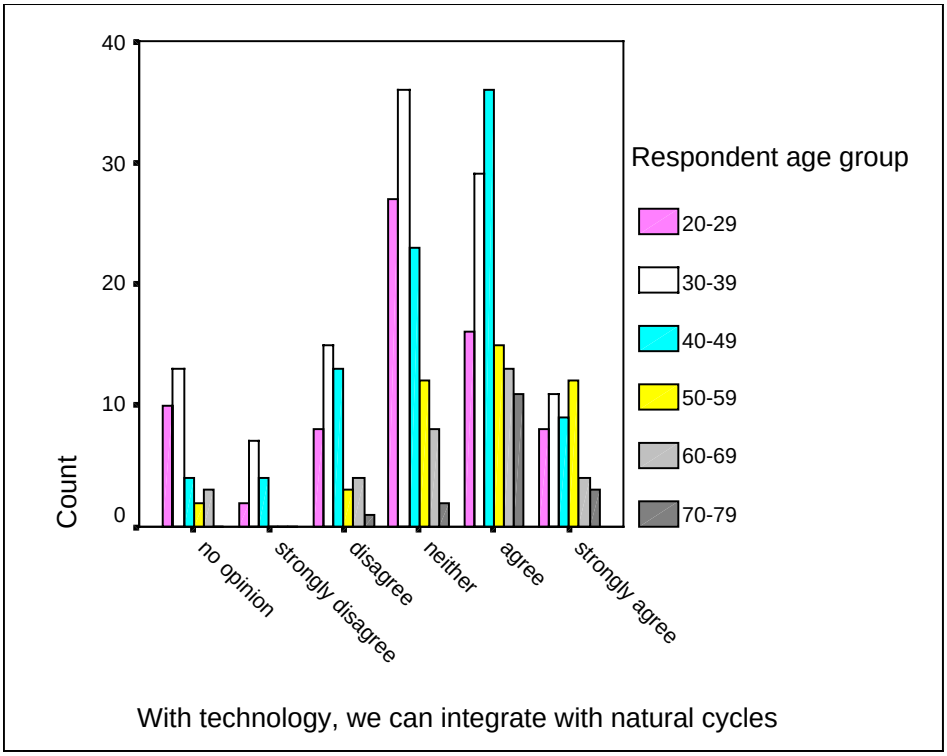
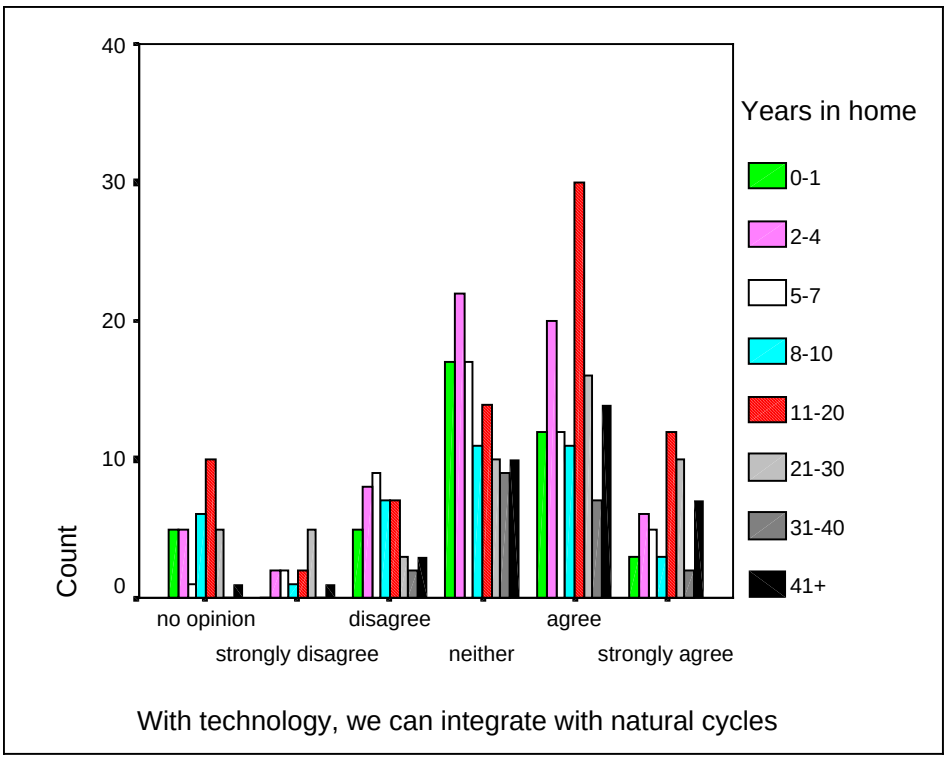


