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Highway franchising and real estate values

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Abstract

It has become increasingly common worldwide to auction the construction and operation of new highways to the bidder that charges the lowest toll. The resulting highway franchises often entail large increases in the value of adjoining land developments. We build a model to assess the welfare implications of allowing large developers to participate in these auctions. Developers bid more aggressively than independent construction companies because lower tolls increase the value of their land holdings. Therefore developer participation unambiguously increases welfare, yet this increase is not necessarily monotonic in the number of developers participating. Welfare also increases when large developers can bid jointly.

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1. Introduction and motivation

Highways leading to new land developments have been traditionally financed with general public funds. In principle, the outlays can be recovered by property taxation, as the benefits wrought by the new highways become capitalized in property values. Yet practical limitations of property taxation have increasingly led to private financing of roads in many countries.¹

The private solution that has become increasingly popular is to auction so-called build-operate-and-transfer (BOT) contracts to the firm bidding the lowest toll. Under such a contract, a private firm builds and finances the road and then collects tolls for a long period (usually between 10 and 30 years).² When the franchise ends the road is transferred to the state.

In this paper we build a model to assess how the participation of large developers in the auction of the road that will increase the value of their land holdings impacts on social welfare. A recent example motivating the issues we consider is the Radial Nororiente project which joins Santiago, the capital of Chile, with the adjacent Chicureo Valley, which is expected to expand in coming years. In 1999 the Chilean government decided to franchise a US\$170MM road.^{3,4}

The idea of using open auctions instead of regulation—competition *for* the field as a substitute for competition *in* the field—goes back to Chadwick [1] and was popularized by Demsetz [2]. The claim is that competition in the auction will eliminate market power and yield a toll equal to average cost.⁵ When applied in the setting considered in this paper, the Chadwick–Demsetz analysis assumes that franchise holders are firms that specialize in building roads. When land developers can participate in the auction, several issues in competition policy arise, as illustrated by the Chicureo project.⁶ Some critics claimed

¹ “The idea of taxing increases in the price of land [...] has a history stretching back to the mists of fiscal time. It is advocated passionately by some academic economists but politicians have been unenthusiastic, not least because of problems of implementation” (*The Economist*, August 23, 2002). Two “problems of implementation” stand out. First, when the road benefits undeveloped landholdings, there is ample space for opportunistic behavior because taxes normally can only be increased after the road is built and the developed land is sold. For example, developers have incentives to oversell the revenue potential of the highway to get the government to build, while after the road is built, households have incentives to vote down tax increases. Second, even if we ignore opportunism, the government may have a hard time determining whether a road will pay for itself before construction, since it is difficult to obtain precise estimates of the future commercial value of the land.

² See, for example, Gómez-Ibañez and Meyer [9], and the collection of papers in Irwin et al. [12].

³ This project was in response to a proposal of a private group which owns substantial landholdings in Chicureo. According to the Chilean Concessions Law of 1994, anybody can propose a highway project and, if approved by the Ministry of Public Works, the project is franchised in a competitive auction.

⁴ It is common in Asia to allow property developers to build and charge for highways, see Guasch [10]. Also, the government of Uttar Pradesh in India recently included a band of about 500 meters alongside a 160 km proposed expressway from New Delhi to Aggra as an integral part of the project being auctioned. The corridor can be used for commercial, amusement, industrial, as well as township development (see the corresponding ad in *The Economist*, June 2, 2001).

⁵ But see Williamson [22,23] for a critique.

⁶ Participation of the land developers in the auction does not require them to build the road, as they can hire a construction company.

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