ABSTRACT

The spatial interaction between rural and urban areas is intense in the Global South. While research into how this interaction influences livelihood opportunities is extensive, longitudinal identification and analysis of rural people's long-distance mobility is rudimentary. This is alarming given the possible repercussions of a greater flow of people for transport system management (congestion, emissions, investments, social exclusion etc.). Based on longitudinal survey data from 1990 to 2008/9, this paper addresses this gap by exploring how the long-distance mobility behaviour of households and individuals has changed over a period of intensified rural–urban interaction in a rural Philippine area. The paper furthermore addresses the individuals' mobility desires and restrictions related to long-distance travel. The results indicate both accessibility effects and effects related to information and communication technology (ICT), concentration of activities and opportunities towards major cities, age, labour market, and economic situation. Over time, particularly since improved accessibility conditions have enabled much faster travelling, more people have come to travel more frequently (although a suppressed demand is still present and inequalities are considerable) to more distant destinations, major cities in particular, for mainly social motives. A recent countertrend is evident, partly arising from mobile phones replacing physical movement. The increase in private vehicle ownership has so far been slow, so modal choice is still highly sustainable.

Keywords: rural–urban linkages, road accessibility, long-distance, mobility behaviour

BACKGROUND SITUATION AND PROBLEM

Nearly two decades ago, Nijkamp and Blaas (1994) noted that, due to increased travel speed because of improved transportation systems, mobility was generally tending to increase, in length and frequency, at all geographical scales, and in developed and developing countries alike. Mobility is still generally lower in the Global South, but is changing rapidly as rural–urban commuting and migration are increasing at an unprecedented rate and car ownership and motorization are generally rising rapidly (Tacoli 1998; Chow 2002; Metz 2002; Olvera et al. 2003; Lee 2006; UN 2007; Kitamura and Mohammad 2009; Rigg 2009). A substantial growth in road capacity over the last 40–50 years in the Global South has, together with cheap and ubiquitous public transportation, influenced this development (Simon 1996; Jones 1997; Johnston 2007; Rigg 2007). Accordingly, the hinterland from which people are drawn to cities is expanding. This suggests that the longstanding demand for increasing mobility in highly car-mobile societies is present in the Global South as well.

Furthermore, the concentration of power, production and services towards cities and major urban areas in the Global South has increased (WB 2009; Clausen 2010). Within new economic geography (NEG), this process is, partly, a result from reduced transport costs (Krugman 1991; Deichmann et al. 2009). Reduced transport costs strengthen agglomeration economies of scale in favour of cities and urban areas, and reinforce the rural–urban spatial interaction, making the ability to access opportunities located at a far distance even more prominent. Thus the sedentaristic assumption that rural areas in the Global South are insular and immobile has been challenged (Jones 1997; Rigg 2001; Olsson 2007; Rigg and Wittayapak 2009). For example, Rigg and Wittayapak (2009) refer to the Greater Mekong Sub-region as increasingly on the move, including both daily mobility and longer–term, longer-distance migration.

Despite the acknowledgement that mobility has increased, there are claims that the scope and frequency of this mobility is not well characterized: "systematic quantitative data as well as detailed case studies are needed in order to obtain a clear picture of mobility on the continent [Africa]" (van Dijk et al. 2001, p. 9). While research into job migration and how rural–urban interaction influences rural people's livelihood opportunities have been abundant over the past five decades (see Lall et al. 2006), our knowledge of and data on rural people's long-distance mobility behaviour for *any* purpose, in general and over time is minimal (national travel surveys are scarce or absent in Asia) (Deshingkar and Anderson 2004; Srinivasan and Rogers 2005; Johnston 2007; Rigg 2007; Dissanayake et al. 2012).

Except for the lack of empirical longitudinal data, enhancing our knowledge of rural-urban long-distance mobility behaviour over time is relevant for other reasons. First of all, in environments where private motorization is increasing while, at the same time public transportation services decline, such studies can be used for future transport policies (e.g., provision of public transportation) (Keeling 2009; Smith et al. 2012). Second, as rural-urban commuting is expected to continue to grow in the future, mobility behaviours have implications on transport investments (both inter-regionally and in cities). Third, while long-distance travel make up a very small share of all journeys made, long-distance travel account for a substantial share of the distance travelled and the share is increasing (Dargay and Clark 2012 on Great Britain). This will have implications for the environment and for congestion. Further, as the concentration toward cities continues, accessibility challenges to health, welfare, and educational services become intimately related to social exclusion (Rigg and Wittayapak 2009; Keeling 2009; Smith et al. 2012), especially long-distance trips which in themselves are strongly related to income (Dargay and Clark 2012). In addition to this, "Aside from travelling to find work, rural people are now increasingly mobile for a variety of other

reasons." (Deshingkar and Anderson 2004, p. 3). Non-working related long-distance trips are key trips for people: "Out-of-village travel is less common but of enormous economic and social importance … These trips involve longer distances" (Starkey et al. 2002, p. 11).

Furthermore, given the leap in access to ICT (mobile phones in particular) in the Global South (Bryceson et al. 2003a; Foss and Couclelis 2009; WB 2009) and that travel budgets, especially time budgets, are relatively higher here than in more advanced economies, ICT may affect individual travel choices and methods. Finally, longitudinal data enhances our understanding of the above mentioned issues as such data both elucidates past trends and contributes to our understanding of future mobility behaviours as it enables a life-course perspective in which people are affected by cumulative stimuli over a long period.

Aim and structure. This paper explores how the long-distance mobility behaviour of households and individuals has changed over a period of intensified rural–urban interaction. The paper furthermore addresses the individuals' mobility desires and restrictions related to long-distance travel. This is investigated using longitudinal survey data spanning from 1990 to 2008/9 on Infanta and General Nakar municipalities, located in a rural Philippine area previously characterized by poor road accessibility (Maps 1-2). Among the causes behind the intensified rural-urban spatial interaction, the Famy–Infanta national road project, which substantially improved the study area's regional accessibility since 1995, is in focus. An objective of the road project, which is often found in the Global South (Simon 1996) was to enhance access to markets and social services (DPWH 1989; DPWH/ADB 1998).

Long-distance travel (often referred to as external trips or out-of-village travel, without stating distance, see Starkey et al. (2002)), is defined as the distance from the study area's main urban

town to the closest regional city/town, equivalent to approximately 60 km. Although mobility involves a large spectrum of movements, long-term migration and permanent relocation are excluded. All trip purposes are included. The rest of the paper is structured as follows. Section 2 provides a literature review on long-distance mobility and a theoretical discussion. Section 3 provides a background description of how various conditions have influenced mobility in the Philippines, while section 4 outlines the methods and data used. Section 5 presents the findings and an exploratory analysis. The last section presents some tentative conclusions.

