

Sri Lankan Children's Independent Mobility

Julie Rudner

Community Planning and Development, School of Social Sciences,
La Trobe University
J.Rudner@latrobe.edu.au

Naduni Wickramaarachchi

Community Planning and Development, School of Social Sciences,
La Trobe University

Abstract

Children's and young people's independent mobility has decreased significantly in industrialised countries, and these trends could be replicated in Sri Lanka as standards of living increase alongside changes in urban form. This paper presents data from a questionnaire conducted in 2011 with children aged 7-15 years about their mobility behavior which was conducted as part of a larger international study coordinated by the Policy Studies Institute, UK. The questionnaire was completed in five different settlement types in Sri Lanka. The research found that children in inner urban and suburban areas had less independent school travel than children in large and small towns and rural areas. In contrast, more urban and suburban children could go more places on their own, but this is likely due to more options than parental permission. Secondary school children have greater independent mobility than primary school children. The dominant mode of transport changed depending on settlement size. The data is interpreted and discussed in the context of increased standard of living as expressed through urbanisation processes as represented through urban form, density, transport networks, and lifestyle preferences.

Keywords: Children, Mobility, Sri Lanka

Introduction

Sri Lanka's urbanising environments increasingly reflect a particular type of westernized development, materially, socially and symbolically. These changes are often expressed through the development of lower density suburban form, motorised-based transport networks, and box retail shopping. Increasing individual wealth and standard of living is facilitating aspirational desires, as car ownership and private vehicle use increases, alongside chauffeuring of children to and from school and other activities. Ironically, trends in industrialised countries means policy and urban redevelopment are redirecting away from car dominated urban design toward walkable city infrastructures with strong public transport networks. Sri Lanka is in an interesting position with regard to urban policy and transport decisions, especially if decision-makers want to consciously choose a development path that supports children's and young people's independent mobility (CIM).

CIM refers to the use of public space by children under 18 years of age who are not accompanied by an adult. In Sri Lanka children and young people tend to have greater independent mobility compared to their counterparts in industrialised countries, but not as much as those in less developed countries (Fyhri, Fljorthol, Mackett, Fotel, & Kytta, 2011; Malone & Rudner, 2011). At the same time, the research data presented in this paper indicates Sri Lanka shares global trends in which there are geographical inequities and different levels of CIM depending on income and settlement type. It is likely that increasing engagement in market processes, as represented by the standard of living, is impacting on family decision-making to accompany, drive or pay for chauffeured travel to transport children and young people places.

This paper explores the potential impact of urbanisation processes on children's and young people's freedom to use public space on their own in Sri Lanka. To interrogate this idea further, the authors examine international trends and factors affecting children's and young people's independent mobility, then presents results from a survey conducted about CIM in 2011. The authors interpret the Sri Lankan context with regard to changing standard of living, and its impacts on urban form, social structure and behaviour change as expressed through modes and patterns of mobility. The tensions for Sri Lanka are centered on the potentially deep levels of economic, physical, social and cultural changes that occur in public space that may result from the impact of different mobility futures.

Changing spatial expression of economic choice and CIM

Globalization processes have transformed spatial relationships within countries, cities and between people. Sri Lankans, internationally connected through colonialism and post-colonial free-market reforms, have already experienced previous transformations. These changes simultaneously reveal and symbolise the evolving aspirations and lifestyles of 'westerners' and of Sri Lankans themselves through the expression of particular economies, settlement form, land use patterns, and transport networks (Asoka, Alam, & Coghill, 2008; Gunasekera, Anderson, & Lakshmanan, 2008). The effects of urbanisation and improved standard of living on family needs, values, priorities and abilities in relation to their physical, social and transport environments has the potential to significantly impact CIM.

Physical features of cities in Sri Lanka are becoming more similar to western landscape patterns and similar social and behaviour patterns of use may follow. Figure 1 shows examples of urbanized development in Colombo. Shopping malls, hypermarkets and gated communities are emerging across the urban landscape, competing with or even displacing more traditional forms of development. As a result, traditional retail shops and street markets, which encouraged widespread use of public spaces as meeting places are diminishing. These urban features provide new and different opportunities for Sri Lankans, as well as shifting current cultures of land use, activities and behaviors.

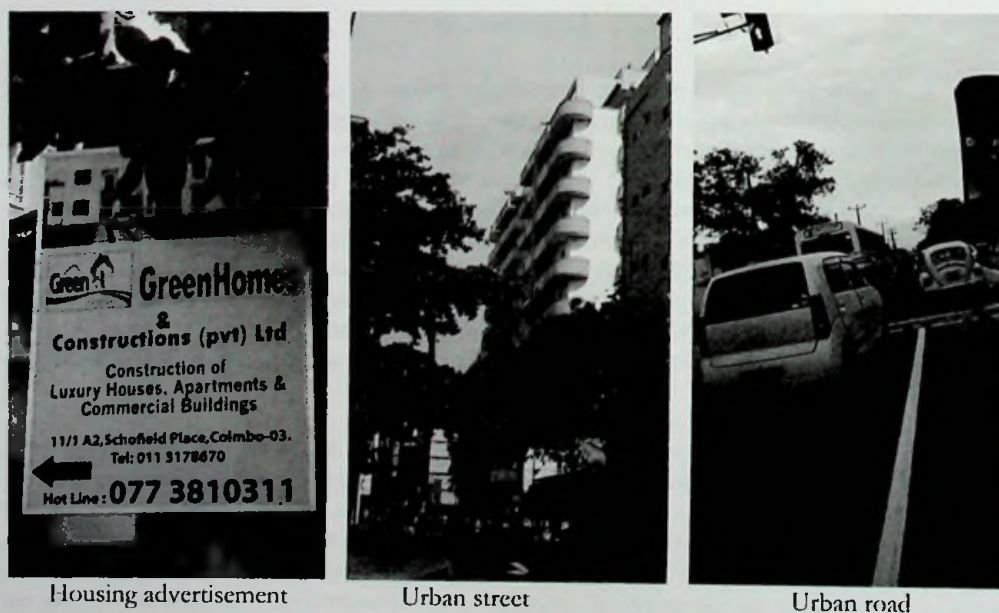


Figure 1 Examples of urbanised development in Colombo

These sorts of semi-private spaces can be implicated in the definition of appropriate places for children and young people. Enclosed areas that provide adult surveillance, such as youth centres, formalised sports and other activities are often viewed as providing a safer space for children and young people compared to public spaces, especially in places like the UK and Australia (Gill, 2007; Rudner, 2012). Alternatively, children and young people may experience practices of exclusion in spaces like malls due to their lack of economic ability or their age (Valentine, 2004).

