6 Pricing Instruments for Transport Policy

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Introduction

Traffic is very important for society: it enables people to engage in activities like living, working, visiting other people, and going to concerts at different places. In developed economies, on average people travel one hour per day (Zahavi, 1979). Transport is also needed to bring goods from one place to another. Without motorized transport our society would be completely different. The importance of transport is also reflected in its contribution to the Gross Domestic Product (GDP). In the EU the direct contribution is seven percent with further, far-reaching, secondary links through personal consumption of transport service (Button, 1993).

The traffic and transport sector causes many environmental problems (see OECD, 1988, for a general view). The emission of CO
\textsubscript{2} possibly results in climate change, the emission of NO
\textsubscript{x} and SO
\textsubscript{2} causes acidification, VOC contributes to high ozone concentrations on ground level and reduces crop growth and many people are bothered by traffic noise. Emissions from motor vehicles (e.g. CO, fine particulates, NO
\textsubscript{x}) cause or contribute to a wide range of health problems (see Walsh, 1990, for an overview). Whitelegg et al. (1993) conclude that living along heavily trafficked streets significantly increases illness. The transport system contributes to the depletion of fossil fuels and of raw materials by using them for vehicles and the infrastructure. In the EU every year 50,000 people are killed and more than 700,000 injured in road accidents (statistics for 1990) (Kageson, 1993; based on ECMT). Finally, the transport system needs land resources, e.g. for roads, rail lines, harbors and airports, both directly for the infrastructure itself, and indirectly, because it limits land use in the area around the infrastructure. This indirect land use is much higher than the direct land use. Land use itself is not an environmental problem, but if nature areas are transformed to infrastructure, it is. And if the landscape is cut into many pieces by the infrastructure, resulting in smaller habitats for animals and in visual pollution, it is. Because of the many environmental problems related to traffic and transport and its relatively high share in many emissions and problems, the sector plays an important role in both policy making and environmental science.

In recent years the EU has changed its policy on the environment, including the environmental impact of transport: it is trying to use pricing instruments much more than before, to reach the targets and to internalize the external costs like the costs to the environment (see below). This chapter discusses the alternatives and problems of the EU in formulating a transport policy in which environmental problems are internalized by fiscal instruments: if the EU wants to make more use of pricing instruments, what are the
alternatives? Instruments are regarded as fiscal if they directly change fixed and/or variable costs of vehicle use and ownership. This chapter focuses on the environmental and - to a lesser extent - congestion policy. The focus on environmental issues is evident. Attention is paid to congestion because fiscal instruments seem to be (potentially) very effective in reducing congestion and because of its environmental impact. Besides, this chapter is limited to road transport since this sector plays a dominant role in the environmental problems of intra-EU transport and because EU policy focuses mainly on road transport.

In the next section we show that the general goal of transport policy is to find the right balance between the costs (including external costs such as environmental costs) and the benefits. Several instruments - including pricing instruments - are available to find this balance. The third section shows that environmental costs need to play a prominent role in transport policy because traffic contributes to several environmental problems and has a high share in several emissions. In addition, an increase in the transport of both people and goods is expected. Next, the EU policy relevant for transport and the environment is described. It appears that until now, most progress has been made with respect to emission regulations. At the same time, however, extra (international) transport is generated as a result of the ‘open border’ policy. Since 1992 official EU policy has been to internalize external costs, such as the costs to the environment. Pricing instruments have to be used more than in the past. The fifth section discusses several pricing instruments, mainly with regard to variable costs of vehicle use and to a lesser extent with regard to fixed costs and subsidies. The sixth section shows that pricing instruments are not always the best solution for all problems; sometimes regulation is preferred. Finally, the main conclusions are presented.

**Goals for Traffic and Transport**

**Goals**
Before discussing policies and instruments we need to know what goals we want to achieve. In this section these goals are discussed briefly, in order to define what an optimal transport system is. Once the goals are specified we can develop a strategy and policy to reach these goals. This means that concrete objectives and instruments have to be chosen. A general framework linking objectives and instruments will be presented.

The general goal for a transport system is (a) to allow people to optimize the fulfillment of their location-related needs and (b) to optimize the transport of goods between different locations. From an economic point of view the transport system should be improved (changed) until an optimal point is reached. This point is reached if marginal social benefits equal marginal social costs. In other words, there is a benefit component and a cost component.

As far as passenger transport is concerned, the benefits of a transport system are the result of providing people with opportunities to fulfill their location-related needs. Human beings have many needs, wants and desires, resulting in many activities. Most activities, such as working, living, shopping and recreation, are location related. The traffic and transport system makes it possible to travel between these locations. Notice that some activities are location related in the current situation, but may be not-location related in the future. For example, telematics could reduce the need to travel.

This general goal supposes that people only travel because they want to be in different places. Apart from this intermediate goal, two other motives can be mentioned. First, sometimes people travel only because they want to travel. Travelling then is a goal in itself, a kind of recreation. Second, some psychologists emphasize the psychological