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**GETTING OUT OF THE CAR:
AN INSTITUTIONAL/EVOLUTIONARY APPROACH TO SUSTAINABLE
TRANSPORT POLICIES**

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Titolo: GETTING OUT OF THE CA: AN INSTITUTIONAL/EVOLUTIONARY APPROACH TO SUSTAINABLE TRANSPORT POLICIES

Getting out of the car: an institutional/evolutionary approach to sustainable transport policies.

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Abstract

Orthodox economics sees transport as a market which can be made more sustainable by improving its self-regulating capacity. To date this static approach has not been able to limit the growing demand for transport and its increasing environmental impact. Better results might be obtained by using evolutionary and institutional economics. Starting from these theories, a sustainable transport policy should be based on three fundamental considerations. First, transport is not a market, but a sum of systems affected by path-dependence and lock-in phenomena. Second, transport is not sustainable because it is locked in environmentally sub-optimal systems. Third, structural changes in technologies and organisations, institutions, and values are needed to establish more sustainable transport systems. We give an example of the use of an institutional/evolutionary approach to sustainable transport policies in the transition from the system of mass motorisation to the new urban mobility system.

Keywords: Sustainable transportation; Transport policy; Environmental economics; Institutional economics; Evolutionary economics.

JEL Classification: B52; Q58; R40.

1. Introduction

Today sustainable transport policies (STPs) are especially influenced by orthodox economics. Transport is considered as a market and public intervention is seen as a residual option, to be used to correct market failures by stimulating and simulating competition in the transport sector (Gomez-Ibanez and Meyer, 1993; Hidson and Muller, 2003; OECD, 1992 and 1994). Price tools such as tolls, fuel taxes, and modal shift incentives are widely used by orthodox STPs to reduce environmental externalities (Button and Hensher, 2001). Insurance obligations designed to improve the environmental performance of transport and the rarely used exchangeable pollution permits are also consistent with an orthodox approach (Raux, 2004; Zegras, 2007). The use of cost-benefit analysis to evaluate public investments in transport infrastructures is market-biased too: stated or revealed preferences are used to assign a “shadow” price to environmental damages (Boardman et al., 2001).

So far such policies have had little impact (ECMT, 2007; EEA, 2007), and this means that a deeply critical analysis is possible.

Better results may come from building STPs on institutional and evolutionary economics (Dosi, 1982; Freeman, 1982; Hodgson, 1988; Nelson and Winter, 1982; North, 2005). Notably, starting from classical critiques of orthodox environmental economics (Kapp, 1950; Georgescu-Roegen, 1971), and from more recent works on institutions (Olstrom, 1990; Vatn, 2005), preferences (Bowles, 1998; Frey, 1992) and innovations (Kemp, 1997; Sartorius and Zundel, 2005, Weber and Hemmelskamp, 2005), one may conceive a new – institutional/evolutionary – approach to STPs.

Following these contributions, transport is not just a market, but a sum of systems, each the result of a historical process in which three structural factors co-evolved:

- technologies and organizations, that is, how transport services have been produced and consumed;
- institutions, that is, how transport-relevant decisions have been taken and how transport-relevant interests have been mediated;
- values, that is, how transport-relevant preferences and behaviour have been formed.

This process has been genuinely dynamic, being characterized by path-dependence (the evolution of transport systems has been conditioned by its past structure) and environmental lock-in (because of path-dependence, transport systems has achieved environmentally sub-

optimal equilibria).

Thus, present transport unsustainability is not the result of a market failure caused by environmental externalities. Environmental damages are an “internal” result of developments in transport systems in the past. Using market tools to internalize transport externalities (following Coase’s or Pigou’s approach) is at best an ex-post correction (Vatn and Bromley, 1997). Instead, an institutional/evolutionary approach to STPs should be aimed at reaching the needed critical mass to unlock existing transport systems and at managing the transition towards more sustainable transport systems. To do so, it should recognise a central role to those structural variables (technologies and organizations, institutions, values) that are usually taken as exogenous by STPs based on orthodox economics.

The rest of the paper is divided into two parts. The first part shows that transport is locked in two unsustainable transport systems: mass motorisation and globalisation. The second part gives an example of an institutional/evolutionary STP able to manage the transition from the system of mass motorisation towards the system of new urban mobility.