On the residential front, gated communities can provide its inhabitants with a sense of security. However, researchers (Behrens, 2005; Spinks, 2001), reporting from the South African context, have commented that this form of development can also promote polarisation and distrust between different social groups. Mobility can also be hindered through the loss of urban connectivity for both private and public transport uses and pedestrians, the latter two of which has particular implications for children and young people.

Urban transformations extend to highway and road network development. As Gunasekera, Anderson, and Lakshmanan (Gunasekera, et al., 2008) observe, highway improvement works facilitate industrial growth, higher land prices, increased income and the transition of land use and employment from agriculture to non-agricultural production along the road corridor. While these improvements have been reported to lead to a positive shift from working to schooling for children, the intensity of traffic has significantly increased (Gunasekera, et al., 2008). International research has shown that traffic has a major negative impact on CIM and children's and young people's safety, regardless of wealth, country or settlement type (Behrens & Muchaka, 2011; Bwire, 2011; Driandra & Kinoshita, 2011; Fyhri, et al., 2011; Rudner, 2012). This is particularly an issue for children and young people who need to use active transport to go to work, attend school or help with family errands.

Much of the existing urban form in Sri Lankan settlements facilitates walking and casual interaction. Even with a lack of designated pathways and crossings and a chaotic transport environment, these environments generally encourage greater social interaction between pedestrians, cyclists and drivers due to the number of people on the street and low traffic speeds compared. Arguably, these aspects should be maintained in some form even as urbanisation occurs. While smooth, fast moving traffic may be a goal for many Sri Lankans, the mixed-use chaotic spaces of Sri Lanka are aspirational goals for many urban planners and community members in industrialised countries - especially when combined with a focus on public transport and integrated land uses (Curtis & Tiwari, 2008). In many places, including Oudehaske, The Netherlands and Poynton, UK strongly defined boundaries between pedestrian, cyclist and driver have been removed to encourage greater awareness and interaction, and speed limits lowered to promote people rather than car dominated environments. Figure 2 illustrates how current infrastructure in Trincomalee is similar to Amsterdam in The Netherlands, and Oslo in Norway with regard to shared multi-modal streets.

Current development trends indicate that choices based on lifestyle aspirations are becoming more common, and this includes associated motorised transport modes like the Southern Expressway in Sri Lanka that is likely to favour private vehicles. Although traditional stratification based on wealth, income, occupation and power retain some influence in forming social norms, the expression of individual lifestyles that reflect westernised patterns of consumption have become the prominent factor in determining individuals' prestige and social position. Co-option of westernised practices is not new, as many of the wealthy previously followed colonial examples, but development of the open market has made certain lifestyle choices more achievable for the middle classes. As decision-making about CIM is affected by family structure and culture, socio-economic status and associated ability to make choices, it is likely that CIM will be affected if more people choose to drive (Beck-Gernsheim, 1996; Tranter, 2006).

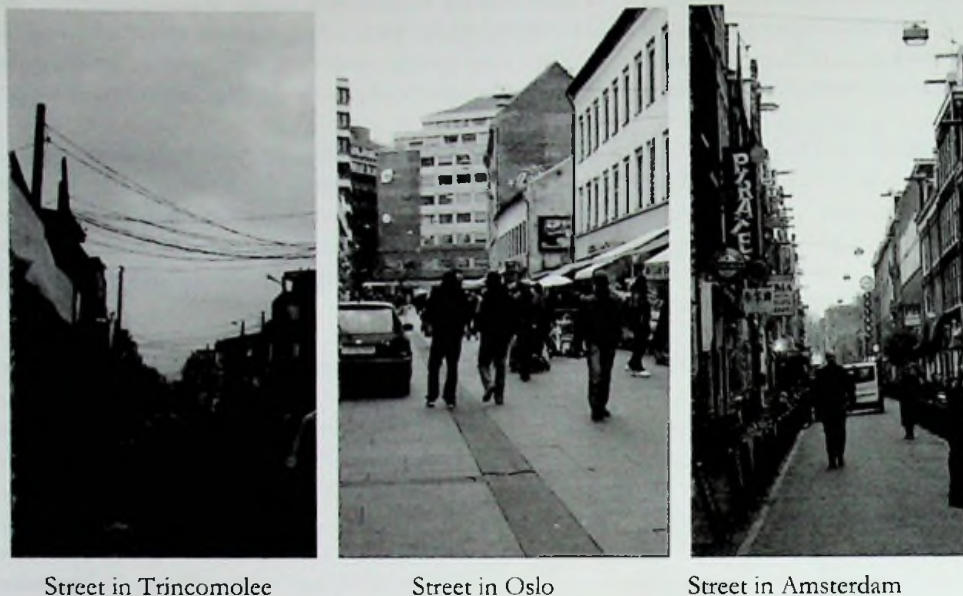


Figure 2 Streets showing shared multi-modal streets model

Greater consumption of semi-privatised and privatised residential, shopping, transport and educational options in Sri Lanka has implications for CIM. Levels of risk tolerance and risk acceptability, especially with regard to social trust, can change with regard concerns about safety for children and young people in public space. Numerous international studies have confirmed that parents and guardians from various economic and ethnic status cite concern about traffic and stranger danger as the most influential factors on their decision-making about whether they will allow their children and young people to go places on their own (Behrens & Muchaka, 2011; Bwire, 2011; Driandra & Kinoshita, 2011; Fyhri, et al., 2011; Porter & Blaufuss, 2002; Rudner, 2012). It appears that as more parents drive their offspring to school and other locations, whether due to concern, distance, convenience or spending time with them, concern about traffic and strangers are increased or validated through the driving experience. In addition, driving, rather than allowing CIM helps support negative socio-cultural considerations about children and young people's competencies to engage in CIM, which are often based on expert advice in relation to their age and gender.

A reading of this extensive research literature reveals that although these are priority concerns, there are differences levels of concern and different approaches to ensuring safety. There are also narratives about the level of concern, parental responsibilities and type of risk management behaviours that should be initiated in relation to 'appropriate' mobility patterns. These narrative serve to ensure children and young people conform with community expectations, many of which reflect class expectations (Valentine, 2004).