Chart group A23.3 Environmental values

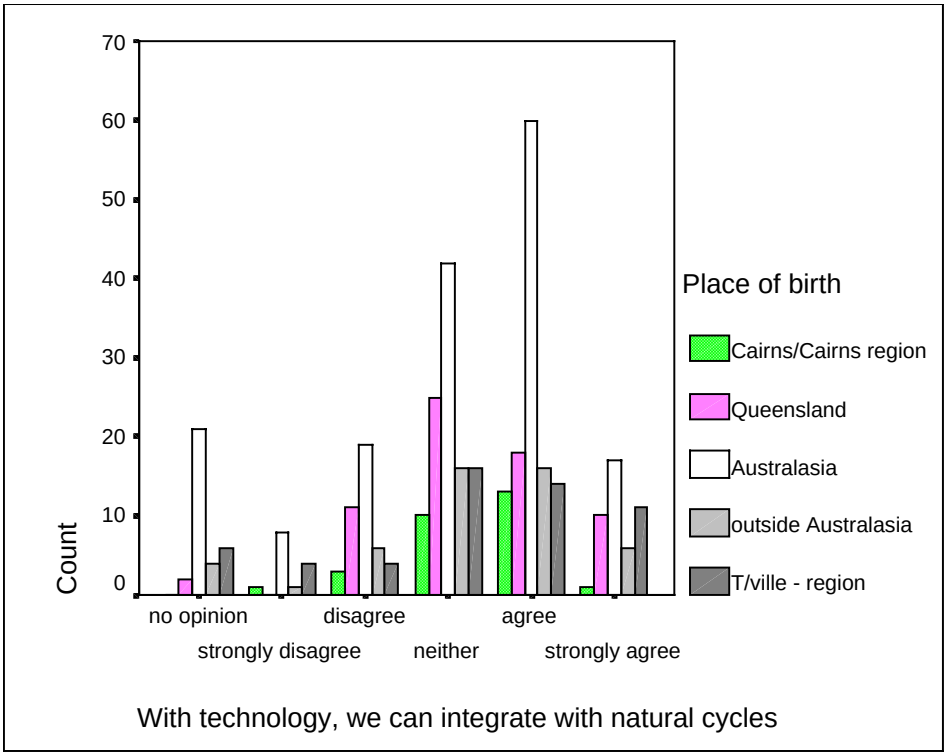




With technology, we can integrate with natural cycles



With technology, we can integrate with natural cycles


70
60
50
40
30
20
10
0
Count
no opinion
strongly disagree
disagree
neither
agree
strongly agree
Place of birth
Cairns/Cairns region
Queensland
Australasia
outside Australasia
T/ville - region
With technology, we can integrate with natural cycles

Attachment 23

Draft North Queensland Urban Travel Database Guide

Background

The following guide is for use with the urban travel database on the accompanying 100Mb-zip disc entitled *North Queensland urban travel database*. It has been developed for use by planners and for research purposes; the result of extensive household urban travel survey work carried out in Townsville and Cairns in 1996/97.

The full data sets in SPSS are included on the disc, along with many generated graphs and the texts of urban travel analysis for both centres. Parts of the analysis and write-up phase have been assisted by a $20,000 scholarship by Queensland Transport, supporting this PhD. research.

The applied aim of this research was to develop an analysis frame which will be applicable to other centres, or portions of more complex urban travel dynamics in large cities. Although the research has a tropical focus, issues of climate could be modified to suit other climatic regimes.

The SPSS data set contains all recorded data, and has been checked through exhaustive use, accurately portraying 161 variables, with up to 80 codes for some of the written responses from over 400 householders for issues like value placed on current urban travel, or beliefs about future urban travel.

The following guide shows how the database was constructed, the rationale, the data selected for inclusion, and ways for planning practitioners to ‘query’ the data.

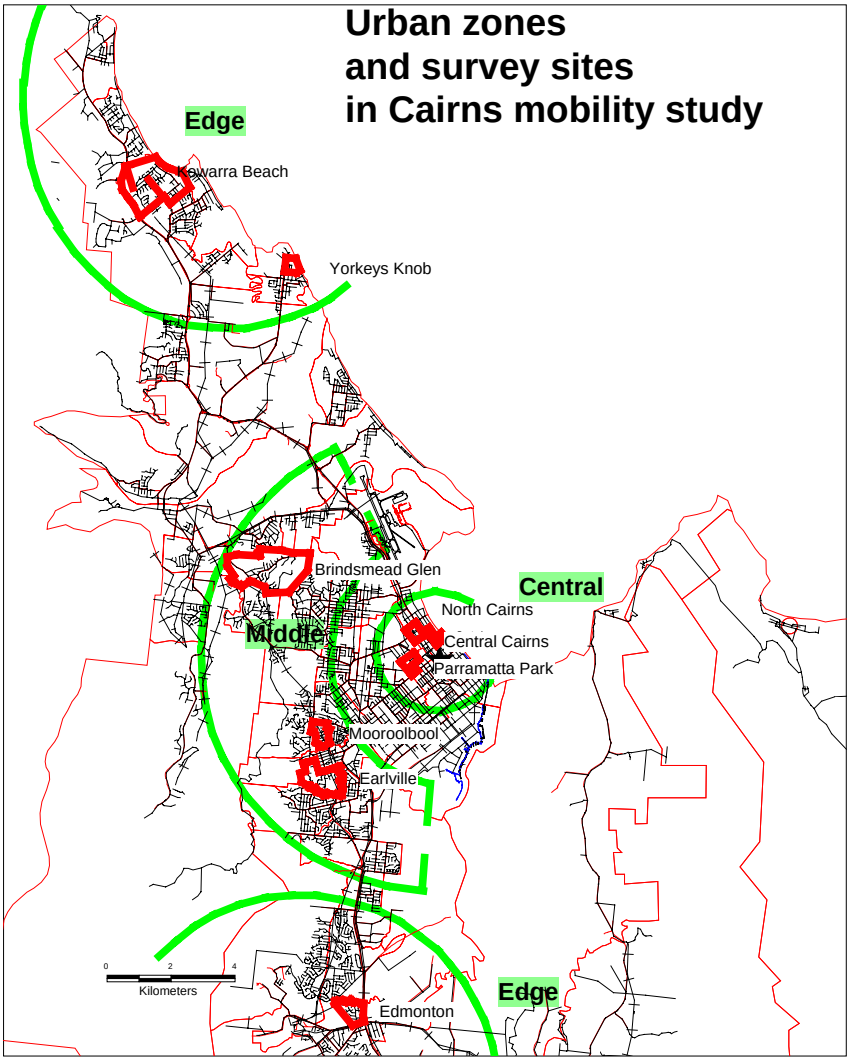
Brief

The database brief was to develop a ‘user friendly’ database to easily link issues of recorded travel behaviour of over 1000 householders, making 3,500 recorded urban trips. This travel detail, through the database, is linked to demographic and locational realities, along with stated values and beliefs of the 400 main householders who filled out the bulk of the long and complex drop-off and pick-up survey form.