2. Unlocking existing transport systems

Transport consists of two basic systems: the system of “mass motorisation”, based on private cars and the system of “globalisation”, based on sea transport of goods and air transport of passengers. Obviously other elements are also involved; however these are not relevant when one is making a structural evaluation of sustainability, because they are directly conditioned by the two basic systems. Local public transport and road haulage provide two valid examples: the first is losing out to the car, and the second is now almost totally integrated into international transport networks.

The dominance of these two systems was not the spontaneous result of market choices, but rather the effect of the complex dynamic evolution of three linked structural factors: technologies and organisations, institutions, and values.

Three structural factors have all contributed to mass motorisation. Car manufacturers, petrol companies and road construction firms played a relevant role in the promotion and building of road and fuel distribution networks. Then there was the abandonment of possible technological and organisational alternatives, such as the dismantling of existing tram lines and the precocious stop given to the development of

electric vehicles (Hoogma et al., 2002). Finally, there was the affirmation of values based on individualism and consumerism.

The following factors have all played a role in globalisation: 1) the deliberate decision to create a free world market, encouraged by ad hoc international institutions (first the GATT and then the WTO); 2) the use of containers, the increasing size of ships and the adoption of transshipment as the technical and economic solution to the growing demand for freight (Kendall and Buckley, 2001); 3) the parallel existence of two organisational solutions to the fast growing demand for air passenger transport: the hub & spokes of the traditional companies and the point-to-point services of the low-cost airlines (Doganis, 2005); 4) the growing familiarity of consumers with foreign goods and services (here international tourism plays a crucial role).

All these structural factors are locking transport in environmentally obsolete systems. Being aware of this multidimensional lock-in and identifying the measures needed to unlock it are the two principal conditions necessary for establishing an institutional/evolutionary approach to STPs.

The most relevant impact of such an approach is that it creates a trade-off in STPs between the enormous effort needed to create new and more sustainable transport systems, with the associated risk of locking transport into unprofitable choices, and the simultaneous opening up of more innovative transport “niches”. These, by contrast, can result in an inefficient dispersion of resources (Schot et al., 1994).

The potential efficacy of institutional/evolutionary STPs may be increased by two elements. First, a multidimensional approach to actions - STPs should intervene in all the aspects of the process of change in transport systems, not only in technologies and organisations, but also in institutional and cultural areas (Kemp and Rotmans, 2005). Second, the policy has to be dynamic - STPs should profit from a learning process which allows the objectives and tools to be adjusted. Such adjustments would depend on the interim results (van den Bergh et al., 2007).

More generally, institutional economics argues that when strong uncertainty and incommensurability are involved – as is in the case of sustainable transport – participated multidimensional procedures (such as deliberative MCA) should be used instead of monetary evaluation tools (such as CBA) (Munda, 2004; Stagl, 2006).

3. An application to mass motorisation

An institutional/evolutionary approach to STPs must have three

logical phases: 1) evaluation of the level of development of alternative systems; 2) verification of whether the present technologies and organisations, institutions, and values are coherent with the process of change towards a more sustainable transport systems; 3) design, implementation, on-going monitoring and adaptation of the STP.

With reference to the stage of development of the alternatives to mass motorisation, it is clear that a technological option is in conflict with an organisational one (Hoogma et al., 2002). On one hand, there are a series of technological innovations: diffusion of bio-fuels, more efficient traditional engines, increasing use of hybrid vehicles (while awaiting future developments in fuel cells). On the other hand, there is the possibility of creating a new urban mobility system, based on mass public transport, flexible transport (car sharing, on-demand buses, pooled taxis, etc.), non-motorised transport (on foot or by bicycle), and transport demand management.

Technological change in the existing system of mass motorisation is less advantageous in terms of sustainability because: 1) it assumes that the increase in the number of cars in the future will be less than the improvements in the efficiency of the vehicles – so far it has not been; 2) it implicitly abandons the idea of intervening in the non-strictly environmental aspects of sustainability (congestion, consumption and degradation of urban space, etc.). Thus, for STPs the choice is clear: support the transition towards the new urban mobility system. Operating on both fronts would only result in an inefficient dispersion of effort and waste of public resources, and cannot be justified even on the grounds of maintaining a variety of “niches” open until one is shown to be superior to the others. In this case all the options are already well-matured.