Different countries demonstrate cultural tendencies about their concerns and priorities. In countries like Australia and the UK, keeping children and young people safe in an overriding priority to their urban independence (Gill, 2007; Rudner, 2012). In Finland and Japan, children's and young people's independence tends to be prioritized, and there seems to be a greater emphasis on collectivise surveillance; community members are expected to watch over and help children and young people when they use public space on their own (Driandra & Kinoshita, 2011; Fyhri, et al., 2011). South African, Ghanaian and Tanzanian researchers have emphasised the need to support CIM so poorer children and young people can access education and participate in family responsibilities (Behrens, 2005; Bwire, 2011; Porter & Blaufuss, 2002).

Significance of the study

The presentation of data about CIM from Sri Lanka is significant as research on this topic has not been previously conducted in this country; it increases our knowledge about CIM in middle-developing countries, and provides a baseline data set for monitoring and future evaluation of development impacts. Importantly, Sri Lanka provides an interesting context for the study of CIM due to processes of urbanisation, economic and spatial development, as well as changing standards of living. It is likely that priorities for children's and young people's safety, independence and education will fluctuate depending on economic ability and settlement type and location. This will make it challenging for decision-makers to choose a development path, if CIM becomes a priority. They have an existing environment with relatively high CIM and number of examples from other countries to learn from. Interventions of denser residential development, mixed use streets and low speed limits that have been identified in industrialised countries as a way to support CIM, already exist in Sri Lanka. Finland and Japan have achieved high levels of development alongside high CIM. Australia and the UK have achieved high levels of development alongside low CIM. South Africa, while not as developed has both low and high levels of CIM depending on income, which is often associated with colour.

Sri Lankan Context

Sri Lanka is an Island of 65, 610 sq.km, located in the Indian Ocean, south-east of India. Politically the country uses the Westminster system, and administratively the country is divided into nine provinces. Sri Lanka's population of close to twenty million is ethnically, linguistically, religiously, spatially diverse. The majority of people are Sinhalese (74%), with a large proportion of Tamils (18%). The population is primarily Buddhist (76.7%), with a mix of Muslims (8.5%), Hindus (7.8%) and Christians (7%). Sri Lanka's urban population is 3.0 million; 16.3 million people live in rural areas and 1 million live in residential estate sectors (Household income and expenditure survey- 2009/10, 2010).

Sri Lanka is a lower middle-income developing nation with 8% of GDP growth rate in the year of 2010. From a micro economic standpoint country is divided into three main sectors: urban, rural, and estate. Income inequality in the country is severe, with striking differences between rural and urban areas. Mean household income per month is Rs.47,783 (£234.31; €283.77; AUD \$360.28) in the urban sector, Rs. 35,228 (£172.74; €209.22; AUD \$265.62) in the rural sector and Rs. 24,162 (£118.48; €143.50; AUD \$182.18) in the estate sector. Sri Lanka's poverty head count ratio is 8.9%. It is 5.3% in the urban sector, 9.4% in the rural sector and 11.4% in the estate sector (Household income and expenditure survey- 2009/10, 2010).

Sri Lanka has been using free market mechanisms since 1977 as part of International Monetary Fund supported economic restructuring (Asoka, et al., 2008). While there has been some oscillation between privatisation and reestablishment of the public sector that allows market forces to play a great role in allocating resources and determining the prices. Economic restructuring in response whole society has been changed. Lifestyles and aspirations of people of Sri Lanka have been changed according to the western developed countries.

Methods

This paper contributes to a multi-country research update about children's and young people's mobility conducted in 2010. The research design and methods used in the current study replicates the approach used in England in 1970, and England and Germany in 1990 to identify CIM trends, and facilitates a broader comparison of the cultural and other factors affecting CIM. Quantitative pen and paper surveys were conducted with children and young people aged 7-15 years old in five settlement types. The survey sought data about children's mobility behaviour, adult accompaniment and children's concerns if they go places on their own.

The Department of Town & Country Planning at the University of Moratuwa was commissioned by La Trobe University, Australia to conduct fieldwork for the research. Five different geographical areas for this survey were selected including: inner city, suburban, large town, small town, and rural area. One primary school and one secondary school in each of five different geographical areas participated in this survey. Participants included children aged 7-11 years and children aged 12-15 year olds.

Settlement types and schools were selected based on the feasibility of collecting data from mixed-gender schools (girls & boys) and areas that had co-located primary and secondary schools. Principals of each schools distributed the survey. Approximately 50 children from each grade level for children aged 7-11 years and children aged 12-15 year olds were asked to complete a questionnaire. Efforts were made to complete more than 50 questionnaires from each grade level.

The questionnaire asked children to indicate whether they could do things on their own like cross roads, cycle places (if they owned a bicycle) or take the bus, how they travelled to and from school on the day of the survey and how they would prefer to travel, time taken to travel to school, with whom they travelled, other places they went on the weekend prior to the survey.

All data was transcribed into pre-formatted excel worksheets and transferred to SPSS 20 for analyses. In addition to analysing frequency data, statistical tests were conducted on the data to identify significant differences between primary and secondary school children's mobility patterns, as well as differences between settlement type and gender. Statistical analyses were performed using IBM SPSS Statistics version 20. Independent t-tests were used to test the differences between means of mobility licenses for all settlement types, between the level of schooling. Logistic regression analysis was used to study the association between mobility licenses on the one hand and independent school travel and weekend activities on the other hand. In these analyses gender was controlled.

Limitations of the study

When reviewing the results, it is important to consider some limitations of this study. These results cannot be generalized, although they present important data for discussion. Borella, which is an inner urban area, is diverse is the population includes both very poor and very rich people, and will not reflect the mobility patterns of other inner urban children and young people with greater family incomes. In addition, due to terrain and other localized differences, there are various dominant modes of transport across the country depending on the particular settlement.

The questionnaire itself is westernised as it was originally developed in the UK in the 1970s, and its current version was amended to meet the survey needs of industrialised nations. While questions could be amended somewhat to meet the current conditions, the desire for international comparison means there are inherent assumptions motivating the study such as viewing CIM as a goal and assumptions within the research instrument like the types of activities provided as examples for children and young people.

The questionnaire was only conducted with Sinhalese speaking students and was not conducted in Tamil language dominant areas. It was difficult for many children to answer the questions; primary school children required substantial help, with questionnaires taking 40 minutes to complete. Secondary children had troubles answering whether they could take public transport and where they went on the weekend. Although parents were also invited to participate in the study, very few parents chose to respond, so the data could not be analysed and presented.