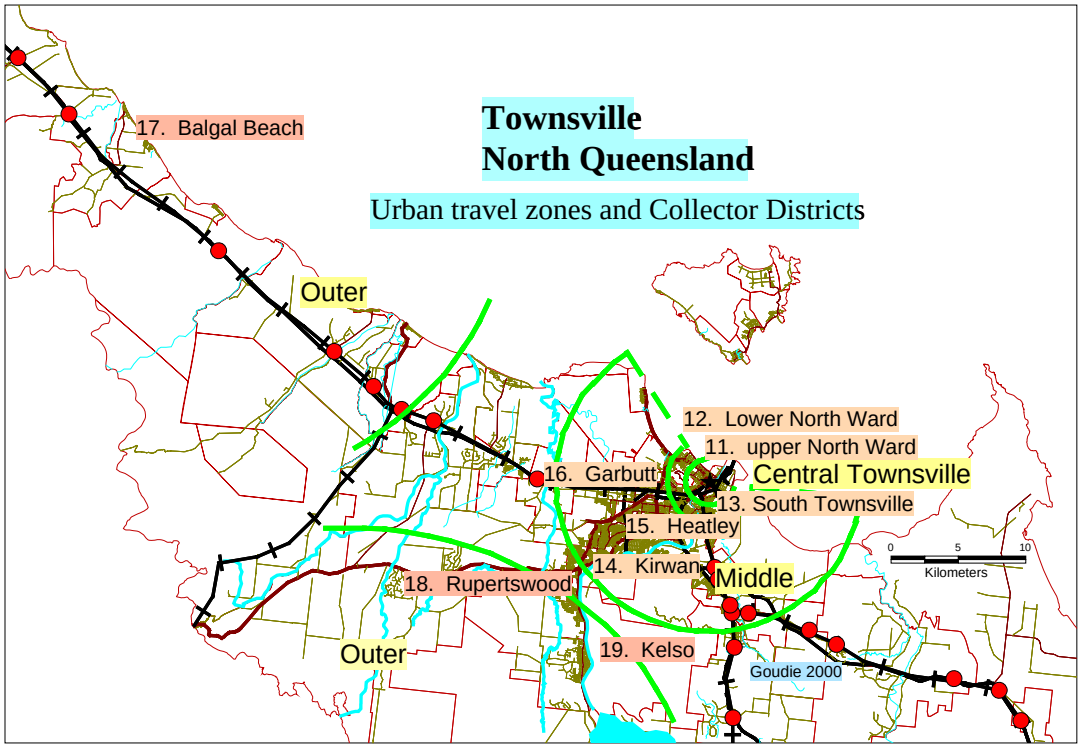
Guide format

There are two basic levels to this guide – a ‘walk-through’ in ordinary font, and *a more detailed recipe, a ‘how-to’ in italics.* An example of the first is that the results are generally offered at the zone level, and combine results from Townsville and Cairns, so most results relate to the overall sample, or to the zones: distances from the Central Business District of each centre. To properly understand the zone-based results, refer to maps 1 and 2. These maps are available from the main switchboard of the database, and may be manipulated by the user.

Map 1 Cairns zones and Collector Districts


Urban zones
and survey sites
in Cairns mobility study
Edge
Kewarra Beach
Yorkeys Knob
Brindsmead Glen
Central
North Cairns
Middle
Central Cairns
Parramatta Park
Mooroolbool
Earlville
0
2
4
Kilometers
Edge
Edmonton

Map 2 Townsville/Thuringowa zones and Collector Districts



The above maps provide a comparison between the two centres. Tests show statistical differences between zones. Zonal distance from the CBD gives extra analytical power to the North Queensland Urban Travel Database (NQUTD) for practitioners to make database queries.

Based on generalisations developed in earlier reports to QT, the variables listed at the end of this guide are included in the database Tables. If any user wishes to add further variables from the SPSS files, follow this guide:

> *First save SPSS file as a .dbf(IV) file. Copy variable column from SPSS (as .dbf), open Access DB, position cursor, then click file, then <u>past append</u> for first column. Copy next (and subsequent) column(s), highlight area in Access where you wish to paste column, then paste.*

> Also, *to duplicate tables in Access, open into design view, file/save as/to external file or database; import to same database.*
>
> *To develop a new table from SPSS into Access, highlight 1st. to last in an SPSS data column (after converted to .DBF IV), copy. When pasting into Access, makes sure Access Data Type is appropriate to the SPSS data type.*
>
> *Once a table is established, click the whole SPSS column, copy, then click the Access column heading, then paste.*
>
> *Because Access needs a unique key column, in Design View, Data Type column, you can select AutoNumber to automatically provide a list of unique values for the key value.*

Clicking on the database NQUTD n activates the main switchboard of the database. The Switchboard will automatically open. It is hoped that operation is self-explanatory. The next portion of this guide is included under the 'Introduction' button on the main switchboard, seen as the database opens. If you wish to access some of the raw data, just click on the 'View raw data" button, then choose the table you want.

To view charts from the main switchboard, click "View charts"; "Open chart folders". This takes you to a small table within the database. The left-hand column describes the types of charts available. The next column invites you to click on the Microsoft Word document with the type of charts you may be interested in for Townsville. The third column allows you to access the chart folders for Cairns (The combined NQ charts have not been finalised at time of database hand-over to QT – 1.3.2000).