EMPIRICAL RESEARCH INTO LONG-DISTANCE MOBILITY IN THE GLOBAL SOUTH

The following review of the literature treating long-distance mobility (explicit studies of job migration and permanent rural-urban migration are excluded) in one way or another indicates that such mobility always attracts less attention than does short-distance mobility, and no studies cast light on changes over time (rare exceptions to this are Collier et al. 1993, Bryceson et al. 2003b, and Olsson 2007). The review is followed by a discussion of the relationships between transport infrastructure, accessibility, and mobility.

Studying how rural road rehabilitation projects influenced household mobility behaviour in two Indonesian villages, Leinbach (1981) reports trip distances from 60 to almost 100 km to visit relatives five to eight times/year (such trips made up a very small minority of all trips). Surveying empirical studies of rural household travel behaviour in Africa and Asia in the 1970s and 1980s, Howe (2001) mentions external trips briefly, but focuses on short trips taken for local purposes. Hugo (2003) discusses how long distance commuting in Asia has a long history but that increased transport capacity has facilitated an enormous expansion in the scale and composition of that movement. Studies from Indonesia in the 1970s (Hugo 2003) demonstrated a widespread incidence and socio-economic significance of commuting from rural to urban

areas and a substantial increase in non-permanent moves. Collier's et al. (1993, in Hugo 2003, p. 11) longitudinal study of 37 villages in Java, Indonesia, concluded that most of the landless rural families had at least one person who was working outside of the village, while very few 25 years earlier. In a study covering nine locations in Gazaland district, Zimbabwe, Wanmali (1991) analyzed how access to road transport facilities affected demand for the consumption and production of goods and services. On average, communal farmers had to travel approximately 24 km (one way) to access services, whereas commercial farmers, located in two areas, had to travel 63–75 km. Commercial farmers had to travel up to 175 km to access health services and 160 km for agricultural machinery; the three services located furthest away accounted for 12.4% and 20.6% of all travel, respectively. A survey from Nigeria, conducted by Salau and Baba in the mid-1980s (referred to in Simon 1996, p. 66–70), concerned trunk road development between Zaria and the larger city of Kano. Results showed that daily and weekly long-distance trips from the new road area had risen markedly, while reverse for monthly and annual trips. The main trip purposes were to buy/sell goods and to visit family and friends.

In a synthesis paper on rural transport and accessibility, Dennis (1998) reports that demand for regional transport is increasing, but the extent of this increase in terms of number, distance, and purpose of trips was not dealt with. Analyzing how six rural road projects (for motorized traffic) affected poverty reduction among very poor, poor, and better-off households, ADB (2002) found that most 'appear' to restrict their travel to the village and only occasionally travel outside the village, with little use of medium-/long-distance transportation links. Still, 26% of household members over 15 years old had worked in cities (national and provincial capitals, cities in another district or province). The report only specified the distance from one project site to a major city (Bacolod City, the Philippines), 80 km away. Hine and Rutter (2000) report on rural households' long-distance trips in Ghana and Malawi, which reached

40 km/one way at their maximum to visit friends and relatives. An average of more than 20 such trips was taken per household and year by non-motorized households. Studying the mobility and accessibility needs of the poor and the non-poor, Bryceson et al. (2003a) compared household travel behaviour across an urban–to–rural spectrum in Zimbabwe and Uganda. The farthest location was 80 km from the capital city, but the villagers' travel behaviour to the capital city was not dealt with. Instead, the previous day's short-distance trips, not exceeding 13 km, were the focus. A recent World Bank (2007) evaluation report added little to our understanding of how, why and how often rural dwellers travel to cities (rural and urban transport were treated separately), despite a recognition that improved transport conditions enable essential trips to various services and markets, and improve access to employment.

More recently, a study of two villages in a sub-district in Central Thailand reveals how road infrastructure has become developed enough to allow daily long-distance commuting (Rigg and Wittayapak 2009). Here, 55% of the 744 studied household members had travelled, mainly for work and business purposes, outside their village on the day before the interview (workers are picked up 100 km from the factory site). Johnston (2007) studied the use of public passenger transport service in rural Indonesia. For all trip purposes, bus trips averaged 19.9 km, while mean travel distances ranged from 8.9 km for marketing produce locally to 56.9 km for "business" trips. Bradbury (2006), in reviewing the relationship between mobility and access to social networks in Kenya, reported several trips (they made up a clear minority) above 100 km taken for social activities and even longer-distance trips for income earning and subsistence activities. Finally, Bryceson's et al. (2003b) study of long-distance journeys (defined as at least two hours one-way travel time and consisting of at least one night away from home) among three Ugandan villages and three Zimbabwean villages (30 households per village), showed that mean long-distance journey travel frequency averaged 1.5 and 0.6 annual

trips per capita respectively. On average, journey destinations were slightly biased towards urban areas in both countries. Furthermore, visiting made up 44 % and 50% of the annual long-distance journey purposes in Zimbabwe and Uganda respectively, while employment and business/trade only made up below ten percent among the rural villages in both countries.

Spatial Mobility and Accessibility Opportunities. Spatial mobility results from an interplay among *human needs* (desires, values), *individual resources/constraints* (which changes during the individual's life course), *social context, activity characteristics, land use,* and *accessibility*. Accessibility in itself is influenced by the qualities of the transport system (the costs and time of reaching destinations, and service frequency) and by the qualities of the land-use system and its spatial distribution (the qualities of potentially accessible destinations and activities) (Straatemeier 2008). Thus alterations in mobility are often preceded by a change, either in the individual's situation and/or in the structural organization of society. The latter is often preceded by a change in accessibility, driven by new transportation technology. The availability of faster and cheaper transport and the ability to choose from activities within a large geographical area have, together with residential and workplace adjustments to a car-based society, caused the demand for high mobility (Vilhelmson 2007). This development has partly decoupled access from geographical proximity; instead, time budgets and access to cars are stronger constraints to participation in activities.

Actual and Suppressed Demand for Mobility. As accessibility constitutes one basis of mobility, access to and distribution of transport resources influence actual and suppressed demand for mobility. However, while the supply and proximity to transport resources does not necessarily induce a demand for mobility, the reverse does not hold: the absence of adequate transport resources does not necessarily indicate low demand; demand may still be

present but be suppressed for various reasons (Preston and Rajé 2007). The means to shoulder costs may be present, but perceived as too high relative to the utility value at the destination. Hägerstrand (1987) points out how access to private vehicles undermines the market for public transportation, giving rise to increased differences in spatial mobility. Reduced service levels and increased fares may follow, further reducing the market demand. Furthermore, while low mobility is commonly assumed to be synonymous with inadequate mobility, very seldom have the poor rural dwellers' perceptions been examined (Simon 1996).