Study Sites

To help readers identify study site locations, a map of Sri Lanka and each settlement area surveyed is presented in Figure 3. As can be seen in the map, the study sites are located to the

south and east of the country. Surveying in the north and east of the country was not possible due to security concerns, time and distance.

Table 1 provides a brief overview of the study sites with regard to area, settlement type and population size. While there does not appear to be large population differences between the large town, small town and rural area, the population is spread over larger areas as the size of settlement decreases.



Figure 3 Map of study site locations

Table 1 Settlement type, area and population of study areas

District	Divisional Secretariat	Settlement type	Population
Colombo	Thimbrigasyaya	Inner city	(DS divisions)
Colombo	Maharagama	Sub Urban	195,355
Kurunegala	Kurunegala	Large town	80,395
Kalutara	Bandaragama	Small town	108,889
Ratnapura	Eheliyagoda	Rural area	70,713

Participants

In total, 721 school children participated in the survey, as can be seen in Table 2. Around one quarter of the participants were based in each of the urban (23%), suburban (26%) and large town (24%) settlements. Participants from the small town and the rural area accounted for 15% and 12% of the survey sample, respectively. Just over half of the participants attended primary school (56%).

Table 2 Participants by settlement type

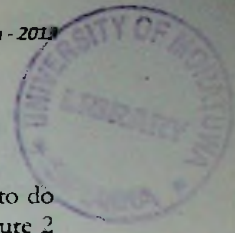
Location	Settlement Type	Primary n	Secondary N	Total n
Borella	Urban	82	81	163
Maharagama	Suburban	84	104	188
Kurunegala DS	Large town	81	94	175
Bandaragama	Small town	90	21	111
Eheliyagoda	Rural	66	19	85
Total				721

Table 3 shows the number of primary and secondary school boys and girls who completed the survey. In the urban settlement types, a noticeably larger percentage of primary and secondary school boys (80%) completed the survey compared to girls. Nearly equal proportions of primary school girls and boys completed the survey in the suburban area, but by secondary school, more boys (58%) participated. The dominance of male respondents was less pronounced in the large town where 57% of primary and secondary school boys completed the survey. In contrast, a higher proportion of girls completed surveys at both the primary (56%) and secondary (62%) levels in the small town. In an opposite trend, more primary school boys (58%) in the rural area completed the survey, but by secondary school the gender balance of participants was equal.

Table 3 Gender of participants by settlement type *

		Primary		Secondary		Total
		n	%	n	%	
Urban	Girl	16	20	15	19	31
	Boy	66	80	62	81	128
	Total	82	100	77	100	159
Suburban	Girl	42	52	44	42	86
	Boy	39	48	60	58	99
	Total	81	100	104	100	185
Large town	Girl	45	56	58	62	103
	Boy	35	44	36	38	71
	Total	80	100	94	100	174
Small town	Girl	38	43	9	43	47
	Boy	50	57	12	57	62
	Total	88	100	21	100	109
Rural	Girl	27	42	8	50	35
	Boy	37	58	8	50	45
	Total	64	100	16	100	80
Total Girls		168	43	134	43	302
Total Boys		227	57	178	57	405

* Results do not match total number of participants as some children did not answer this question.



Children's and Young People's Mobility

As a prerequisite for CIM, children and young people need to have permission or 'license' to do certain activities such as cross roads, ride a bicycle places and/or take public transport. Figure 2 shows secondary school children tend to have double the licenses than primary school children for crossing main roads (urban = 63% and 30%; suburban = 72% and 18%; large town = 56% and 22%); small town = 76% and 46%); rural = 72% and 47%). Between 27% and 41% of children from all settlement types are allowed to cycle places without an adult, with the exception of the slightly higher proportion of rural children who can do the same activity (54% and 60%). For primary school children, licenses to take public transport increases with smaller settlement size (rural area, 44%; small town, 29%; large town, 28%; suburban, 11%; urban, 10%), however, the proportion of secondary school children who can take public transport is similar across the settlement types, and ranges from 63%-71%, with the exception of the small town which is 95%. The results indicate that children's mobility licenses are affected by their level of schooling and where they live, with the exception of cycling which shows an overall similarity across the samples and settlement type.

Table 4 Licenses permitted to children

Licence	Cross main roads		Cycle places		Take public transport	
	Yes	%	Yes	%	Yes	%
Urban						
Primary	25 (n = 82)	30	26 (n = 73)	36	8 (n = 82)	10
Secondary	51 (n = 81)	63	19 (n = 51)	37	52 (n = 81)	64
Suburban						
Primary	15 (n = 84)	18	19 (n = 61)	31	9 (n = 84)	11
Secondary	74 (n = 103)	72	22 (n = 63)	35	66 (n = 104)	63
Large town						
Primary	18 (n = 81)	22	18 (n = 53)	34	17 (n = 61)	28
Secondary	53 (n = 94)	56	36 (n = 79)	46	64 (n = 93)	71
Small Town						
Primary	41 (n = 89)	46	20 (n = 74)	27	26 (n = 90)	29
Secondary	16 (n = 21)	76	7 (n = 17)	41	20 (n = 21)	95
Rural						
Primary	31 (n = 66)	47	22 (n = 41)	54	29 (n = 66)	44
Secondary	13 (n = 18)	72	3 (n = 5)	60	11 (n = 18)	61

Children's reported licenses to cycle on main roads may be affected by whether they own a bicycle or have access to a bicycle. Table 3 shows that bicycle ownership is highest among children from the large and small towns and lowest among children in the rural area. Bicycle ownership is somewhat similar between primary and secondary school children, however more primary than secondary school children have bicycles in the urban, small town and rural areas (urban = 82% and 62%; small town = 76% and 71; rural area = 45% and 28%, respectively). About one-third of children from urban and suburban areas, and primary school children from the large and small towns are allowed to go places on their bicycles. A greater proportion of primary (54%) and secondary (60%) school children from the rural area can go places on their bicycles compared to the other settlement types.

Dichotomous data (1= yes; 2 = no) representing children's responses as to whether they could cross main roads alone, cycle places and take public transport were summed to form a mobility license variable. Independent t-tests were conducted to identify if there were significant differences across the settlements with regard to mobility licenses. There were no significant differences between primary and secondary school children. Examining the means indicates that children in the inner urban area ($N = 163$; $M = 2.50$; $SD = 4.31$) had the highest level of mobility licenses followed by the small town ($N = 110$; $M = 3.14$; $SD = 3.64$), suburban area ($N = 187$; M

= 1.49; 4.75), large town ($N = 174$; $M = 1.32$; $SD = 5.97$) and lastly, the rural area ($N = 84$; $M = 0.18$; $SD = 4.81$). The standard deviations across each of the sites indicate high levels of variability.