Returning to the main switchboard, maps may be similarly accessed, assuming MapInfo 4.5 is available on the machine or network in use. Because of some quirks on the MapInfo software used to construct the maps, when MapInfo 4.5 is activated, the

program may inform the user: ‘Cannot find … Report Wizard’. Click ‘continue’; so too for not being able to find ‘Scalebar’ and ‘Universal Translator’. In short, you may need to click ‘continue’ three times as MapInfo activates. If there are problems locating a file within the map workspace, all the mapping tables are held in
Zip drive (probably D),

0 0 QT zipdisc

NQ maps

Townsville or
Cairns

These maps may be manipulated in full, like any MapInfo workspace – zoom in, add or remove layers to gain images of use to you. **A word of caution**: because these are interactive maps, the files may become corrupted through misuse – it may be best to make a copy within your main MapInfo work area.

Queries are also available: one is already developed for consultation, but you are encouraged to develop your own to suit within the main Tab “Queries” of the database. If you move outside the simple switchboard system, it is easy to return through the Tab ”Forms”, then click the “Switchboard” form.

More information is available through Douglas Goudie, Douglas.Goudie@jcu.edu.au, 07 47 814913 or 07 47 726387.

Appendix 25

Condensed urban travel survey instrument

……. Urban Mobility Study

Dear resident
Knowing how much people walk, cycle, use motorbikes, drive, share rides, use buses or taxis will help planners to understand current and future urban travel. Planners are also interested in the views of residents about the way **…….** is laid out. I am conducting a survey to learn details of current urban travel, and how people think and feel about that current travel. The research also aims to learn how people think and feel about future urban travel. I hope you can make time to fill in the attached questionnaire.

Only .n. randomly selected households are being surveyed in **……..**, so that you and your household can make a meaningful contribution to planning. **If there are any difficult questions, leave them blank, and I will help with them when I come to pick up the form.**

The survey is about your household's current urban travel; how you think about that travel, and your preferred urban travel patterns. The survey is endorsed with interest by **……..**.

Participation in this survey is **voluntary** and all information will remain **strictly confidential**. This is an anonymous survey, but the general location of your house, along with others in the survey, may be included in maps.

This gives **your household** a chance to represent people like yourself,
to express your views about the way urban movement is catered for in our urban area.

Taken step by step, I hope you find the survey questions thought-provoking and interesting!

Yours

Douglas Goudie (JCU Urban Researcher, TESAG 077 47814913).

This Questionnaire will be picked up from (eg letterbox) .....

On the (date) .....

Nearest intersection .....

Residents Travel Study
James Cook University North

Q1. *Please circle* whether you live in a:

House Unit Flat

Part A Choice of home, and current travel details

A1. Most urban travel which is not work-related is to and from home, so the first important question is why we chose to live where we do. Please tick the one over-riding reason you chose to live at your current address (rather than anywhere else).

Near main destinations …….. **O**
Attracted to the house/yard ……. **O**
Natural attractions of local area …….. **O**
Price … ……. **O**

Please complete one coloured sheet for each household member over five years of age.

*Just include a record all movements made on **Friday**. Please include all walking, cycling, driving, taxi, car passenger, or bus trips.*

If there is not enough space, for this or any other sections, please label and write extra information on a separate sheet.

CURRENT MOVEMENT FORM - please fill out one coloured sheet for each person over 5 years of age who normally lives here.

A2 Male / Fem	age **.....**	Occupation **.....** FT, PT *[circle]* , or year at school .....

A2.2 DETAILS OF ALL TRAVEL LAST FRIDAY.

Please include all walking
Indicate each return journey, (home to home), and stops along the way.

time of day **started**	**Destination-** please include (general) addresses for later mapping	**Purpose** also, write **fares** or **parking costs**	**Transport used**. include walking or push-bikes	Alone, or passenger if not obvious (**A** or **P**)	**distance travelled**

A4.1 Do you own a car? *[please circle one*] **yes** **no**

A4.2 Do you drive a car? *[please circle one*] **yes** **no**

A4.3 How often do you or other household members drive a car?
[please tick one]

[] never	[] rarely	[] 1 -3 times per month	[] 1 - 4 times per week	[] 5 -10 times per week	[] more than 10 times per week

Part B - Home location and travel choices

B1. Please rate how easy it would be for you and other household members to get to each destination without a car. *[circle]*

Rating: N/A = Not Applicable 1 = very difficult, 2 = difficult,
3 = neither difficult nor easy, 4 = easy, 5 = very easy.

	Very difficult					very easy
Supermarket or mall	N/A	1	2	3	4	5
Work	N/A	1	2	3	4	5
City	N/A	1	2	3	4	5
School	N/A	1	2	3	4	5
Recreation/friends	N/A	1	2	3	4	5

B1.1. Which three destinations are most important to you and other household members?

Most important ....., 2nd....., third.....

B1.2. Considering all aspects, how easy it would be for you and other household members to manage without the use of a car {circle one number}.

Very difficult very easy

1	2	3	4	5

B2 What are some of the strengths and weaknesses of driving a car?

.....

.....

B3 How attached are you to your present home (please circle a response):

1. Definitely want to move, 2. would like to move, 3. Would not mind moving or staying, 3. Prefer to stay here, 4. Definitely want to stay here.

If you chose to move: *I would move to ……., because ……*

Public transport

B4. How often do you personally use buses*? [Please circle one number]*

1. Never	2. Virtually never	3. 2-3 times/month	4. More than once per week	5. Nearly every day

B5. If you or other household members use the bus service more than once per month, please rate the following features of the bus service in Cairns, as you know it.

Rating

1 = very poor, 2 = poor, 3 = neither poor nor good, 4 = good, 5 = very good

	very poor				very good	
convenience - stops for pick up and drop-off are close to your needs	1	2	3	4	5	rank
reliability	1	2	3	4	5	
connections	1	2	3	4	5	
frequency	1	2	3	4	5	
comfort	1	2	3	4	5	
speed	1	2	3	4	5	
affordability	1	2	3	4	5	
passenger information	1	2	3	4	5	
other *[please specify] .....*	1	2	3	4	5	

/

B6. Please rank three of the above in order of importance to you (in the last column).
(1 = most important)

B7. What are some of the strengths and weaknesses of the bus service in **……**

.....