Nonetheless, the economic interests linked to the private car and the option of making it more environmentally friendly are still strong and influential. This is particularly true in countries with national car industries. Thus, to combat these, one of the key elements of the STP is the development of a close long-term relationship with the stakeholders linked to the system of new urban mobility. These are: environmental associations; pedestrians, cyclists and commuter associations; producers of the means of transport, infrastructure and technology for mass transport; managers of flexible transport services; construction companies which specialise in building pedestrian zones, bike paths, etc.

Moreover, the STP must bear in mind that it faces a strong “enemy”: car advertising. EC norms require the car companies to include in their advertising information on the environmental characteristics of

their cars. Some countries ban advertising which mentions the top speed of the car, if this is greater than the maximum speed limit. However, if the aim is to move away from the system of mass motorisation, these measures are not enough. It is time to consider some kind of strict regulation of, or ban on, car advertising. This has already happened for other goods which have a negative collective impact, such as alcohol, cigarettes, etc.. Once the effect of car advertising has been reduced or eliminated, the campaign to increase awareness would be more efficient. However the car – despite some recent reductions in its positive image – is still associated with great aspirations (such as liberty) and deep cultural dynamics (such as individualism and consumerism). To combat these, the STP must activate strategies to support values and preferences which are coherent with the new urban mobility system. To do this it must increase public awareness and public participation in discussions and decision making.

In order to manage the technological and organisational transition towards the new urban mobility system, the STP must avoid activating transport or other policy tools which implicitly favour the use of the car, as is the case in most car scrappage schemes (ECMT, 1999). It must, instead, exploit the potential of all the elements which make up the new urban mobility system: 1) by reducing the demand for transport (increased use of online work and services; urban development for dense agglomerates); 2) by enlarging the urban areas reserved for non-motorised transport; 3) by increasing the quantity and quality of public transport; 4) by encouraging the investment of private capital in the production of more sustainable transport services (e.g. involving venture capital in the development of flexible services). Economic incentives to make ownership and use of private cars less attractive can also be used. These are consistent with an institutional/evolutionary approach to STPs as long as they are not seen as a tool designed to make the present mass motorisation system more sustainable, but rather as just one of the actions in the transition towards the new urban mobility system.

Finally, on the institutional side, one must stress that today's urban transport policies are promoted at a level of government that cannot reach the critical mass necessary to make structural change viable. Single and uncoordinated initiatives by local and regional councils are not enough, by themselves, to unlock the system of mass motorisation. A multilevel approach, with promotion and financing at the national level, and participated management at the local level, would be preferable. Fortunately, awareness that urban mobility is not a local problem and

that changes need to be coordinated by national and international bodies is spreading – especially at European level (European Commission, 2007; ECMT, 2006).

4. Conclusions

Sustainable transport policies based on orthodox economics see transport principally as a market, to be oriented towards sustainability by supply and demand incentives and, more generally, by favouring the spread of spontaneous or stimulated competitive mechanisms. So far, this approach has not been able to deal with the unsustainable impact of the growing demand for transport.

An institutional/evolutionary approach is necessary in order to define the two fundamental actions involved in establishing sustainable transportation policies: 1) identifying the structural elements of the existing transport systems and evaluating the level of maturity of the potential alternatives; 2) managing the structural dimensions of two dynamic processes: the unlocking of the present systems and the transition to more sustainable ones.

Starting from these considerations, we described an institutional/evolutionary sustainable transport policy capable of unlocking the existing system of mass motorisation and of promoting the transition towards the already mature system of new urban mobility. Various useful indications on how sustainable transport policies should be planned and applied in the real world have emerged from our work. These could also be extended to unlocking the other transport system that we mentioned: globalisation.

In order to be effective, a sustainable transport policy must: a) be aimed primarily at organisational changes to reduce the demand for transport; b) increase public awareness and collective participation in decision-making in order to counterbalance the interests linked to the existing transport systems; c) promote values, preferences and behaviour which are coherent with sustainable transport.

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