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Voting on road congestion policy☆

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ABSTRACT

This paper studies the political economy of urban traffic policy. A city council and a regional government (representing city and suburbs) decide respectively on parking fees and a road toll. Both charges are below the optimum when median voters in city and suburbs prefer cars to public transport sufficiently more than the average. Even if the city government would set an optimal road toll, the regional government blocks it when the median suburban voter prefers cars strongly enough. Letting the city control parking and road pricing may therefore increase chances of adoption of the latter. However, if the city controls parking and the region road pricing, the combined charges are higher than if the city controlled them both. Hence, when voters want all charges below the optimum, the involvement of two governments may be desirable. We also find that earmarking road pricing revenues for public transport is welfare-enhancing, compared to lump-sum redistribution, only if they are topped up by extra funds granted to the city by a higher level of government.

1. Introduction

Road congestion in major urban areas is an increasingly serious problem. Yet, even if economists have for long argued in its favor, road pricing in city centers is still rare. Many local politicians are reluctant to adopt it, fearing that voters will be opposed. Edinburgh, Manchester, New York City and Copenhagen have abandoned plans for urban road pricing in recent years, in spite of the fact that London, Stockholm and Milan demonstrated both the political feasibility and effectiveness of the policy.

Political acceptability is perhaps the greatest obstacle to the implementation of road pricing. It is therefore important to understand what determines it. This is the objective of this paper. Of course, the number of factors that determine acceptability of road tolls can hardly be captured in a single model. Hence, we focus on three specific questions that, it seems, have not received much attention in previous literature. First, how does the institutional setup influence the choice of traffic policy made by local governments? Second, how is the political sustainability of pricing schemes affected by the way their revenues are utilized? Third, is the role of financial support by national governments crucial in improving local policymakers' attitudes regarding these schemes?

The relevance of the above issues is well illustrated by recent experience in the city of Copenhagen. In early 2012 the Danish government decided to withdraw a long-debated proposal for a central cordon toll. Mayors of surrounding municipalities strongly voiced their opposition to the scheme, with a seemingly important influence on its rejection. Most of them were unhappy because public transport fare reductions could not be implemented before the road toll was introduced. These were considered essential to provide a viable alternative to otherwise car-dependent commuters, but became unfeasible due to the national government's refusal to cover the projected shortfall in the local public transport operator's budget.[1]

The impact of policies that curb traffic in city centers can substantially depend on an individual's location within the urban area. Commuters living in suburbs are generally more likely to travel by car than those who live in central areas. This is linked to cities becoming sprawled as well as to the lack of alternative travel options. Also, the comfort, independence

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[1] see http://cphpost.dk/news/national/zealand-mayors-rebel-over-congestion-zone and http://cphpost.dk/news/local/update-congestion-charge-reportedly-taken-table. Retrieved July 2012.

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and travel flexibility that cars provide make them attractive compared to other modes.[2] These features are likely to be more relevant the longer the trips one has to take. Secondly, revenue redistribution is essential in determining winners and losers from road tolls. Suburban, car-dependent voters may fear that they will not be fully compensated for higher travel costs, since at least some of the revenues benefit people not using the priced roads. Revenues may also be appropriated by a city administration that disregards suburban welfare. As a consequence, policymakers representing suburban voters are unlikely to endorse central city road tolls. This happened not only in Copenhagen, but in other cities as well. Similar protests took place before the "Ecopass" road pricing scheme was introduced in Milan and most of the municipalities around Stockholm voted, in a consultative referendum, against the Congestion Charge.

This suggests that chances of adoption of road pricing may be diminished if it is under the control of governments representing more than just city voters. In recent cases of successful introduction of road tolls (i.e., London, Stockholm and Milan) city governments seem to have been decisive. Experience was less favorable in cities where they were not. As examples, one can mention Copenhagen as well as New York City where road pricing was approved by the City Council, but ultimately blocked by the State Assembly. Parking fees are a related case. These have generally smaller influence over vehicle movement than tolls, but can have a similar discouraging effect on car trips terminating in the city center. Parking fees tend to generate significantly less political opposition than tolls, even in cities where the latter were discarded. Unlike road pricing, parking is traditionally managed exclusively by city governments. Again, the Copenhagen case is indicative: in the last seven years, the Danish capital's City Council has substantially raised central parking fees (City of Copenhagen, 2009). The political process leading to their adoption seems to have been much smoother compared to that for road pricing. To continue, while road pricing did not find support in the State Assembly, parking fees in Manhattan have been significantly increased by New York City's Department of Transportation.