.....

Cycling

B8. What are some of the strengths and weaknesses of pushbike use?

.....

.....

Local walking

B9. What are some of the strengths and weaknesses of walking to local destinations?

.....

.....

Car ride-sharing, or car pooling

B10. What are some of the strengths and weaknesses of ride-sharing?

.....

.....

B11. (where applicable) What are some of the strengths and weaknesses of working from home one or two days per week?

.....

.....

B12. What would be some of the strengths and weaknesses of using light or heavy rail transport for urban travel in the **…….** area?

.....

.....

Part C Perceptions of the people/environment interaction.

Please rate the following statements, depending on how strongly you disagree or agree with them.

Rating: DK = don't know, 1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = strongly agree.

	strongly disagree					strongly agree
Belief /Rating:	DK	1	2	3	4	5
Putting people and nature at possible risk is acceptable to maximise wealth.	DK	1	2	3	4	5
Present decision-making structures and institutions are satisfactory.	DK	1	2	3	4	5
Technology will overcome all obstacles to our continued well-being.	DK	1	2	3	4	5
With new fuels, we will continue using vehicles as we do at present.	DK	1	2	3	4	5
With technology, we can integrate with natural cycles.	DK	1	2	3	4	5

Part D - Views, values and beliefs about current and future travel

D1. Many experts predict that peak production of petroleum will occur around 2007, followed by declining output from oil wells. When do **you** think the peak of petroleum production will occur? ……

The future is the most interesting consideration for planning. Your thoughts, especially to this section, will be considered with great interest.

I would now like you to write a little on: ....

D2. your perceptions of urban mobility now (what you think of the way we travel around at present):

.....

.....

D3. how **you** value and think about your current urban travel :

.....

.....

D4. your beliefs about mobility in the future:

.....

.....

D5. What easy changes would definitely help you or other household members to reduce your car use?

.....

.....

D6. Are there other things that you think we might use or do to **easily** reduce our use of petrol, diesel or gas (LPG)?

.....

.....

D7. If you knew that petrol was going to sharply increase in price, what would you do, and what sorts of changes would you like so that your household needs could continue to be met?

.....

.....

Part E Demographics

Finally, a few questions to make statistical comparisons between households.

E3. Approximate age of building..... yrs.

E4. Ownership of your house/unit/flat:: Own outright, Buying (mortgage), Rent.
[circle one answer]

E5. What is the highest level of education achieved by anyone in your household? *[circle one answer]*
School year: 8, 9, 10, 11, 12 TAFE, University *[please specify level gained]* .....

E6. Type and number of cars privately used by household members.
sedan(s) ..... (number of **cyl**inders), age ....; ..... cyl, age ....; ..... cyl, age ....,

stationwagon(s) ..... cyl, age ....; ..... cyl, age ....; ..... cyl, age ....,

ute(s) ....cyl, age .....; ..... cyl, age ..., **4x4**(s) ....cyl, age.....; ..... cyl, age .....

motor cycle(s) CC ....., ... cyl, age .....; CC ....., ... cyl, age ....

E7. Is a car provided by an employer .....

E10. Estimated total $ per week spent on (a) fuel..... (b) public transport .....
(c) parking .....

E11. Please indicate approximate annual household income *[circle one]*
($,000)

0 -15	15 -25	25-35	35-45	45 - 65	65 +

E12.2. Number of pushbikes used by householders more than one time per week .....

E13. Distance to nearest convenience store .....

E14. RESIDENTS summary - Please fill out details of people who normally live here.

Resident:	1	2	3	4	5
Sex					
age					
occupation					

Thank you very much for your patience. With your input, the outcomes of this survey may benefit the future of our urban environment. Douglas Goudie, c/o JCU, 07 47814913.

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Although you have agreed to a voluntary and confidential taped interview, I am obliged by the rules of James Cook University to gain your written permission to record the following interview, which will be used to gain greater insights into your perceptions of current and future urban travel in Cairns. The information will, like the questionnaire, remain anonymous, but portions may be generalised with other responses, or quoted as representing a resident's point of view.

The following interview number:..... will link your verbal responses to your written responses and the general location of your home, so that opinions can later be mapped.

I ..... (PRINT name) CONSENT TO TAKE PART IN A TAPE-RECORDED INTERVIEW WITH DOUGLAS GOUDIE, of James Cook University, to record how I think and feel about current and future urban travel. I understand that this form will, on demand, only be shown to the James Cook University ethics committee. Once the interview is typed into written form, I understand that the tape recording, and this letter of consent with my name, will be destroyed to preserve confidentiality.

Signed ..... DATE .....

Appenxix 26 Experts package

Douglas Goudie
Sustainable urban energy planning
13/07/00

Dear _____
I am writing to you because of your urban transport and planning interest. The package covered by this letter contains recommendations from my near-complete PhD., ***Toward Sustainable Urban Travel***. I am writing to you with the request that you peruse this material, then fill out the accompanying questionnaire. The final stage of my PhD. is to construct an expert decision support system from the input of decision-makers, practitioners and theoreticians, hence this request to you. The accompanying questionnaire can be returned by mail, or, off the accompanying disc, via email: Douglas.Goudie@jcu.edu.au

The practical goal is to help to reduce urban car use, particularly solo car use, initially focused on the two centres of Cairns and Townsville, North Queensland. These are examples of small but growing cities, currently very car dependent in structure and behaviour. The list of other canvassed experts is attached. The full list of contributing experts will be embedded in any further use of the decision support system.