Driving forces of rural–urban spatial interaction. In the Global South, intensified rural–urban interaction is due to many factors; concentration of power, production, services etc. to cities, lack of livelihoods in rural areas, emergence of new non-farm opportunities, erosion of profitability of small-holder farming, inability of governments to fund rural reforms, expanded transport infrastructure investments, and socio-cultural changes (Ellis, 2000, 2005; Rigg 2006; Hew 2007; Clausen 2010; Corbridge and Jones 2010; Olsson 2009; 2010).

In NEG, the theoretical discussion, as well as the empirical findings concerning the role of transport costs is extensive (Krugman 1991; 1996; Kilkenny 1998; Lall et al. 2004; Renkow 2006; Deichmann et al. 2009; World Bank 2009). Here improved transport infrastructure, and hence reduced transport costs, work against the development of low density places.[1] Instead production (agricultural and non-agricultural) and administrative, economic, and service (schools, health care centers, hospitals etc.) functions are concentrated to and around cities or rural areas in close proximity to cities, as it generates agglomeration economies of scale. In other words; when transport costs are decreasing, returns to scale are strong and the incentive

[1] Initially, the emergence of agglomeration economies might be due to sheltered harbours, natural resources, access to inputs, proximity to markets, and availability of basic infrastructure, that historically encouraged early settlement (Deichmann et al. 2005).

to concentrate production close to the market is strong and vice versa. Likewise, a transport system centered on a primate city is more likely to promote concentration (Krugman 1996). Accordingly, to access these opportunities and services people *have to* travel. Travel-time also affects this concentration. Janelle (1969) showed that travel-time is a key factor in defining spatial reorganization of activities, indicating the relative advantage of a given place in attracting centralization and specialization of human activity.

Empirical studies (see Deichmann et al. 2005; 2008; 2009) have shown how proximity and distance to large urban areas, as well as resource endowments and production externalities influence concentration (proximity benefit knowledge transfers and a larger specialized labour supply). As NEG places cities at the center and predict patterns of specialization as the distance from cities increases, a systematic relationship between distance from urban centers and types of activities is expected to be found over geographical space. Whether and to what extent the concentration process sets in or is enhanced as a result from improved rural-urban interaction may also be related to distance in itself, as well as the size of cities reachable within a certain travel time. Deichmann et al. (2008) measured accessibility to nearest town or urban municipality with a population of at least 5000 inhabitants and the two major growth polies in Bangladesh. Others (Fafchamps and Shilpi 2003) allowed a flexible functional form with respect to distance in their equation. However, while improved roads between rural and urban areas result in reduced transport costs, the time distance can still be too large in order to enable daily work commuting from rural areas. But such reductions can enable participation in other activities not performed on a daily basis, for example, visiting hospitals with better facilities. Furthermore, as large cities are facing diseconomies (e.g., traffic congestion which has been underemphasized in NEG (World Bank 2009)), people may choose to perform activities in other smaller cities, thereby making a trade-off between travel time and cost

savings and more limited opportunities. Finally, given the leap in access to ICT (mobile phones in particular) in the Global South (Foss and Couclelis 2009; WB 2009; Aguiléra et al. 2012), ICT may affect individual travel choices and methods, possibly substituting some travel, generating new demand for other types of travel, and/or complement some travel. For example, the proliferation of mobile services opens new opportunities to financial services over mobile phones and contacts with family members and relatives residing elsewhere are made easier, partly making physical travel superfluous. However, the idea of complementarity or generation dominates in the literature (Aguiléra et al. 2012).

There is also a growing body of literature (also within NEG) arguing that people are increasingly visiting cities and urban areas for other reasons except for jobs, ranging from health, educational, and administrative to social (Deshingkar and Anderson 2004; Bradbury 2006; WB 2009). But according to Bradbury (2006), the literature disregards the means by which people physically access social capital by maintaining rural–urban linkages with extended family members. Access to social networks requires mobility, and transport is one agency by which such networks are supported. Furthermore, long-distance trips can be characterized as key trips: they are essential from both the livelihood and human perspectives. Processing paperwork and visiting family members are examples of this. Airey's study of feeder roads in Sierra Leone referred to in Simon (1996, p. 78–79), showed that most households valued the roads for social as much as economic purposes.

THE PHILIPPINE SITUATION

Data on Filipinos' mobility in general and over time are unavailable, but changes in vehicle fleet, access to public transport, public road network, and concentration of activities and economic power to major cities provide indications. Parallel to a fast growing population (a

factor of 2 from 1960 to 2007) (Commission on Population 2003; World Bank 2009), the road network length quadrupled from 1960 to 2006 (DPWH various years); national roads almost doubled in length, provincial roads increased by 43%, and village roads increased almost 11-fold from 1970 to 2006. Over the same period, the number of cars increased 12 times (a lower increase compared to in Malaysia and Thailand (Kutzbach 2009)), utility vehicles (e.g. jeepneys used for provincial and regional trips) 69 times, and buses 1.5 times; the number of motor-tricycles increased 13 times from 1980 to 2007 (LTO various years).

While the major increase in road length occurred during the 1960s, road standards are poor compared to, for example, Thailand (Rigg and Wittayapak 2009), and investments are insufficient (Balisacan et al. 2009). Interregional disparities are also considerable. While 100% and 95% of Metro Manila's and Southern Tagalog region's (Map 1) national roads were paved in 2005, respectively, only 67% of the national roads were paved in the country's remaining 71 provinces (DPWH various years). The inter-regional disparities were even greater among provincial, municipal, city, and village roads.

According to Clausen (2010), the primacy of Metro Manila reflects the historically and colonial centralized locus of state power and the spatially biased allocation of policy and resources (later perpetuated by Filipino governments), where Manila became the main destination within the road and sea transport networks. A policy shift occurred in the 1990s, but it mainly favoured cities located in the regions adjacent to Manila, namely Regions III (Central Luzon) and IV-A (Southern Tagalog) (Map 1). These regions benefit from relatively good infrastructure, proximity to and spill-over effect from Manila, and a more recent policy emphasizing the "decongestion" of Manila. In 2007, Metro Manila accounted for 33% of the

country's total GDP (NSCB 2009). Together with Regions III and IV-A, this area was home to 37% of the population and 56% of the vehicle fleet (NSO 2007; LTO various years).

