

MOBLOC - Results

Mobilities and long term location choices in Belgium

DURATION OF THE PROJECT
01/01/2007 - 30/04/2011

BUDGET
564.774 €

KEYWORDS

Accessibility, daily mobility demand, propensity to move, residential localization, household structure, municipalities.

CONTEXT

Mobility and transport evolve with time and the passing generations. Interactions are numerous between daily mobility and household migration (here defined as house moving implying a municipality change). The evolution of the transport system has deeply modified the barrier of distance and has largely opened the choices in terms of residence place. The continuing urban sprawl phenomenon resulting from these modifications has itself resulted in a strengthening of the property and housing market in certain territories, pushing people (young couples in particular) towards a residential localization which is further and further away from the traditional, urban activity centres. The tensions between daily and residential mobility have therefore increased, notwithstanding the recent rise in energy costs. This in turn generates unsustainable effects on society and environment.

But these new residential choices have in parallel induced new mobility behaviours, based on an extensive (and probably excessive) use of the private car in daily trips (home-work/school, shopping, leisure ...). Social life itself (visits to friend and family) has become more spatially dispersed. One already knows that the propensity to change residence is determined by a number of individual or household characteristics such as age, citizenship or income, but the effects of long-term trends as population ageing, the evolution of the household/family structure on both residential choices and mobility behaviours remain so far largely unanticipated.

This research project aimed at analyzing interactions between demographics and the evolution of mobilities at different time-scales. In particular, localization choice for household, daily accessibility and internal migrations appear to have strong relations.

OBJECTIVES

The project objective was so to investigate the link between long-term society evolution, residential choice, transportation demand and the resulting accessibility evolution. On the societal trends side, particular attention had to be paid to the population ageing effects, evolution of family cell structure and inter-generational relationships, but other variables such as land-use and standards of living trends have also been considered for potential inclusion in the developed models.

On the transportation side, emphasis had to be put on the evolution of transportation demand (gravity model/mobility demand model more lately described) and resulting traffic conditions (accessibility models).

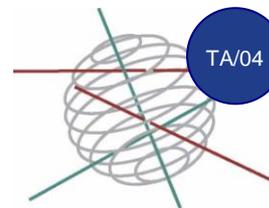
The project objectives also included simulations of scenarios for the future in Belgium but as researchers faced a lack of time, such simulations could not be achieved. Nevertheless, the main models are available for these simulations. Furthermore, the links between those models are ready to use.

CONCLUSIONS

Major conclusions concern the main models, which are, a propensity to move model, a localization model, a transportation demand model and accessibility models.

(i) The transportation demand model allows the computation of the origins and destinations of home-work travels flows in order to provide an estimation for the accessibility model. Indeed, from the margins of an origin-destination matrix, this model, calibrated on exhaustive data from the national census of 2001, can compute the flow between each pair of Belgian municipalities. The accuracy could be improved to better model the long distance trips but without consequences on the shorter ones being currently well estimated. This transportation demand model can feed the accessibility models developed in order to get municipal accessibility indicators. These indicators take account, on one hand, of the accessibility to jobs during morning peak hours and, on the other hand, of the accessibility to other daily activity places during off-peak hours. These indicators rely on travel times computed thanks to an accessibility model calibrated on a highways and national roads network. This network was characterised with a typology based on the crossing of urbanized areas from the CORINE land cover GIS layer. Furthermore, a check of the speed, the length of the travel and the travel time difference between declared speed, length and travel time of the MOBEL survey in off-peak hours was achieved.

(ii) The propensity to move model shows us that this propensity depends on the life cycle of individuals, and more particularly their family trajectories. One can observe this link through the well known correlation with the age and the transition of the household structure. In fact, the transitions leading to move are break-up situations, new family-units compositions and leaving parents' home. It brings out that the more stable situation concerns people who are in married couple (with or without children); this situation which is often associated with an owner status, which is another factor of residential stability. In other words, the likely evolutions of family situations marked by the rise of less stable households (cohabitation situations, one-parent family...) should still generate higher propensity to move rates in the coming years.



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(iii) The localization model mainly shows us that people tend to settle down in municipalities where “similar” people live (regarding e.g. the household structure, the age). The relocation often takes place on short distance. People rarely leave their residential municipalities to find a new dwelling in a far away place. Accessibility indicators are also significantly explanatory for the residential choice, although, as it turns out, not dominant.

CONTRIBUTION OF THE PROJECT TO A SUSTAINABLE DEVELOPMENT POLICY

The project's objective was to investigate the links between long-term residential choice, accessibility and daily mobility, with the ambition to provide better understanding of the behaviour of Belgian households regarding these issues. In particular, the respective importance of several categories of factors is crucial for the establishment of land-use and accessibility policies. The mixing of long-term decisions such as housing and short-term ones such as daily mobility turns out to be a challenging issue.

The accessibility model outputs provide a few relevant accessibility indicators; they allow the characterization and comparison of municipalities and we feel that this could have direct consequences on municipality management.

The model describing the propensity of the Belgian individuals to move their residence (which incorporates a number of explanatory factors at the individual and household levels) shows us that the choice of changing residence is mainly caused by alterations in the household structure, accessions to a different position in the household (from child to head e.g.) and age classes. This reinforces the idea that societal trends (as opposed to material infrastructure evolution) are crucial to explain internal migration within a country. In particular, population aging and the increase of “narrow” households may present specific challenges in urban planning and land-use in general during the forthcoming years.

Finally, the residential localization model is central to the design of suitable land-use regulations at the regional level. Remarkably, analysis indicates that the dominant factors are, by decreasing level of importance, the distance between the previous residence and the new one, the perceived quality of life in the new municipality of residence, the household structure, and, in fourth position, the accessibility of the new municipality of residence. Accessibility is therefore less important than expected at the start of the project.

A merely interpretation of the results from the MOBLOC project is that migration within the country is less determined by infrastructural factors (within which accessibility is an important example) than by factors related to societal life in a more general sense: household structure and its evolution, closeness to one's relations, age class and quality of life score indeed higher in our results than purely transport related factors.

We clearly believe that these conclusions are important for any forecast on the development of land-use and transportation systems. They will be notably discussed in the new regional prospective study group (SRP) established under the leadership of the Institut Destrée and the Institut Wallon d'Evaluation, de Prospective et de Statistiques (IWEPS). We also plan to disseminate those conclusions more widely, via scientific publications but also aiming the municipality managers and the general public.

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