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Financing Transport Infrastructure in Developing Country Cities

Evaluation of and Lessons from Nascent Use of Impact Fees in Santiago de Chile

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The potential for and limitations to the use of impact fees to finance urban transport infrastructure in developing country cities are assessed, drawing from the specific case of Santiago de Chile. The current state of urban transport infrastructure financing and its inherent complications are first presented. Principles of appropriate impact fee use are then derived from the U.S. experience. These principles are then applied to the recent use of transportation impact fees in Santiago, leading to preliminary recommendations for improvement, including the following: establishing proper overarching legal guidance for their use; taking a uniform approach to their application; clarifying the relationship of impact fees to other user fees and other forms of development exactions; answering the question of who bears the ultimate burden of impact fee costs; and improving the understanding of the effects of transportation impact fees on other public policy goals. From this assessment of the Santiago experience, lessons for other developing country cities are presented.

The challenges of transportation infrastructure development in a rapidly growing city are well-known. Travel demand generally increases with growth in population and per capita income, expansion in infrastructure capacity generally does not keep pace with demand, and the ubiquitous urban transportation externalities (i.e., congestion and air pollution) result. Among the many barriers—such as environmental and community impact concerns—to transport infrastructure expansion in urban areas, finding adequate sources of finance continues to figure prominently in both the developing and the industrialized worlds. The finance challenge is exacerbated by the multiple institutions usually involved in urban transport infrastructure development and maintenance, the range of direct and indirect user fees used, and the distortions in investment signals that typically result.

Theory and practice suggest that well-justified and well-designed impact fees can play an important role in supporting the efficient financing and delivery of urban infrastructure and also contribute to more efficient patterns of urban growth. To date, however, most experiences with impact fee deployment have been confined to the industrialized world, particularly the urban areas of North America. Impact fee use in developing country cities remains much less common. Nonetheless, it is precisely in developing world cities—facing rapid urbanization, rapid urban outgrowth, and chronic infrastructure shortages—that impact fees could play an invaluable role.

An earlier paper (*1*) documented the rise of the use of roadway and environmental impact fees in Santiago de Chile in the 1990s. The purpose here is to extend on that work by situating the Santiago experience with transport impact fees within the broader context of urban transport infrastructure finance; describing advances in the application of transport impact fees in Santiago; assessing the Santiago experience according to principles for impact fee deployment drawn from experiences in the United States; making recommendations, from that assessment, for improvements in Santiago's impact fee use; and drawing lessons from the Santiago case.

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CONTEXT: URBAN TRANSPORT INFRASTRUCTURE FINANCE

The use of transportation impact fees must be assessed within the overall context of their use—the urban transport infrastructure financing system. In an ideal world, the urban transport finance system would have the following characteristics: fuel prices covering the resource costs (i.e., the border price) and the environmental costs of carbon dioxide emissions (which are directly proportional to fuel consumption); road maintenance and congestion costs charged directly through highly differentiated tolls; local environmental costs charged through emission fees; and any redistribution objectives pursued through nondistorting lump-sum taxes (*2*). Such a system not only would send accurate signals to system users to ensure "efficient" system use, but it also would provide a sustainable financing source. For example, Mohring and Harwitz demonstrated in 1962 that the revenues generated from efficient congestion charges will exactly cover the costs of providing the infrastructure if the road provider optimizes road capacity (and also is not subject to economies or diseconomies to scale) [see, for example, Small (*3*)].

Unfortunately, the "real world" of urban transport infrastructure finance falls far from the ideal. Few accurate, direct user charges exist. Instead, users pay for road space through a variety of indirect mechanisms, particularly fuel taxes and vehicle license fees, as well as via real estate and other taxes. Furthermore, because fuel consumption is relatively inelastic to price, governments often use fuel taxes as an important and buoyant general revenue source. In the developing world, where vehicle ownership rests largely with the wealthier classes, governments also sometimes use vehicle ownership fees and fuel taxes for general income redistribution. The picture is further complicated by the fact that the infrastructure-supplying agents are multiple and fractured, often with responsibility for construction separated from responsibility for maintenance and management, and with each of these areas of responsibility falling to different levels of government (national, regional, or local or combinations thereof). Thus,