Transport regulation influence on rural people's mobility. Historically, officially regulated public transportation fares have not been applied in practice (Roschlau 1985, Cabanilla 1991). Instead, the transport sector has developed its own pricing mechanisms, in which fares are adjusted according to passenger ability to pay, competition on routes, underlying operational costs, and volume of traffic on the routes. Lower rates are a way to fill vehicles, especially on long routes. Rates are lower far from urban centres, as a large proportion of the rural population could not afford public transport at the prescribed rates. In 1992, a regulatory framework for transport services and enhancing private sector operations appeared (NEDA 2001). The government would guarantee operators free and unrestricted access to markets (Manila was excluded due to saturation). A minimum of two franchise holders on any route would ensure competition. Market forces with very little by way of government subsidies or rate fixing would set tariffs and fares, the exception being remote rural areas with weak markets. Consequently, public transport services are competitive, resulting in rates lower than the official ones and higher mobility than expected for the rural population.

METHOD AND DATA

The study area is located in Quezon province, Luzon Island (Map 1). Until 1995, this area, home to 76,000 inhabitants in 2007, had been peripheral due to poor transport conditions, being accessible by land via only one road. Furthermore, the area is located behind a mountain ridge to the west, an unbridged river divided the municipalities until 2002, and the eastern and southern parts border on the Pacific Ocean. Manila, the national capital, and Lucena City, the provincial capital, are located 143 and 130 km away, respectively (Map 2).

The data used for analyzing long-term trends are based on questionnaire surveys of the same 263 households and 509 adult females and males (Table 1) conducted in 1999, 2001, 2008, and 2009, distributed over four villages in Infanta municipality and three villages in General Nakar municipality. In 1999, villages were selected according to the following factors: *major income source*, representing the area's biological resource diversity (fishing, farming, and logging) and the urban centres' diversified economy; *accessibility to urban centres*, and; *village income*. Villages having average household incomes above, below, and at the municipal average were chosen.

In order to be able to compare the situation before and after the major road improvement project, households that had been established in 1990 or earlier were selected. Had households established in 1994 or later been selected, a comparative before-after analysis had been difficult to perform. Women made up 51.5% in 1990, 1994, and 1999 and 52% in 2008/9 of the sample. The drop-out rate among households between 1999 and 2008/9 was 32% (388 households were included in 1999). Comparing inter-survey dropout rates for average yearly travel frequency, the findings show that the drop-outs averages for 1990 and 1999 were substantially lower compared to the total average. Age does not appear as an explaining factor here. However, the drop-outs average yearly household income was substantially lower. In 1990 and 1999, 69% and 76%, respectively, of the drop-outs household's income was lower compared to the total average household income.

Responses for the years before 1999 are retrospective and based on the averages for those years. Data for all variables dealt with are available from all years from 1990 to 1999 and from 2008/9, and for some variables from all years between 1990–2008/9. While retrospective data calls for attention, the concordance of the respondent's answers pointing in

the same direction where it should, and show differences where it should (e.g., where income come into play), indicates high reliability. Also, owing to the poor economic situation among a majority of the respondents, to remember money outlays, down to the peso, is essential. Furthermore, given that this paper is concerned with long-distance travel, an activity practiced rather seldom for a majority, people have clear memories of such travel. The situation had been very different had daily local mobility been investigated or long-distance mobility had been investigated in more advanced economies where such mobility is much more commonly practiced. A large majority of the households is income poor; 63% had a lower yearly income than that of average rural Philippines in 1999. In 1990, 1994, 1999, and 2007, 56%, 55.5%, 63%, and 52% of the households had incomes below the total average household income, respectively, while 23.5%, 24.5%, 20%, and 22% had incomes above total average household income, respectively. The remaining had average incomes.

Infrastructure-related and other factors influencing long-distance mobility behaviour. The 63-km-long Famy–Infanta national road underwent considerable improvement between 1993 and 1995 (Map 2) (Olsson 2007). A major constraint before 1995 was the mountain road section, especially the narrow road width and the low bridge capacities. As a result, travel speed was low. Furthermore, heavy rains, causing mudslides and poor surface conditions, made the road impassable, sometimes for weeks. After the project, the road was widened, straightened, and paved with asphalt. As a result, average travel time to and from Manila decreased from 12–16 hours to 7–10 hours. Delays virtually disappeared and the road became passable year round.

Public calling centres and land-line telephones became available in Infanta's urban centre in 1994 and 1996, respectively, and in 2002 a mobile network became available. Accordingly, access to ICT among the study households is a rather new phenomenon. Except for mobile

phones, accessible to 70.5% of households in 2008/9, up from 36% in 2004, only 8.5% of the households owned a computer in 2008/9 (2.5% in 2004) and 3.5% had an Internet connection. Furthermore, since 2000/1, it has been possible for people to transfer money through Western Union and local banks, making the physical delivery of money superfluous. Other improvements include the completion of the bridge across the Agos River, connecting the two municipalities in 2002. As to non-infrastructural events affecting mobility, while the Asian economic crisis in 1997 had a minor impact, the flash flood that hit the area in 2004 devastated resources (1068 casualties, 4256 damaged houses, and devastated rice-lands due to high salinity levels), the damage being exacerbated by the global economic crisis in 2007. Finally, in the Philippines, employment opportunities have failed to keep up with the rapid growth of the labour force (Herrin and Pernia 2003). The consequence has been un-/underemployment rates that are persistently high by East Asian standards. Likewise, unemployment is common among the young and educated.

It should be noted that the results are trends and averages for the households and individuals included in this study. They do not represent the whole study area (including 36 and 18 villages in Infanta and General Nakar municipalities, respectively). Likewise, as the individuals, households, and villages included here display different characteristics, spatial disaggregation of the data could reveal different trends.

LONG-DISTANCE MOBILITY CHANGES, DESIRES AND RESTRICTIONS

People taking long-distance trips and average travel frequency. In 2008/9, 96% of the respondents took long-distance trips, up from 80% in 1990, 82% in 1994, and 87% in 1999, thus an increase of 16% from 1990 to 2008/9. While not a prominent increase, a certain

accessibility effect could be identified. The proportion taking long-distance trips increased by almost 4% from 1993 to 1995, when the Famy–Infanta road improvements were completed, while the period with the next highest increase manifested an increase of only 2%.

Turning to average travel frequency: since 1990, the average yearly long-distance travel frequency has increased considerably, both on average and for all age groups (Figure 1). An individual took on average 6 and 2,5 more trips in 1995 and 2008/9, respectively, than in 1990, indicating that the Famy–Infanta project had a strong accessibility effect on the individuals long-distance mobility. The increase further indicates that a suppressed mobility demand had been released for many who also had the means to translate this demand into action. However, this does not mean optimal frequencies had been reached. Increasing one's travel frequency may have major implications for one's life situation, but still be far from one's actual desire and need.

