



11th TRAIL Congress
November 2010

GOVERNING FOR INTERGRATION

Decision making in transport and land use planning

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ABSTRACT

Urban planning is believed to play a vital role in the pursuit of sustainable accessibility. The underlying idea is that individuals' travel choices are influenced by urban form. In this context, urban planners are expected to plan for an optimal integration between land use and transport. Yet, this fine tuning is difficult to achieve. Urban planning takes place in a multi-actor environment. The location of activities and transport nodes is not fully determined any one actor. Rather, it is the product of a dynamic process of interplay between the decisions taken by multiple actors. Based on literature review, we approach this problem by viewing decision making processes as a process of interaction between purposeful actors (actors with strategies), acting in the context of particular institutional setting that determines the rules for their interactions. In this framework, we formulate the following research questions: How does the interplay between actors' strategies shape the final decision outcome?; What is the effect of different interaction mechanisms on the final decision outcome? How does this reflect on integration between land use and transport?

KEYWORDS

Accessibility, Land use transport integration, policy coordination, decision making

INTRODUCTION

Accessibility has become a central concept in urban planning. Increased accessibility is expected to contribute to better quality of life and promote economic development by providing access to a larger pool of jobs and leveraging business opportunities. Sustainable accessibility, however, calls for solutions that go beyond the transport domain. Urban planning is believed to play a vital role in a shift to more sustainable mobility patterns. Its importance is twofold. On the one hand, urban planning affects the location of activities and transport nodes, which in turn determine the mobility needs of individuals and freight. On the other hand, urban form is known to affect individuals' mode choices. Research literature on the transportation land use link is extensive. Most studies point towards a positive although

modest effect of mixed uses and high urban densities on mobility patterns (for reviews see Handy, 2005; Leck, 2006; Ewing and Cervero, 2010; and for the Netherlands see Meurs and Haaijer, 2001; van Wee, 2002). A number of planning practices such as building compact cities, promoting a rich mix of land uses, and making street design pedestrian and cyclist friendly, are credited with reducing the need to travel and promoting a shift towards more sustainable modes of transport. It is believed that there is room for further improvement, if a higher level of integration between land use and transport is achieved through the optimal location of activities and transport nodes and the synchronization of networks of mobility and activity patterns.

Urban planners are therefore expected to plan for sustainable accessibility. However, this fine-tuning between location of activities and transport nodes is difficult to achieve. It ultimately depends on the interplay between the actions of multiple actors whose decisions shape urban patterns and transport networks. Urban planners, land owners, developers, investors, politicians, planners, transport operators and the general public play an important role in the process. In this view, urban form, and hence, integration between land use and transport, depend on the constellation of actors that influence the location of land uses and the shape of transport networks, and on the mechanisms (institutional relationships) through which these actors interact. Most of the current approaches to land use and transport interaction (LUTI) modelling do not explicitly include the “actor-factor”. LUTI models are very sophisticated in how they model land use transport interactions and the behaviour of users. Other approaches study the institutional context of transport and land use decision making, but the relationship between the level of institutions and the level of decision outcomes remains tenuously established. In this paper, I review literature about decision making in the context of transport and urban planning, and formulate my research questions on the basis of this review.

LITERATURE REVIEW

Obstacles to coordination between transport and land use

Urban and transport planners are expected to coordinate their efforts in order to achieve an integrated transport and land use system. Policy coordination is not a new problem, but it is, to a great extent, unsolved. Integration between land use and planning is, in this sense, a wicked problem. Urban planning is exercised at multiple spatial and temporal scales, and in pursuit of diverse sectoral interests. Environmental, economic and social goals often conflict. Integration between land use and transport is only one of several competing goals and interests that have to be spatially translated. Notwithstanding, planning is expected to reconcile different spatial and temporal scales, spatial goals and claims on the use of space. Failure to coordinate may lead to underachievement of even the most well intentioned plans, and end up producing patchy transport networks and car dependent neighbourhoods. Most frequently, lack of coordination is attributed to institutional barriers to cooperation between transport and spatial planning authorities, such as separate budgets, different procedures, reluctant departmental culture and weak incentives for cooperation (Hull, 2008; Te Brömmelstroet and Bertolini, 2010). Other studies (Stead et al., 2003) have suggested a number of ways in which these barriers may be overcome, such as setting up joint teams, and having shared goals, responsibilities and budgets, and a motivated leadership with extended professional networks. These studies have in common the fact that they focus on coordination within the public sector, and their scope is narrowed to a small sphere of institutional actors,