There were significant differences in mobility licenses between the inner urban area and the suburban area ($t = 2.07$, $df = 347.47$, $p = 0.039$), large town ($t = 2.09$, $df = 315.5$, $p = 0.04$) and rural area ($t = 3.71$, $df = 152.48$, $p = 0.000$), respectively. Significant differences between the means were found between the suburban area and small town ($t = -3.34$, $df = 275.13$, $p = 0.001$) as well as the rural area ($t = 2.09$, $df = 269$, $p = 0.037$). In addition, the means of the large town and small town were significantly different ($t = -3.19$, $df = 281.71$, $p = 0.002$), as was the small town and rural area ($t = 4.70$, $df = 149.71$, $p = 0.00$). The data suggest that children in inner urban and small town areas have similar levels of mobility licenses, and that there are similarities between suburban areas and small towns.

The mobility license data needs to be considered with caution. While the data indicates that children in rural areas have lower mobility licenses, being able to cycle places may be affected by bicycle ownership. As Table 5 shows, nearly half as many children in the rural area own a bicycle compared to children located in the settlement types, yet, Pearson's product moment correlation test indicates there is a significant medium inverse relationship between bicycle ownership and cycling places ($r^2 = -0.586$, $p = 0.001$), suggesting that there is a relationship between children who noted they do not own a bicycle but are allowed to cycle places on their own. As children had some difficulty with the questionnaire, it is possible that children interpreted the question as: 'If you have a bicycle, do you (rather than are you) allowed to ride it to go to places (like the park or friend's houses) without any grownups?'

Table 5 Bicycle ownership

		Have bicycle	
		Yes	%
Urban	Primary (n = 82)	67	82
	Secondary (n = 81)	50	62
Suburban	Primary (n = 84)	46	55
	Secondary (n = 104)	64	62
Large town	Primary (n = 81)	58	72
	Secondary (n = 94)	76	81
Small town	Primary (n = 89)	68	76
	Secondary (n = 21)	15	71
Rural	Primary (n = 66)	30	45
	Secondary (n = 18)	5	28

Turning to the most common indicator of CIM, which is school travel, Figure 4 and Figure 5 show children's dominant mode of travel to and from school differed depending on settlement type, and varied between primary and secondary school. Half of the primary school children in the urban area travelled to school by 3-wheeler/motorcycle, with just over 10% walking or taking a school bus or public transport. The majority of urban secondary school children travelled to school by public transport (39%) followed by 3-wheeler/motorcycle (26%). Only 15% of urban school children walked or cycled to school.

The dominant forms of transport for children in the suburban area were similar to those used by children in the urban area, although there was a shifting in distribution. More primary school children walked (16%) to school, but fewer used school buses (21%), took public transport (21%) or used 3-wheeler/motorcycle (32%). Fewer secondary school children walked (11%) or used 3-wheeler/motorcycle (24%), but more used school buses (18%), took public transport (45%)

In the large town, nearly 66% of primary school children travelled to school by school bus, and the majority of secondary school children travelled by school bus (51%) or public transport (35%). The majority of primary school children in the small town travelled to school by school bus (40%) and 3-wheeler/motorbike, while most secondary school children travelled by public transport or by foot (38% for both modes). In the rural area, the majority of primary and secondary children walk to school (83% and 89%, respectively).

There were some noticeable differences in school to home travel for children and young people in the urban and suburban areas; more walked or took public transport home from school. However, school to home travel was fairly similar across the other settlement types.

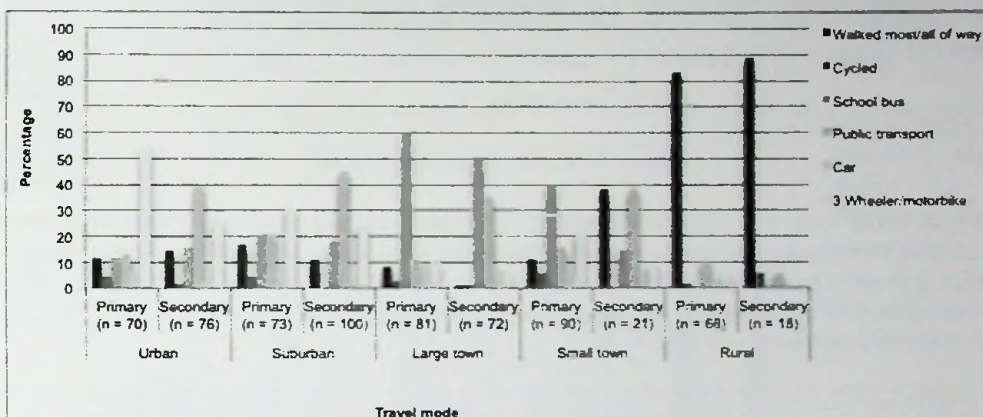


Figure 4 Travel mode to school

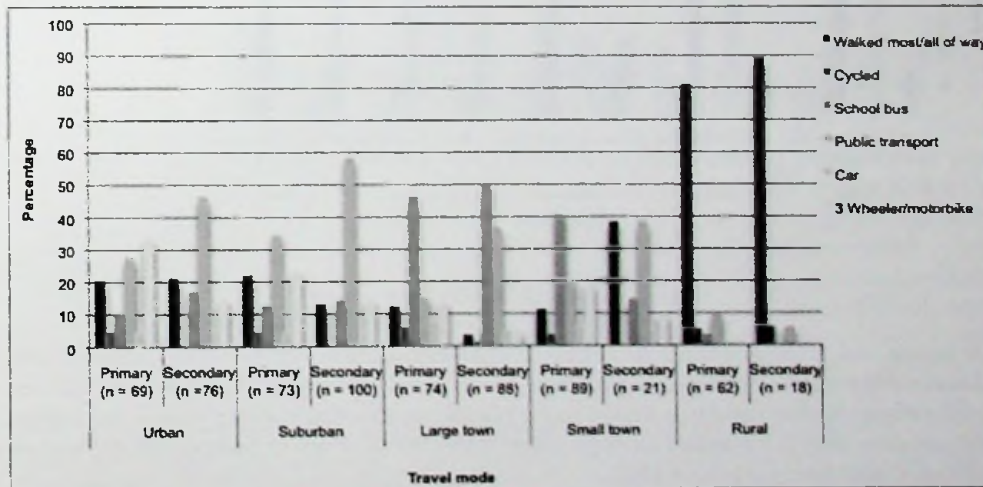


Figure 5 Travel mode from school

To identify level of independence, Figure 6 and Figure 7 summarises accompaniment on children's school journeys. Across all settlement types, a higher proportion of primary school children was accompanied by their parents or other adults compared to secondary school children. Children from the rural area had the most independent school journey for both primary and secondary school children. More primary and secondary school children in urban (82% and 34%) and suburban (77% and 38%) areas had adult accompaniment on their school journeys than in the large town (53% and 22%), small town (55% and 8%) and rural areas (24% and 6%).