In 2008/9, the average yearly travel frequency was lower than in 1995–1999. Several factors may explain this. First, given the longitudinal study's nature, data for the age group <30 years old were unavailable in 2008/9. As this group displayed a very high increase in frequency up to 1999, the total average frequency might well have decreased less in 2008/9 had this age group been included. Except for this no major discrepancy could be identified between age groups. Furthermore, 94% of the respondents who had access to a mobile phone in 2008/9 stressed that access to mobile phones has partly replaced physical long-distance mobility. With mobile phones people can replace more costly physical mobility. ICT access may also explain the higher travel frequency among those >60 years old. A combination of being less used to communicating via ICT, lower ICT access (62% in 2008/9 for this age group), and

more free time at their disposal (less active on the labour market) could explain their higher travel frequency in 2008/9.

Finally, many households have not recovered from the flash flood that hit the study area at the end of 2004, devastating the local economy. Actually, in 2008/9, 61% of the households reported that they were either fully or partly dependent on financial aid from others. Because of this many households can no longer (or to a lesser extent) engage in small-scale dry goods/wet market and/or agricultural trading, an opportunity enabled by the improved accessibility as of 1995. In addition, expenses for supporting children, studying or being un-/underemployed, may have increased. In 2008/9, the average number of children per household was 3.95, up from 3.65 in 1999, 3.23 in 1994, and only 2.72 in 1990 (in the early 1990s, many young couples still had few children). Finally, passenger fares on ordinary buses servicing Manila increased considerably in the second half of the study period (one of the two bus companies went bankrupt): from 1998 to 2007 fares increased by almost 85%, while from 1990 to 1998 they increased only 45% (Ordinary bus operators 1 and 2, 1999; 2008).

Trip purposes. From 1990 to 1999, the various trip purpose shares remained more or less constant (Figure 2). While work was an important trip purpose, social visiting was far more important, accounting for approximately 40% of long-distance trips. None of the trip purposes experienced any accessibility-related effect in 1995. In the case of work, despite 39% (n = 464) of the respondents being willing to commute on a daily basis to obtain either a higher salary or a more permanent job, commuting distances were still too great to be acceptable even after 1995. Adding to this was a very difficult labour market situation. When dry goods/wet market trading trips (which could be classified as work related) are added to social visiting and work-related trips, these three purposes accounted for approximately 80% of

long-distance trips in the 1990–1999 period. By 2008/9, four major changes had taken place relative to 1999. First, the share of social visiting trips had increased, accounting for 48% of all trips. Second and third, the shares of both work-related and goods purchasing trips had declined substantially, 7% and almost 10%, respectively. Fourth, the number of trips for medical reasons had increased by almost 8%.

What, then, could explain the changes detected in 2008/9? Had mobile phones not become available, social visits could have made up an even larger share. In fact, 98% of the respondents (n = 400) with access to mobile phones stressed that the ability to maintain social relationships was the most useful aspect of mobile phones (followed by saving time and saving money, in order). A larger share of these had adult or teenaged children residing at a greater distance than in 1999, when a larger share resided with their parents. This may have generated a demand for visit-related purposes. Regarding work and medical-related purposes, an age factor clearly came into play. Excluding those >60 years old (making up a large share of those who travel for these purposes, and also account for the higher average age within this group), neither work nor medical-related trips changed nearly as much; work-related trips decreased only 3%, while medical trips increased only 3%. With age, people become less active on the job market, but with sickness, people need to attend hospitals (the hospital in Infanta is very basic). This suggests that mobility follows one's life cycle. The decrease in work-related trips that still occurred after excluding those >60 years old could be explained by the difficult local and national labour market and economic situation. As youth unemployment is common, this could explain the lower proportion of work-related trips among those <30 years old. The decrease in dry goods trading, which still decreased considerably even after excluding those >60 years old, is also likely explained by the difficult economic situation. Fewer households have the financial means to participate in small-scale agricultural and/or

dry goods/wet market trading (many households had been partly or fully engaged in trading-related activities). In addition, of the respondents with access to mobile phones, a small share replied they had replaced work-related travel with mobile phone calls.

Concentration towards major cities. Approximately 80% of the destinations visited by the respondents (35 in 1990, 42–43 in the 1995–1999 period, and 41 in 2008) were located within a 150 km radius of the study area until 2008/9, when the percentage increased to 88% (Map 2). Over the study period, the national capital of Metro Manila was, overwhelmingly, the destination visited most often, followed by the provincial capital, Lucena City. Between 85% and 90% of the respondents visited Metro Manila over the study period, indicating the capital's importance. As to the provincial capital, Lucena City, 20% of the respondents visited Lucena in 2008/9, up from 12% before 1995, further indicating the importance of major cities. Visits to other cities remained stable. Why then has Lucena's attraction increased? One explanation may be that more people are employed in public administration and therefore need to visit the provincial capital. In addition, Lucena's accessibility vis-à-vis Manila has improved due to severe traffic congestion in the latter.

Modal choice and motor vehicle ownership. Until 1994, approximately 97% of the respondents used public transportation; ordinary buses and passenger jeepneys (Figure 3). In 1995, and in line with the completion of the Famy–Infanta road project, a dramatic change occurred. The jeepneys, in particular, but also ordinary buses, faced competition from minibuses, which accommodate 10–12 passengers (ordinary buses accommodate >60 passengers, jeepneys 18–25 passengers). Apparently, 23% of the respondents were prepared to pay more for greater comfort and faster travel (minibuses service and stop in Manila only). It may seem that privately owned vehicles have increased greatly in number due to the influx

of minibuses. However, while minibuses are privately owned, they are mainly operated as a passenger vehicle, making it difficult to distinguish between private and passenger service use. One reason why ordinary buses still had a 70% share in 2008/9 is income. A huge majority of the surveyed households cannot afford a four-wheeled motor vehicle. The "Others" category, including cars, has increased only 4% in nearly two decades. Therefore, the long-term trend in modal choice is still highly sustainable: trips are still predominantly taken by ordinary bus.