The first part of this paper investigates how the institutional setup affects the traffic policy adopted by democratically elected local governments. We consider an urban area consisting of a Central Business District (CBD) and two residential areas: a city and the hinterland. Traffic policy consists of two monetary charges that one may be asked to pay when driving to the CBD: a parking fee and a road toll. Individuals differ in the utility they get from traveling by car relative to public transport (their default option). To capture modal choice patterns that are recurrent in reality, we assume the share of population preferring cars to public transport to be larger in the hinterland than in the city. First, we look at the case in which both parking and road pricing are under the control of the city government. A simple result emerges: when the median (decisive) city voter has sufficiently stronger (resp. weaker) preferences for cars than the average voter, car charges are smaller (larger) than optimal. Therefore, if the majority of the city population strongly values cars over public transportation, while the rest does not, the total car charge is below the optimum. This is consistent with a quite intuitive correlation between individual reliance on cars and their unwillingness to accept traffic restraining policies.[3]

We then look at a more complex setup where the city government controls only the parking charge and a regional government (representing the city and its hinterland) controls the road toll. Both are elected by majority voting. This setup is consistent with the examples provided above. Intuitively, incentives for voters in city and hinterland are not the same. This is because of different preferences for travel modes but also because the city government can exploit tax-exporting possibilities when setting its own charge. By its nature, the regional government cannot do so. Consequently road pricing receives the smallest political support. In fact, when the median suburban voter has sufficiently stronger preferences for cars relative to public transport, road pricing is blocked by the regional government. This happens even if the city would have set an optimal road toll if it could have decided on it.

From a practical standpoint, the above findings suggest simply that if the objective is to increase chances of adoption for road pricing, city governments should be given the power to decide on it, as is generally the case for parking fees. However, this is socially desirable only as long as city voters support socially optimal car charges. This is not true when both city and suburban populations oppose them, i.e. when the combination of parking fee and road toll results in a total car charge below the optimum. The reason is that the city and regional government do not perfectly coordinate. This produces a "double marginalization" phenomenon and the total charge on car trips ends up being at least as high as if it were entirely under the control of the city government. Interestingly, the "upward" bias produced by imperfect governmental coordination may partially correct the "downward" bias resulting from voter preferences. In that case, social welfare is at least as high with two non-coordinating governments than if a single one controlled the whole set of policy instruments.[4]

In the second part of the paper, we investigate a different question: how the use of revenues from proposed pricing schemes affects their public acceptability. In particular, we focus on the effects of using the money (entirely or in part) to finance a subsidy to public transportation, instead of redistributing it in the generic form of lump-sum transfers. It is commonly thought that earmarking revenues for public transport improves public acceptability of road pricing. Yet, our results suggest that such an effect can be achieved only on one important condition: that the local government implementing the policy is granted extra funds to cover the costs of an improved service. More precisely, we find that if the socially optimal road toll is not politically sustainable when revenues are redistributed lump-sum, earmarking for public transport induces voters to accept a toll closer to the optimum only as long as these revenues are supplemented by additional funds. In a nutshell, this is because improvements to public transport are funded by taxing the very "goods" (i.e., car trips to the city center) that are being discouraged. Consequently, the revenues collected may not be enough to fund the public transportation upgrades necessary to ensure political sustainability. The result suggests, therefore, that they should be part of "policy packages" that include not only earmarked revenues for public transportation, but also additional grants from central governments. Lack of financial support by the national government may have favored rejection of road pricing in Copenhagen. On the contrary, the successful introduction of the Stockholm Congestion Charge was accompanied by a public transport service expansion funded in part by the Swedish government.

The rest of the paper is organized as follows: Section 2 relates this work to existing literature. Section 3 presents the model. Section 4 studies voting on traffic policy. Proofs of all propositions and lemmas are provided in an Appendix A. Section 5 presents a numerical illustration of the results. Section 6 concludes.

[2] Schlag (1995, p.8) claims that "the car serves at the same time as a status-symbol, pleasure time activity and an article of daily use. Most people regard freedom of choice on when and where to travel as a basic right". Commenting on a survey of commuters in Stuttgart he notes that "95% of participants agreed with the statement 'The car guarantees my independence' and that 75% agreed that 'Driving a car is fun'".

[3] In most of the cities that recently implemented road pricing, the majority of peak-hour travelers were not drivers (at the time of introduction). For instance, in London around 12% of trips to the charge zone were made by car (TfL, 2003). In Stockholm, only a third of commuters traveled by car (Armelius and Hulkrantz, 2006). In contrast, most cities in the U.S. and Australia travelers depend on cars to a large extent. Few local governments have shown determination to restrict it.

[4] A similar reasoning suggests that the possibility for the local government to exploit tax-exporting opportunities may actually be welfare enhancing.