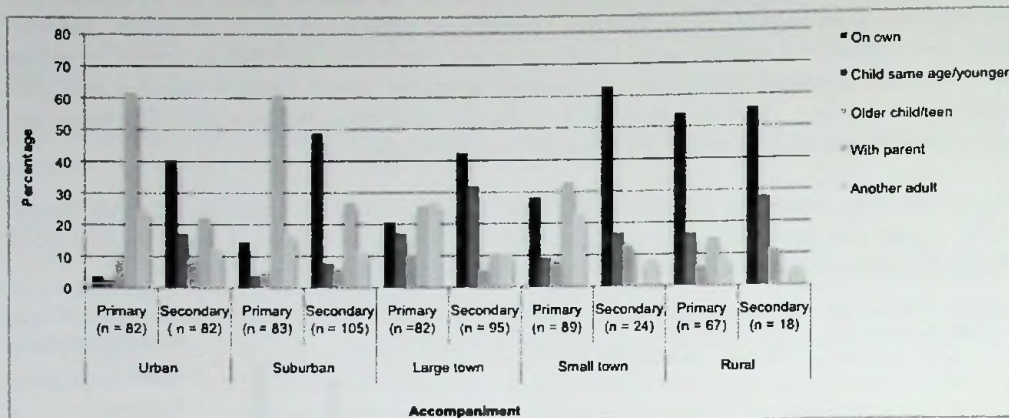


Figure 6 Accompaniment to school

Overall, there were not many substantial changes adult accompaniment of children on their school journey across most settlement types. However, there was an increase in the proportion of urban primary school children (11%) and small town secondary school children (23%) travelling home alone, and an increase in the proportion of rural secondary school children travelling with an older child or teenagers (11%).

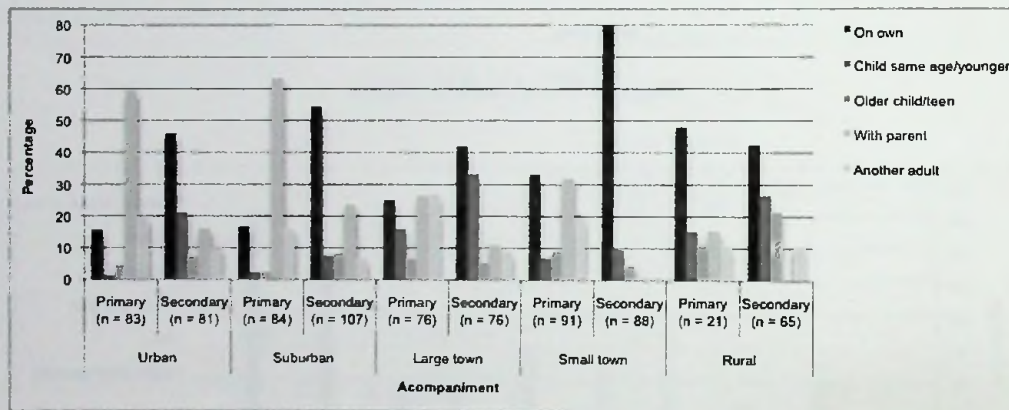


Figure 7 Accompaniment from school

Chi square tests were conducted to identify if children’s mobility licenses were associated with adult accompaniment of children to and from school and to places other than school. In addition to the mobility license variable, a dichotomous variable representing children’s travel was created from the data using 1 = travelled alone or with children the same age or younger and 2 = with an older child/teenager, a parent or adult.

The results indicate that there are significant relationships between mobility licenses and children’s independent travel to school ($X^2= 7.20, df = 1, p = .007$) and from school ($X^2= 9.63, df = 1, p = .002$), suggesting that children with more mobility licenses have a greater likelihood of travelling to and from school on their own.

Children were asked to report their preferred modes of school travel. Figure 8 illustrates that 48% of urban, 55% of suburban and 43% of small town primary school children indicated car or scooter was their most desired travel mode. There were also high proportions of both primary and secondary children preferring this mode across the other sites, with the exception of rural children. While a high proportion of rural primary (71%) and secondary (72%) school children

reported walking or cycling as their preferred mode, less than one-third selected these modes in the other settlement types; in particular, it was the least preferred mode amongst children in the small town. With the exception of the rural area, 43%-58% of secondary school children indicated that the school bus and public transport was their desired form of travel.

A dichotomous variable was created for travel mode to and from school and preferred travel mode with 1 = walking or cycling and 2 = school bus, public transport, car/scooter, and other modes. Pearson's product moment correlations were conducted to identify whether there were associations between active school travel and preferred travel modes. There were significant high positive correlations between active transport to and from school ($r^2 = 0.792, p = 0.0000$) and significant medium positive correlations between active school travel and active transport as a preferred mode (to school: $r^2 = 0.294, p = 0.0000$; from school: $r^2 = 0.302, p = 0.0000$). The data suggests that children are socialised to prefer certain modes through existing transport behaviours.