Figure 4 shows the total number of motor vehicles used for long-distance travelling and the proportion of households owning such vehicles. It should be noted that households that dropped out after 1999 could have been vehicle owners. But, given that a very large share of these households' incomes was below total average household income, it is unlikely. While the number of motor vehicles (32 in 2008/9) and the proportion of households owning such vehicles (10%) are still very low, the trend is clear: a constant increase, especially since 1999. The increase in household incomes in general and among higher income groups in particular (Olsson 2007) likely explains this. Many of the vehicles are minibuses/vans, followed by cars and owner-type jeeps, then jeepneys, and finally light trucks. Cost savings, together with time savings, were the major reasons for purchasing motor vehicles, being the main reasons cited by 58% of the respondents. Flexibility and load capacity were also frequently cited reasons (38%); the latter may indicate the agricultural and petty trading (e.g. bringing back goods from Manila) orientation of the local economy. That a large share cited time savings and flexibility indicates that households with financial means purchased speed to save time.

Suppressed mobility demand, travel frequency satisfaction, and mobility restrictions. In 1999, to enable comparison with actual changes in travel frequency, respondents were asked, "Did

you plan to change your travel frequency as a result of the Famy–Infanta road project?" A large majority (64%) had planned to do that. This indicates that a suppressed mobility demand was present before the project: people's mobility desires and needs were not fulfilled. The costs associated with long-distance travelling were, for many, higher than the "benefits" obtained at the destination. This situation likely hampered vital functions for many household and individuals. In order to better understand future mobility trends, the respondents were asked to express their satisfaction with long-distance travel frequency in 1999 and 2008/9; 58% and 52% of the respondents were satisfied with their present travel frequency in 1999 (n = 257) and in 2008/9 (n = 460), respectively. The drop among those satisfied shifted to those who wanted to reduce their travel frequency (11% in 2008/9, up from 5% in 1999), which could be related to age (a larger proportion of the old get medical attention, which is not always a desired mobility demand). A large proportion (37%) in both 1999 and 2008/9 expressed suppressed mobility, saying they wanted to increase their present travel frequency. Many of the unsatisfied may belong to the group taking only 2.5 or fewer long-distance trips per year. In 2008/9, 47% of the respondents took 2.5 or fewer long-distance trips per year, down from 53% in 1990. This indicates a highly unequal mobility situation.

In 2001 and 2008/9, respondents were asked to indicate three restrictions (in ranked order) that limited their desired and needed long-distance mobility (Table 2). Given that a large proportion of the households are (income) poor, lack of money dominated as the major restriction, cited by 55% of households in 2001 and in 76% in 2008/9, followed by lack of time, and sickness/physical disability. Several factors could explain the dominance of lack of money. Transport-related costs have increased more in relative terms compared with average household incomes (the latter increased less from 1999 to 2008/9 compared to from 1994 to 1999). Furthermore, given the increase in average long-distance travel frequencies, travel

expenses have increased for many households. In addition, expenses for supporting un-/underemployed children may have increased because of economic conditions. The stable proportion (10%) of the respondents claiming that their mobility is not restricted at all is noteworthy. This could be associated with more affluent households. Low physical accessibility is a minor restriction. Had the same question been asked before 1995, when the accessibility level was very poor, a different picture would likely have emerged. Finally, the "no access to vehicle" option had dropped significantly by 2008/9, indicating that those with the means to purchase a vehicle had done so.

Turning to time restrictions, the improved road enabled faster return to work, more time spent with family, easier handling of household chores etc. In 1990, only 42% of the travellers returned home same day (RHSD) or within one night when travelling. This share increased to 73% in 1995, indicating a major accessibility effect of the road project. By 2008/9, a converging pattern had emerged, travellers RHSD or staying away one night had decreased to 43%. A larger proportion of old people with more time visiting adult and/or studying children could partly explain the longer average time spent away in 2008/9.

CONCLUDING DISCUSSION

Spatial mobility in the Global South is increasing, generally and from rural to urban areas. The hinterland from which people are drawn is expanding and demand for transport outside urban areas is increasing. The growth in road capacity, access to cheap and ubiquitous public transportation, concentration of opportunities to major cities, higher incomes, and a growing motor vehicle fleet have resulted in higher mobility at a relatively low cost for rural people. Mobility trends in the Global South are thus following those of the more advanced economies.

The findings in this paper from rural Philippines support this development. A substantially improved accessibility by land, concentration of opportunities and services to cities, access to ICT, as well as age and market- and income-related factors has all influenced long-distance mobility. Over time, a larger proportion of individuals travel longer distances more frequently, especially to cities and in particular to the national and provincial capitals for social purposes. This development might continue, since a great number of people still express suppressed mobility demand and experiences exclusion; a large share performs very few long-distance trips. The findings also indicate a recent countertrend. Access to mobile phones has eased mobility demand, partly replacing physical mobility. In a situation in which rural people are growing more accustomed to ICT and access to Internet connections is propagating, long-distance mobility could be reduced further. Furthermore, more people are taking long-distance trips in privately owned vehicles, indicating that people are purchasing speed. But this development is very slow, instead long-distance mobility is still highly sustainable in terms of modal choice: trips are still predominantly taken by ordinary bus. The empirical longitudinal data analysis approach in this paper, which adopts a life-course perspective in which people are affected by cumulative stimuli over a long period, has thus not only elucidated past trends, but also enhanced our understanding of possible future long-distance mobility behaviours.

Returning to NEG theories, the relationship between decreasing transport costs and a subsequent concentration of activities to major cities, often located at a far distance, generate an increased demand for long-distance mobility among rural people. This is especially the case in situations where the transport system is centered on a primate city. Findings in this paper support this explanation. However, to what extent this process sets in or is enhanced in relation to work commuting is related to distance in itself, as well as the size of cities

reachable within a certain travel time. Despite substantially reduced transport costs, work commuting on a daily basis can still be out of reach as the travel-time distance to the nearest major regional urban centre is still far too long. The findings also support that as cities are facing diseconomies of scale (traffic congestion), people may choose to perform activities in smaller cities, thereby making a trade-off between travel related costs and more limited opportunities. That long-distance mobility in the Global South is mainly driven by social motives is strongly supported in this paper. This has been largely disregarded in the previous literature as focus has predominantly been on work-related trips.

As discussed in the general mobility literature, increased rural-urban spatial interaction can have significant socio-economic impacts, especially for already vulnerable population groups (who are often poorly accounted for). These uneven outcomes reduce people's ability to fully participate in society. This paper supports such a conclusion in two ways, a suppressed demand for long-distance mobility is still present and inequalities in terms of travel frequencies are substantial. The latter explanation, which is also supported by the empirical results in this paper, is related to a combination of higher private motor vehicle ownership (people purchase speed) and a subsequent decline in public transportation services and fare increases. Furthermore, it is shown that access to mobile phones can partly substitute physical long-distance mobility. This is noteworthy given that complementarity or generation dominates within mainstream theories on ICT and mobility behaviours. Finally, there is also, partly, support for the often held view that mobility follows the individual's life cycle, in this study foremost related to age and income.