On a personal level, I hope to attract and conduct short consultancies (up to 3 months) to survey, analyse and provide recommendations for cities, particularly in Asia- Pacific, interested in reducing car use. Surveys will be simple enough to identify the 'soft' ways to reduce car use in that city, using and adapting the analysis frame developed through the exhaustive PhD. process. The primary goal and cost saving is to develop and implement recommendations to defer the need to expand the road network until inevitable fuel price rises force motorists to economise their car use, and demand and enact viable, inexpensive alternatives.

Yours in anticipation

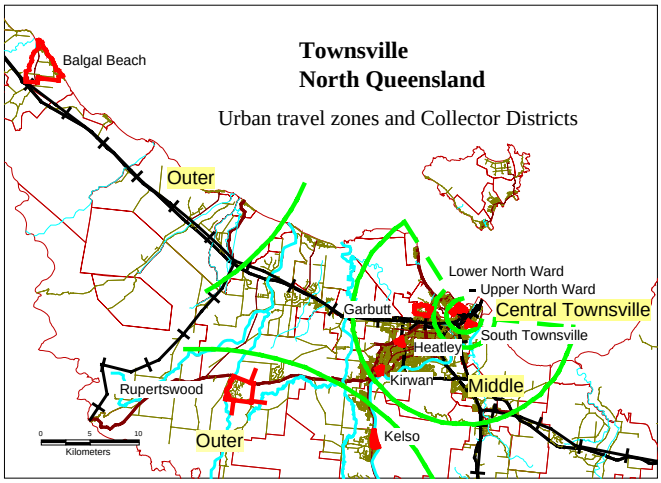
Douglas Goudie MSc.

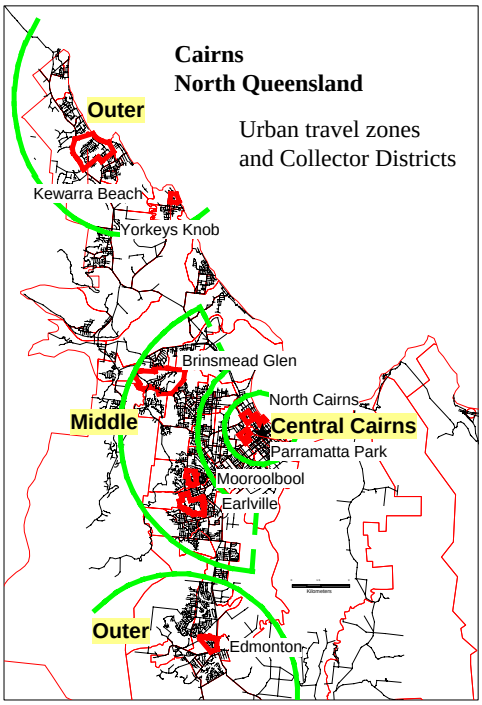
Recommendations from PhD thesis

Toward Sustainable Urban Travel

North Queensland

Cairns and Townsville, 1996 - 2000.





Douglas Goudie MSc.
School of Tropical Environment Studies and Geograpy,
James Cook University
13.7.2000.

Executive summary

The following recommendations derive from the near-finished PhD. Thesis*: Toward Sustainable Urban Travel*, seeking your input to help define acceptable strategies for more sustainable urban settlements. Copies of these recommendations have been provided to planners and theorists like yourself to gain your feedback to construct a simple decision support system, an expert system to further clarify 'soft' options to reduce car use, particularly solo car use.

After aims and reasons for the research are given, the context for the North Queensland (NQ) study is set, focused on car-reducing suggestions from the NQ public. This summary ends in recommendations and a short questionnaire for your input.

Urban car use consumes much petroleum, facilitates car dependent growth and is enjoyed by nearly everyone. Cars are ubiquitous, convenient and generally the preferred mode of travel, although their negative impacts are well understood.

Impending petroleum depletion will become a defining time of change in urban travel. Global policy and theory support reduced car use. The research defines current urban travel, values and beliefs about future urban travel. Cairns and Townsville are ideal study sites, isolated microcosms easily representing larger, more complex transport systems. This summary includes how 400 householders believe they may easily reduce current car use.

The survey stratified the subject cities into three zones from the centre to the urban fringe because home location choice profoundly effects most subsequent travel. The exploratory survey recorded 28,000 Km of travel data during 3,500 trips made by 1,068 residents during one Friday of urban travelling.

This substantial data set showed that cars were used for 80% of NQ urban trips, covering 90% of the distance travelled. Non-motorised trips accounted for only 3.5% of the 28,000 Km. travelled. Outer residents travelled about the same number of trips as other residents but averaged two to three times the distance per trip. Urban distance travelled is very dependent on home location choices and residents are very self-aware of car dependence. The main reason for central living from respondents was proximity

to usual destinations. This was true for the middle zones, along with property prices. Outer zone residents chose their homes because of natural features or large size of the house block. There may be different reasons in different population centres.

While recognising it to be very car dependent, people were generally satisfied with current urban travel in NQ. There was widespread belief that better public transport and better planning of trips would reduce car use. Walking and cycling were seen as healthy exercise, but dangerous. There was a uniformly high level of environmental awareness and concern. People generally understood sustainability issues, and often were quite sophisticated in that understanding.

A simple theoretical model was developed to help link internal and external space with price signals and changed urban travel behaviour. Price signals underlie choices of home location and urban travel options. Although environmental issues associated with gross car use are understood by the public, the sheer convenience of cars means they will dominate urban travel until other modes become safer and more attractive. The main long term deterrent to gross urban car use will only be impending and major rises in the price of fuel.

Queensland Transport sought early output from this research and provided a scholarship. This Doctoral research has been undertaken at the School of Tropical Environment Studies and Geography, James Cook University.

Douglas Goudie (MSc.) 13.7.2000

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Expert's questionnaire

You are encourages to fill and return (electronically to Douglas.Goudie@jcu.edu.au, or mail) the following Questionnaire.