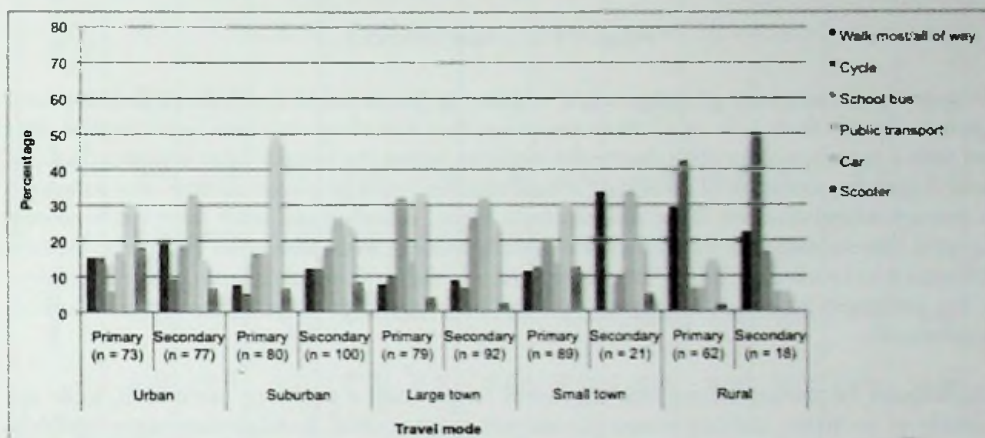


Figure 8 Desired travel modes

Mode of transport and independence of travel can be associated with travel distance; unfortunately data about distance was not requested, so time is used as a rather poor proxy indicator of distance. Children's reported school travel time is presented in Figure 8. With the exception of primary school students in the urban area (68%) and secondary school students in the large town (56%), more than 75% of children travel less than half an hour to school. Nearly two-thirds or more of primary and secondary school children travel less than 15 minutes on their school journeys (excluding secondary school children from the suburban and large town areas). However, for urban and large town areas, over 20% of primary and secondary school students travel more than half an hour on their school journeys.

The means for time taken to travel to school indicate that children in the rural area ($N = 84; M = 2.20; SD = 1.10$) and the small town ($N = 111; M = 2.29; SD = 1.00$) spent less time travelling to school on average, followed by children in the inner urban area ($N = 163; M = 2.55; SD = 1.16$) suburban area ($N = 188; M = 2.61; SD = 1.13$) and large town ($N = 175; M = 2.75; SD = 0.08$).

There were significant differences in the means of time travelled between the small town and inner urban area ($t = 1.99, df = 254.62, p = 0.047$), the suburban area ($t = 2.60, df = 258.88, p = 0.010$) and large town ($t = 3.71, df = 245.80, p = 0.000$), respectively. Significant differences between the mean time travelled by children in the rural area compared to the inner urban area ($t = 3.714, df = 152.48, p = 0.000$) and the large town ($t = 3.77, df = 158.19, p = 0.000$) were also found. The result may be due to more children walking to school in the smaller settlements; in the larger settlements a larger proportion of children take motorised transport and would experience traffic congestion.

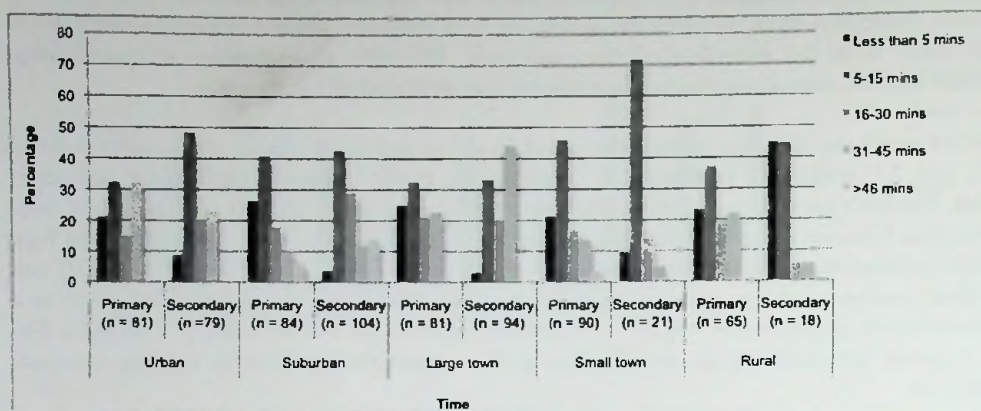


Figure 9 Travel time to school

To assess children's level of independent mobility to places other than school, children were asked to identify from a list of 12 items the places they visited on their own, with another child and with a parent or other adult during the weekend before the survey. Table 6 summarizes this data. A greater proportion of secondary school children could go places on their own compared to primary school children. More children from urban, suburban and small town environments reported they visited more places than the other settlement areas. Responses from rural children indicated fewer visited the listed places compared to children from other areas, however, children in this settlement type and those from the small and large town do not have the same activity opportunities.

The majority of primary school children visited friends with a parent or other adult, while the majority of secondary children visited friends with another child. Rural primary school children were an exception because they also visited friends with another child. Excluding the majority of rural secondary school children who indicated they visited relatives on their own, most primary and secondary children reported they visited relatives with parents or another adult. Across all settlement types, the majority of children indicated they went the shops and walked/cycled around with another child; most children also indicated they went to a place of worship, the cinema and concert/nightclub with their parents or other adult. With the exception of primary school children from suburban and large town areas, most children visited libraries and youth clubs with other children; for the youth clubs, primary school children also attended with their parents. The majority of children went to parks/playgrounds and sports/swimming with another child, but primary school children from urban and suburban areas, and secondary school children from the small town attended these places with adults.