In a future scenario where a concentration towards cities continues, while at the same time investments in rural-urban transport infrastructure, and private motorization and incomes

increases, an even greater flow of people can be expected. This will inevitably put pressure on the transportation system (congestion), the environment (emissions etc.), public transportation provision, and finally, but not the least, socio-economic inequalities. This scenario is not exclusive for the Philippines, where the road standard, car ownership, and investments in transport infrastructure are lower compared to other countries in Southeast Asia, but also for other countries in the Global South.

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Table 1. Characteristics of households and individuals included in the longitudinal study.

	1990	1994	1999	2008/9**
Total number of households/individuals*	263/509	263/509	263/505	263/474
Mean/median ages	37.4/37	41.4/41	46.3/45	54.5/54
Minimum/maximum ages	16/71	20/75	25/80	34/85
Age group shares (%)				
○ <30 years	31.2	21.6	8.7	0.0
○ 30–39 years	26.0	24.4	25.6	10.9
○ 40–49 years	22.8	27.1	26.5	28.0
○ 50–59 years	15.9	18.1	22.0	27.8
○ >60 years	4.1	8.8	17.2	33.3
Average household income (pesos/year)	64,210	72,433	101,477	136,850
○ *households with below average income (%)*	63	64	66	62

* The decrease in number of individuals was mainly due to disease. ** Household income as of 2007.

Figure 1. Average yearly long-distance trip frequency 1990–2008/9, distributed by total average and by age group (trips/year).

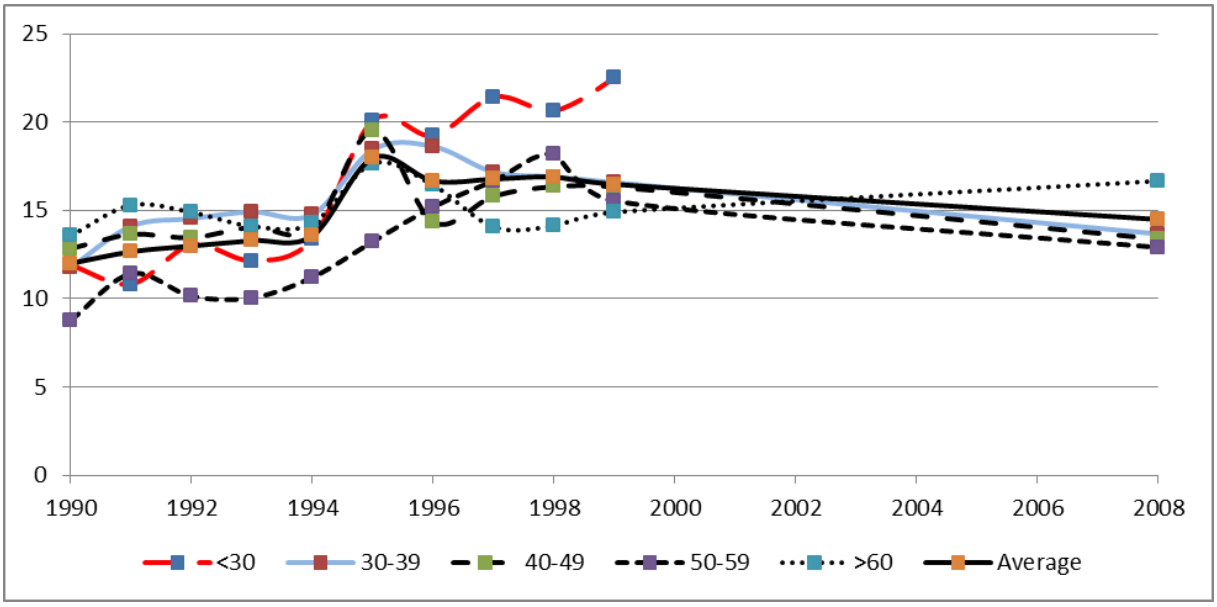
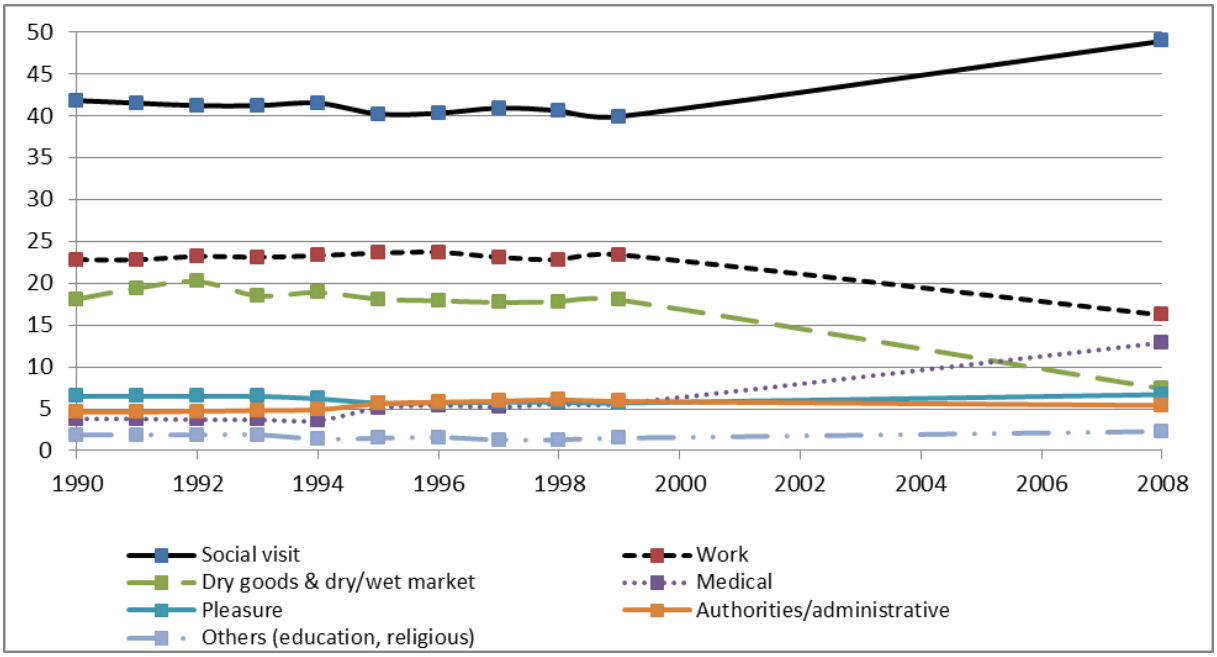


Figure 2. Purposes of long-distance trips 1990–2008/9 (%).