No names will be linked with any of the specific, written or scale responses. Please tick your choice. If you wish to abstain from any of the following statements for any reason, please do.

Name ……..
(deleted/blanked out on receipt).

After scoring the following statements, please rank – in the left-hand column- **your top ten contenders <u>(10 rates highest – the most important, in your view)</u> to commence immediate implementation).**

Likert scale
1= strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

Rank	Statement/ Likert scale	1	2	3	4	5
	Looming fuel scarcity is likely to cause major fuel price increases within 10 years.					
	Reducing overall urban car use is an environmentally sound goal.					
	A mix of responses is needed to reduce urban car use.					
	I support facilitation of walking and cycling.					
	Safety must be addressed for all non-car modes.					
	Aggressively move to close the gap between policy and provision of non-car infrastructure.					
From here the statements follow the same order as the accompanying recommendations						
	'Soft' changes should be implemented ahead of demand.					
	Use social marketing to help link environmental concern with car use reductions, especially during peak hour.					
	Much meaningful car reduction is unlikely until significant cost increases for car use.					
	Socially market bus use, walking and cycling as 'normal'.					
	Encourage and facilitate legally sanctioned ride sharing.					
	It will take substantial infrastructure and pricing changes to make a great deal of difference.					
	Provide secure parking and showers for cyclists.					
	Ensure conditions which make walking, cycling and public transport use feel safe.					

Likert scale
1= strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

Rank	Statement/ Likert scale	1	2	3	4	5
	Design					
	More assertively implement nodal development linking residential land use with proximate usual destinations.					
	Encourage and facilitate the meeting of as many needs as possible in the neighbourhood or a near node.					
	Make city centres and urban nodes more people oriented, at the 'human scale', with mixed land use and pedestrian zones.					
	Create better walking, cycling and public transport infrastructure to help legitimise those activities.					
	Minimise further facilitation of car use.					
	Make urban areas legible, easily 'read' and understood, and permeable to non-motorised travel.					
	Develop traffic calming in pedestrian precincts.					
	Constrict fringe growth by charging full service provision and infrastructure upgrade costs to fringe developers.					
	Travelling changes					
	Develop a process where residents may indicate preferred bus times, routes and destinations to produce a map of bus demand.					
	Provide a demand sensitive array of bus sizes, times and routes.					
	Allocate light rail routes connecting the main nodes designated in the regions' strategic plans.					
	In any implementation of light rail, special attention needs to be given to noise.					
	Develop interchanges where drive, cycle or walk to a bus or rail terminal is facilitated.					
	Start the process of piloting urban rail along the existing southern route into Cairns.					
	Develop 30KPH traffic calming in the city centres, helping make the pubic transport speed competitive, and walking and cycling safer.					
	Price signals and reducing travel needs					
	Increase parking charges for commuters.					
	Pay employees not to park in company-provided parking.					
	Pay proportionate registration through fuel price, financially rewarding low car use.					
	Provide sub-offices at nodes for some central-place services.					

Likert scale
1= strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

Rank	Statement/ Likert scale	1	2	3	4	5
	Localising social networks and behaviour					
	Facilitate neighbourhood socialising through neighbourhood houses.					
	Encourage planned multi-purpose trips through community service announcements.					
	Encourage ride sharing through community service announcements.					
	Encourage delaying discretionary trips through community service announcements.					
	Encourage an understanding of environmental and dollar savings by making discretionary journeys outside the peak times.					
	Support social suburban nodes and networks.					
	Support informal surveillance.					
	Walk and cycle					
	Facilitate walking and pushbike use through greater continuity of paths.					
	Facilitate walking and pushbike use through driver awareness campaigns.					
	Facilitate walking and pushbike use (in the tropics) through greater shading and drinking taps.					
	Facilitate walking and pushbike use by asking users or potential users to physically identify problem areas.					
	Ride share					
	Ride sharing needs to be seen as part of a strengthened social local or work network.					
	Encourage a legal protection for people who wish to ride share.					
	The Internet can act as a clearinghouse to link people at the local level with demographically similar people, home locations, destinations and travel times.					
	Changing work patterns					
	Encourage working from home one or more days a week where possible.					
	Encourage use of a compressed working week, working four 10 hour days, spreading the peak					
	Legitimising preferred behaviour					
	Encourage public figures within the political process to lead by example, a move towards more trips which are shared with others, rationalised, or made by walking and cycling.					
	Provide detailed route and times at each bus stop to help people identify and catch their required bus.					

Likert scale
1= strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

Rank	Statement/ Likert scale	1	2	3	4	5
	Employers and schools					
	Encourage major employers and schools to consider staggered start and stop times to disperse the extremes of the morning and evening peaks.					
	Encourage schools to help organise car pooling for staff and students.					
	Encourage schools to help organise group bike riding to and from school (bike trains).					
	Encourage employer-promoted alternative transport plans, such as ride sharing, bus or cycle use.					

Please remember to rank some of the above statements in your perceived order of effective, easy ways to reduce car use. Place numbers 1 – 10 (10 scores highest) in the left-hand column, ranking your top ten contenders to commence implementation.

Thank you for your expert input. The results will be incorporated into the PhD write-up (fully submitted in draft form at 6.6.2000, bar the expert input) and published, hopefully, through an accredited international journal.

You are welcome to note below any further feedback on the project, or return the provided material with any notes. Remember, the material is just focused on recommendations for your feedback, to help provide public and expert input to practicing federal, state and local government politicians and planners.

The accompanying disc has been cleared by *McAfee Vshield 1999* Anti-virus software.

Please return this questionnaire to Douglas.Goudie@jcu.edu.au, or mail to
Douglas Goudie, sustainable urban energy researcher,
Tropical Environment Studies and Geography, James Cook University,
Townsville North Queensland, Australia, 4811.