usually restricted to the transport and planning authorities or local municipal actors. These studies therefore disregard the broader context where planning is exercised.

Urban dynamics as a result of multi-actor decision making

The location of activities and transport nodes is not fully determined by any one actor, nor fully controlled by planning authorities. Instead, location patterns are the product of a series of decisions taken by multiple actors. For instance, planning authorities may design zoning maps establishing preferred locations for office buildings next to transit stations. However, for office buildings to actually cluster around transit stations, it is often necessary that the landowner chooses to sell the land, the developer chooses to build, a bank chooses to finance, that the transport operator maintains the station operative, and that there is enough demand for firms to locate there. In view of this broad set of actors, how can the planner aim to influence the evolution of the land use patterns? According to Adams (1994), spatial planning can better be viewed as a form of intervention in land and property development. In this view, the planner's role is more to influence the strategies of private actors, rather than aiming at the type of comprehensive planning that would be required for achieving the optimal integration between land-use and transport. This view [...] has been poorly acknowledged by spatial planners" (Adams and Tiesdell, 2010). According to Healey (1992), "instead of simplistic oppositions between planning and the market that tended to structure debate in the 1980's, it is now more productive to explore the interactions between planning regulations and market conditions" In this sense, urban planning is less about "scientifically discovering the best technical solution to be implemented by the planning authority in the public interest", and more "about the process of bargaining, negotiation and compromise over the distribution of scarce environmental resources [...]", as argued by Adams (1994) and Forester (1989). However, as Ligtenberg et al. (2004) have noted, negotiation ends with the selection of consensual solution, not necessarily optimal ones. This should be taken into account when aiming for optimal solutions for integration between transport and land use.

Actor interaction and the institutional setting

How does the institutional setting affect the decisions being made about the transport and land use system? First, different settings empower different groups of stakeholders. New actors bring new problems to the policy arena, they formulate old problems in new ways, and they bring in new skills and resources to solve them. Second, the framing of problems and the timing of decision-making can also change. More importantly, the institutional setting has bearing on the decision outcomes. If a decision process in urban planning is viewed as a game between actors pursuing different strategies to achieve their goals, institutions are the rules of the game, which will evidently affect the outcome. Furthermore, some institutional theories - "sociological institutionalism" according to Hall and Taylor (1996) - assign an even deeper role to institutions, arguing that decision making is bounded by culture or a particular worldview and institutions provide "moral or cognitive templates for interpretative action", in which case they shape not only the strategies but also the decision makers' goals. In any case, institutions are the rules governing the strategic games actors play, and thus define the nature of the interactions between the actors. These interactions can range from more "plan and control" approach, or it can be more like the network model, in which case negotiation with market and community actors is encouraged.

RESEARCH QUESTIONS

Above, we have emphasized the multi-actor nature of decision making processes in the context of transport and urban planning, and how decisions about the location of land uses and transport nodes can be viewed as the result of the interplay between the individual strategies of several actors. These decisions will modify the patterns of urban development, and thus affect the extent of transport and land use integration. Given this, our approach rests on viewing the decision making processes as a process of interaction between purposeful actors (actors with strategies), acting in the context of particular institutional setting that determines the rules for their interactions. Our ultimate goal is to understand if particular arrangements of these actors lead to more or less integration between transport and land use. More specifically, we formulate the following research questions: How does the interplay between actors' strategies shape the final decision outcome?; What is the effect of different interaction mechanisms on the final decision outcome? How does this reflect on integration between land use and transport?.

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