Note: Respondents were allowed to indicate several trip purposes.

Figure 3. Mode of transport used for long-distance travel 1990–2008/9 (%).

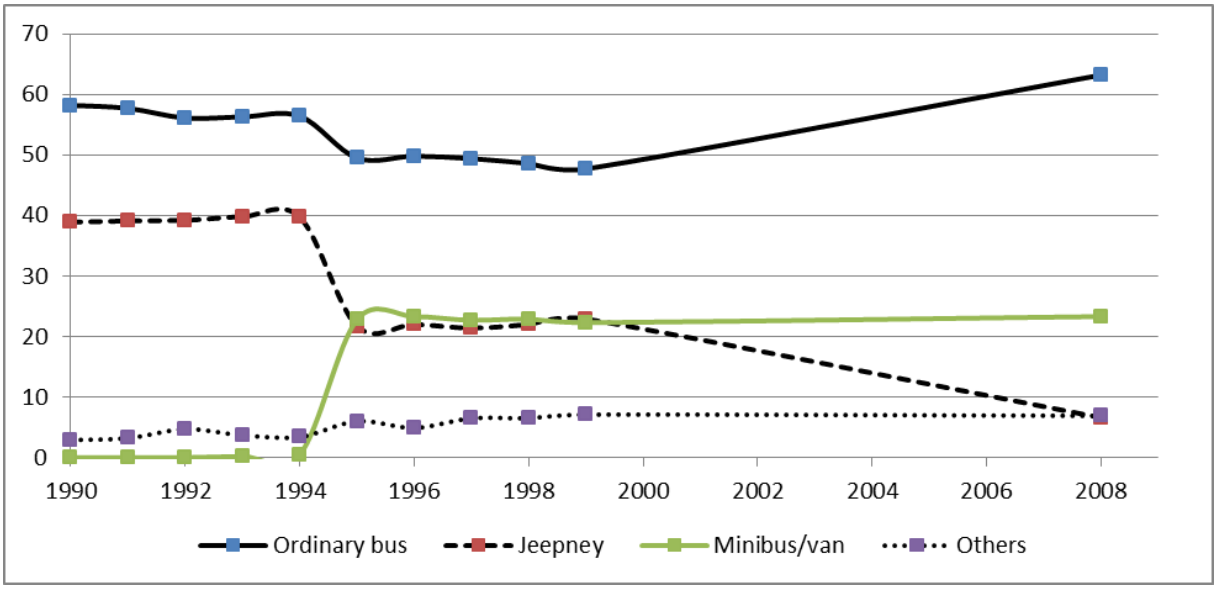
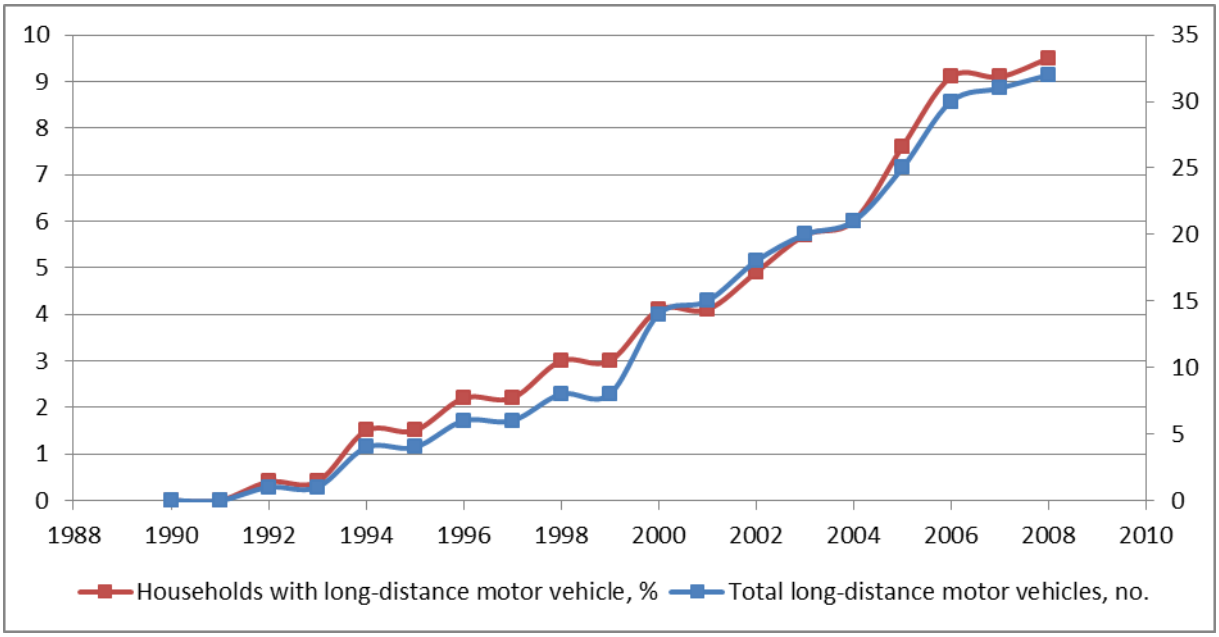


Figure 4. Number and proportion of households owning motor vehicles used for long-distance trips 1990–2008/9 (% and number).



Note: Motor vehicles included are cars, owner-type jeeps, jeepneys, minibuses/vans, and light trucks.

Table 2. Mobility restrictions limiting long-distance trips 2001 and 2008/9 (%).

	2001		2008/9	
	Major rest. *n* = 248	1–3 rest.* *n* = 462	Major rest. *n* = 454	1–3 rest.* *n* = 1108
• Lack of money	55.6	34.8	76.0	34.2
• Lack of time:	16.9	35.4	9.0	34.4
○ *Take care of household chores*	*0.4*	*0.8*	*1.1*	*5.3*
○ *Take care of children/elders*	*6.0*	*14*	*0.6*	*5.8*
○ *Busy working*	*10.5*	*20.5*	*7.3*	*23.2*
• No access to vehicle	5.6	11.2	0.4	2.8
• Sickness/physically disabled	7.2	13.4	4.4	19.4
• Low physical accessibility	1.6	3.8	0.0	1.7
• No restriction	11.7	-	9.7	-
• Others**	1.2	1.0	0.4	7.0
• Total	100	100	100	100

*Excluding No restriction. ** There were: women not expected to move around alone; women at a disadvantage compared with men; women feel insecure on their own; careers not acceptable for women.