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Land Assembly: Measuring Holdup

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When governments consider urban redevelopment projects, they often exercise the right to eminent domain, which allows government to appropriate private property – at fair market value – for the purpose of constructing public facilities. Governments justify this action by pointing out the need to mitigate the holdup costs associated with land assembly. This position reflects the view that the holdup power held by the owner of the last – usually small – lot of land to be assembled raises the purchase price of that lot and may wholly prevent the planned redevelopment.

However, assessing the validity of this claim – that a recalcitrant landowner can hold up a development project by trying to extract a higher purchase price – requires an accurate measurement of the hold-up costs associated with land assembly. Without such a measure, the cost of land assembly is blurred. This can result in small developments that are cost-inefficient; or developers may avoid altogether areas where land parcels are small.

The study *Land Assembly: Measuring Holdup* addresses the holdup issue head-on, using data from redevelopment projects in Hong Kong to provide the first empirical measure of land assembly costs.

The authors – Fu Yuming from National University of Singapore's School of Design and Environment, Daniel P. McMillen from University of Illinois at Chicago's Department of Economics, and Tsur Somerville from University of British Columbia's Sauder School of Business – find clear evidence of holdup costs by identifying the premium on land that is subject to holdup. In doing so, they provide a fresh view on the costs of holdup in an industry where both vertical integration and the type of long-term contracts observed in other industries are not possible.

Fu, McMillen and Somerville use data from redeveloped parcels in the core areas of Hong Kong to show how land prices vary with the occurrence and degree of land assembly. This data allows the authors to estimate the holdup premium for a lot of land: The last lot in a group of assembled parcels enjoys a premium ranging from 23 to 28 percent; assembled parcels charge a premium of 14 to 20 percent; and parcels that will subsequently be combined to form an assembled lot are sold at a discount of 5 to 11 percent, to offset the eventual premium paid for the last lot. The holdup premium is greatest when the size of the surplus is largest relative to the value of the last lot assembled.

The authors also find that unit land prices (price per square foot of lot area) rise with lots up to 4,300 square feet, after which they fall. This observation – that unit land prices rise

with lot size – counters the findings of existing literature, which focused on larger suburban residential tracts and found that the price per square foot falls with lot size. Because Fu, McMillen and Somerville control for land assembly in their study, they believe the rise in unit land prices reflects the higher construction costs associated with developing small lots in a dense, developed urban area.

Hong Kong, where all land is state-owned, is the backdrop for their study. Private development in Hong Kong requires that developers acquire long-term land (ground) leases from the government. Lease conditions specify the allowable density, the plot ratio or the ratio of floor space to lot area, and permitted uses. The state plays a direct role in private urban development, using its power of eminent domain to assemble separate lots to form required development parcels. The state justifies using this power by arguing that a single landowner could hold up a planned development that is in the public interest by trying to extract rents from the developer.

The lease acquisition process allows Fu, McMillen and Somerville to observe the direct effects of holdup, both in the premiums charged for the last units assembled and the discounts for earlier units. In their study, the authors use data from 799 land sales in central urban areas of Hong Kong between 1991 and 1998. The data includes many relatively small lots, allowing the authors to measure the relationship between lot value and size using just those parcels for which land assembly is likely to be an issue. They also control for the characteristics of the lots, their locations and the sequence of assembly. Land assembly often involves sequential bargaining instead of simultaneous bargaining, allowing the owner of the last assembled lot to extract a premium.

However, the holdup power of any landowners depends on whether their site is indispensable to the land assembly project. Small landowners are not always able to exploit their potential holdup power under sequential bargaining. The developer could alter the characteristics of the planned development, opting for a different, smaller project so as to exclude the lots of landowners who tried to extract an excessive share of the redevelopment profit.

The question remains whether these holdup costs have real effects on redevelopment or whether they are merely transfers between landowners and developers. Given the findings of their study – that the initial lots acquired in a land assembly must be obtained at a discount of 13 percent in order for the last parcel to receive a premium of 25 percent – Fu, McMillen and Somerville point to the possibility that redevelopment will not occur in some areas. Given rents for existing structures and construction technology, the authors question whether lot owners would be willing to grant the discount necessary for the initial lots to acquired.

Pursuing such questions, the authors say, is a logical direction for future research on the subject.