Expert list, recipients of Goudie's PhD. Context and recommendations from *Toward sustainable urban travel*, and the Expert's questionnaire.

List A – local or prior contact

Expert	Returned responses
Lal Wadhwa Associate Professor and Head, Civil and Environmental Engineering; James Cook University; Townsville; Q 4811	Y
Councillor Jim Gleeson Chairman Transportation and Traffic Committee; Townsville City Council; 1/60 Cook St., North Ward; Q 4810	Y
Peter Foxwell Director, Environmental Services; Townsville City Council; PO Box 1268; Townsville 4810	Y
Andrew Bullen Manager Strategic Planning; Planning and development services; Townsville City Council PO Box 1268; Townsville Mail Centre 4810	Y
Peter Goupal Planning, Townsville City Council PO Box 1268; Townsville Mail Centre 4810	N
Planning Councillors c/o; CEO Mrs Lyn Russel Thuringowa City Council; PO Box 86; Thuringowa Central 4817	N
Rob Henwood Director, Planning and Services; Thuringowa City Council; PO Box 86; Thuringowa Central 4817	N
Todd Rohl Manager, Strategic planning; Thuringowa City Council; PO Box 86; Thuringowa Central 4817	N
Councillor Terry James Chairman, Works and Services; Cairns City Council; PO Box 359; Cairns ; NQ 4870	Y (Combined with G. Underwood)
Greg Underwood Manager, Strategic Planning; Cairns City Council; PO Box 359; Cairns; NQ 4870	Y
Jenny Elphinstone, Acting Planning Manager; Cairns City Council; PO Box 359; Cairns; NQ 4870	Y (Combined with G. Underwood)
Lindsey Enright FNQ2010 Project manager; PO Box 5194; Cairns Q 4870	Y
David Welsby Regional Manager (Integrated Transport Planning); Queensland Transport; PO Box 6185; Cns. 4870	Y
Ivor Preston Principal Engineer (Strategic planning) Northern District, Townsville; Queensland Transport; PO Box 1089; Townsville Mail Centre 4810	Y
Peter Jones Manager, Department of Communication, Information, Local Government, Planning and Sport, PO Box 5194; Cairns 4870	Y

Andrew Brown Townsville office; Department of Communication, Information, Local Government, Planning and Sport, PO Box 5666; Townsville Mail Centre 4810	Y
Dr Lee Benson Sinclair, Knight Mertz; 131 Denham St; Townsville, 4810.	N
Dr Terry Dixon Principal Engineer; Engineering Research Unit; Sugar Research Institute; Box 5611; Mackay Mail Centre Q. 4741	Y
Royal Australian Planning Institute Queensland Division; PO Box 223, Albert St; Brisbane Q. 4002	Y
Dr Patrick Mullins Dept of Anthropology and Sociology. UQ 4072	Y
Stephen McMahon Project Director, Urban Design and Planning; Woods Bagot, Level 3, Waterfront Plc; 1 Eagle Street, Brisbane Q 4000	Y
Professor Patrick Troy Via Research School of Social Sciences; ANU, Canberra; ACT 0200	Y
Ted Schultheis Senior planner; National Capital Planning Authority; GPO Box 373 Canberra; ACT 2601	Y
Professor William Young Infrastructure Engineering and Management; Dept. Of Civil Engineering; Monash University 900 Dandenong Rd Caulfield East, Victoria 3145	Y
A/Professor Jenny Morris Transport research centre, Melbourne University, Vic. 3052.	Y
Dr Romeo Pacudau via Dr Brahmanand Mohanty Associate Professor; Division of Energy Technology; Asian institute of technology; PO Box 2754; Bangkok 10501; Thailand	Y
Md. Rajeh Salleh Department of Architecture; Faculty of Built Environment, University of Technology Malaysia; Skudai, Johor; Malaysia	N
Dr. V.M.Krishna Sastri or Professor S. Murthy Department of Mechanical Engineering; Indian Institute of Tech., Madras 600 036 INDIA	N
Dr Mas Santosa, Head, Department of Architecture; Institute of Technology Sepuluh Nopember; Sukolilo, Surabaya 60111; INDONESIA	N
Dr. Sugiono Soetomo, Department of Architecture; Faculty of Engin. Diponegoro University; Semarang, INDONESIA	N
Michael H Glantz Senior Scientist, Environmental and Societal Impacts Group; National centre for Atmospheric research; PO Box 3000; Boulder Colorado 80307 – 3000	Y

List B: Some key authors used in Goudie's PhD

Author	
David Hensher Institute of transport studies, The University of Sydney, NSW 2006	N (electronic transfer problems)
Carey Curtis Department of urban and regional planning, Curtin University of Technology, GPO Box U1987, Perth, Western Australia, 6845.	Y
Professor Peter Newman City policy; Murdock University, Perth WA 6845	N
Ryuichi Kitamura Department of civil engineering systems, Faculty of engineering, Kyoto University, Sakyo-ku, Kyoto 606-8501, Japan	N
Robert Cervero and Carolyn Radisch Department of city and regional planning, Institute of Urban and regional development, University of California, Berkeley, CA 94720, USA.	N
Paul C Stern Study director, human dimensions of global change, National research council; 2101 Constitution Ave, NW, Washington DC 20418	N
David Banister The Bartlett school of planning, University College London UK.	N
T. Rye Transport research institute/transport group, School of the built environment, Napier university, 10 Colinton Rd., Edinburgh, EH10 5DT; Scotland, UK.	Y
Mette Jensen Senior scientist, mag.scient.soc (Sociology), Dept. of Policy Analysis, National Environmental Research Institute, Frederiksborgvej 399, PO Box 358, DK- 4000 Roskilde Denmark.	N