Table 6 Places children visited

Activity	Urban n = 82				Suburban n = 84				Large town n = 81				Small town n = 90				Rural n = 66						
	Primary	Secondary	Primary	Secondary	Primary	Secondary	Primary	Secondary	Primary	Secondary	Primary	Secondary	Primary	Secondary	Primary	Secondary	Primary	Secondary					
Visited friend	21	26	33	41	15	18	40	38	14	17	34	26	23	36	27	42	47	10	48	30	45	5	28
Another young person	32	39	20	25	39	46	30	29	26	32	25	47	42	27	42	47	10	48	10	15	1	6	
Visited relatives/grown ups	5	6	11	14	10	12	14	13	4	5	10	11	12	11	12	13	13	5	24	7	11	10	56
Another young person	53	65	47	58	52	62	63	61	47	58	64	68	55	68	55	61	61	11	52	23	35	3	17
Parent/other adult	20	24	20	25	18	21	32	31	6	7	42	45	18	20	5	24	20	5	24	10	15	5	28
Youth club	16	20	11	14	31	37	8	8	21	26	9	10	19	21	4	19	21	4	19	6	9	1	6
Parent/other adult	55	67	61	75	43	51	74	71	26	32	59	63	47	52	19	21	21	5	24	40	61	11	61
Shops	16	20	10	12	20	24	15	14	15	19	17	18	19	18	19	21	3	14	8	12	2	2	11
Another young person	18	22	31	38	18	21	46	44	14	17	28	30	27	30	10	48	10	48	10	15	3	17	
Parent/other adult	9	11	12	15	24	29	17	16	22	27	14	15	25	28	6	29	2	3	2	3	1	6	
Library	5	6	4	5	4	5	3	3	8	10	5	5	4	4	4	4	4	1	5	8	12	1	6
Another young person	25	30	27	33	38	45	40	38	22	27	27	29	39	43	9	43	6	9	4	6	9	4	22
Parent/other adult	23	28	19	23	21	25	16	15	12	15	25	27	16	18	3	14	13	20	2	2	2	11	
Friends after dark	14	17	10	12	19	23	22	21	14	17	14	15	25	28	6	29	8	12	4	22	4	22	
Parent/other adult	15	18	32	40	24	29	41	39	20	25	37	39	24	27	13	62	14	21	5	28	5	28	
Playground/park/playing field	18	22	17	21	31	37	27	26	14	17	12	13	29	32	0	0	6	9	0	0	0	0	
Another young person	15	18	21	26	16	19	29	28	16	20	44	47	22	24	10	48	11	17	5	28	5	28	
Parent/other adult	18	22	20	25	27	32	22	21	16	20	15	16	28	31	1	5	5	8	2	11	2	11	
Sport/swimming	30	37	50	62	27	32	53	51	26	32	48	51	50	56	14	67	24	36	4	22	4	22	
Another young person	18	22	9	11	20	24	17	16	13	16	9	10	14	16	1	5	4	8	0	0	0	0	
Parent/other adult	2	2	6	7	4	5	7	7	7	9	7	7	6	7	2	10	11	17	2	11	2	11	
Concert/nightclub	17	21	21	26	34	40	35	34	21	26	26	28	40	44	3	14	10	15	4	22	4	22	
Another young person	10	12	10	12	10	12	11	11	4	5	12	13	9	10	7	33	10	15	4	22	4	22	
Place of worship	28	34	40	49	45	54	54	52	32	40	51	54	47	52	9	43	13	20	4	22	4	22	
Another young person	9	11	10	12	2	2	5	5	4	5	13	14	9	10	4	19	3	5	6	33	6	33	
Parent/other adult	19	23	21	26	23	27	18	17	20	25	9	10	8	9	2	10	9	14	2	11	2	11	

A dichotomous variable was created with 1 = 3 or more activities and 2 = 1-2 activities. In addition, Boys were likely to have visited more places on their own than girls ($X^2= 27.13$, $df=1$, $p = .000$). These results reflect social norms about gender within Sri Lanka, and the greater freedom often experienced by males than females.

Mobility licenses did not affect whether children go to places other than school on their own. The lack of association between mobility licenses and where children go may be due to the fact there are fewer activities for children in smaller settlements, or the activities for children to select from did not adequately represent children's options, suggesting that their mobility may not be adequately reflected in the data.

Discussion

The results suggest that increased urbanisation may reduce CIM. As Sri Lanka becomes more urbanized there will be impacts on urban form, density, transport networks, and the types and speed of improvements to individual and family standards of living. These changes are likely to be spatially, economically and socially uneven. Economic choice in relation to the opportunities offered by the urban environment in terms of the schools children attend, the variety of places children can go, the ability to travel longer distances, and travel modes available and preferred will result in spatially specific levels of children's and young people's mobility. This can already be seen in the data presented above which indicates different levels of mobility and types of travel mode depending on settlement size. Importantly, there was a correlation between children's existing and preferred travel modes, suggesting a process of socialisation is occurring.

Children in Sri Lanka have medium levels of independent mobility. There are high levels of adult accompaniment for the majority of children and young people, with the exception of the rural area. Accompaniment was greater for primary than secondary school children. The use of motorised transport was more dominant in urban and suburban areas. Transport by school bus or public transport was higher for the large and small towns, and walking was more prominent in rural areas. The majority of children and young people spent less than half an hour travelling to school, however, time can be affected by distance, as well as urban density and form, mode choice, traffic and road speeds. Interestingly, while there were significant relationships between mobility licenses and independent school travel and places children and young people went on the weekend, these latter two were not significantly associated with each other.

As noted earlier in this paper, people living in more urbanized areas and along transport routes are more likely to have greater access to jobs and higher incomes than in less developed areas (Gunasekera, et al., 2008). For families in the inner urban, suburban and large town, proximity to this infrastructure would increase the ability for families to own a car and drive, pay for semi-private transport like the three-wheelers/motorbikes, select private schools and afford leisure activities. As such, adult accompaniment of children and young people in more urbanised areas now and/or in the future may reflect these lifestyle choices or concern about the safety of the urban environment (Beck-Gernsheim, 1996; Rudner, 2012; Valentine, 2004).

Families living in rural areas, further from urban infrastructure may have lower incomes, and greater necessity for children and young people to have independent mobility and to use less expensive forms of transport to school (Behrens & Muchaka, 2011; Bwire, 2011; Porter & Blaufuss, 2002). In the current research this may also be true for the inner urban area since access to existing infrastructures means more than its mere provision. For these groups, access to leisure activities may have the effect of reducing CIM as there are fewer accessible destinations to visit.

Children and young people's preferred transport mode choice may symbolize family and cultural socialization, in addition to a convergence of settlement type, experience and financial expectation. Greater proportions of children in more urban areas tended to indicate car travel as a preferred travel mode, while children in less urbanised areas preferred more public modes like school bus and private transport, or walking in the rural area. Alternatively, children in urban

areas may not like public transport. Preferred travel modes may also indicate preferences for independent travel for reasons of socialisation, especially for secondary school children. These modes permit children to travel with friends without adult accompaniment.

An important consideration in relation to this study is the problematic nature of cross-cultural comparisons and the inherent bias in the conception of CIM and the instruments used to measure it. It is assumed within the research and literature of industrialised that children and young people should have CIM, and assessments of CIM are essentially founded on the baseline data from the UK in 1970s. While cultural differences such economic status, community trust and expectation, and need have been used to explain differences levels of CIM between industrialised and lesser-developed countries, the authors have yet to come across research that examines this issue more closely. Within Sri Lankan and other countries, CIM may not be a goal to aspire to, and could conflict with family and community expectations for rearing children and young people and their independence in public space.

Conclusion

Decision-makers in Sri Lanka can choose whether they maintain current levels, experience a decrease, or create an increase of CIM depending on the development trajectory they pursue. Since emerging new landscapes will have a direct influence on the mobility patterns and behaviours of all people within Sri Lanka, it is important that decision-makers and the broader Sri Lankan community consider whether they value CIM what their goals are for CIM. This will take a wholistic approach to urban planning and design so the outcomes of economic development does not occur at the expense of these values, and associated impacts on children and young people, as well as adults.

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