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Three-rate property taxation and housing construction

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ABSTRACT

This paper examines the effect of property taxation on housing construction. In 2001, Finnish municipalities were allowed to levy an extra property tax on undeveloped land zoned for housing. Municipalities that adopted the new tax instrument have a three-rate tax property tax system with different tax rates on land before development, land after development and buildings. The remaining municipalities have a two-rate system with a uniform land tax and a building tax. A theoretical model of decisions by landowners suggests that the pre-development land tax ought to lead to faster development, but also the density of development may be affected. In the two-rate system land tax is neutral. The empirical results suggest that landowners respond to the tax incentives. Municipalities that adopted the three-rate property tax system saw an increase in single-family housing starts of roughly 12 percent.

1. Introduction

Theoretical models of property taxes and housing supply are relatively well developed. However, empirical results have often been inconclusive, largely because there is insufficient variation in property taxes within jurisdictions over time and because the data used is of low quality or sample sizes are too small to get accurate estimates for the effects of property taxes on construction activity. These problems are overcome in this study. A Finnish tax reform, which created significant variation in the tax rates on undeveloped residential land, and the high quality of Finnish data make it possible to estimate accurately the impact of property tax incentives on housing construction under weak assumptions.

In 2001, Finnish municipalities were allowed to tax undeveloped land zoned for housing at a higher property tax rate than developed land. The aim of the reform was to give municipalities a way to encourage housing construction by creating tax incentives to develop land zoned for housing. It was hoped that the reform would curb house price inflation by increasing housing supply. By 2007, 30 percent of Finnish municipalities had adopted the reform. These municipalities have a three-rate property tax system with different tax rates on imputed land value before and after development and a separate tax rate on buildings. The remaining municipalities have a two-rate property tax system with a uniform residential land tax and a building tax. This paper studies the effects of the Finnish-type three-rate property tax system on residential development both theoretically and empirically.

In addition to the option of three-rate taxation, another interesting feature of the Finnish property tax system is the way the taxable value of land is defined. In previous literature, three-rate taxation has been modeled in the case where the taxable value of land post-development is defined as the market value of the whole property less the replacement cost of the building.[1] In Finland, the post-development taxable value is defined as "what the site would be worth if there were no structures on it". Following Arnott (2005), the former definition of site value is termed residual site value and the latter raw site value. There has been a long discussion in the literature concerning the neutrality of taxation of land. Arnott (2005) provides an overview of this discussion and concludes that a tax on land is neutral if the taxable value of land does not depend on the landowner's actions. Raw site value satisfies this condition. Thus in the Finnish two-rate municipalities the tax on land should be neutral. The preferential treatment of developed land under the three-rate system breaks this neutrality.

Both two-rate and three-rate property tax systems have been analyzed in the theoretical literature on urban development and there are empirical studies using data from two-rate jurisdictions (see Plassmann and Tideman, 2000). However, the three-rate system with preferential treatment for developed land and raw site

[1] Sometimes the replacement cost of the building is not subtracted and the tax base is the value of the whole property.

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value as the tax base has neither been applied explicitly in practice elsewhere nor studied theoretically or empirically.[2]

The theoretical part of this paper draws on Turnbull's (1988) dynamic model of a landowner considering the timing and density of development on a parcel of land he owns. The model is modified to describe the Finnish-type three-rate system by defining the tax base to be raw site value and by assuming preferential tax treatment for developed land, not for undeveloped land. It is found that a wider difference between the pre- and post-development land taxes speeds development. However, as a side effect of faster development the density of development may also be affected.

Turnbull's (1988) model is based on the model of Arnott and Lewis (1979), which considers the development timing and density decision of a landowner in a dynamic setting where development is irreversible and additions cannot be made later. Arnott and Lewis build on earlier work on the development timing decision by Shoup (1970). More recent contributions include McFarlane (1999), who considers the effects of various taxes and fees on construction activity in the type of urban economy depicted by Capozza and Helsley (1989). Arnott (2005) and Arnott and Petrova (2006) discuss how neutrality is achieved in different tax systems. Capozza and Li (1994) describe the landowner's problem in a stochastic framework. From the point of view of empirical work, the lesson to be learned from the theoretical models of a landowner's development decision is that the effects of property taxes on construction timing or density are often ambiguous or the sign and magnitude of the effect depends on market conditions which cannot be measured accurately. The Finnish-type pre-development land tax is an exception in this respect since at least its qualitative effect on timing is unambiguous a priori. Thus, the Finnish property tax system offers a good opportunity to empirically test for developers' responsiveness to tax incentives.

Plassmann and Tideman (2000) review empirical studies on the effects of property taxes on construction activity. Most empirical studies have failed to find significant effects. In their own analysis Plassmann and Tideman (2000) find that the difference between tax on land and tax on buildings has a positive effect on the number of building permits but no significant effect on value per permit. Following Plassmann and Tideman (2000), count data analysis is chosen as the econometric framework. The effects of property taxes on the number of new units and on the volume (in cubic meters) per unit are studied by estimating fixed-effects Poisson count data models. The large size of Finnish panel data allows the use of a large set of control variables and estimation under weak distributional assumptions.

The empirical results are consistent with the theory. The impact of the pre-development tax on housing starts is found to be positive. Municipalities that adopted the three-rate property tax system saw an increase in single-family housing starts of roughly 12 percent and a percentage point increase in the pre-development tax rate is associated with an increase in single family housing starts of 5.5 percent. The estimates are slightly lower for all housing starts than for single family housing starts. The estimates of the tax impact on development density are statistically insignificant.

Section 2 describes the Finnish property tax system. Section 3 presents a theoretical model and discusses its implications for the empirical work. Section 4 discusses the empirical model. Section 5 presents the data and the empirical results. Section 6 concludes.

[2] In most countries, land and buildings are taxed at the same rate but some jurisdictions, e.g. some municipalities in Pennsylvania USA, have taxed land at a higher rate than buildings. Some jurisdictions may implicitly tax land before and after development at different effective tax rates by applying different assessment methods for developed and undeveloped land.

2. The Finnish property tax system

In Finland, there has been a municipal property tax since 1993. The tax is payable by those who own the taxable property at the beginning of the calendar year. All zoned land and buildings are subject to property taxation.[3] Agricultural land and forests are not taxed, unless the town plan or master plan permits residential or commercial construction on it.[4] The taxable value of buildings is 70 percent of their replacement cost, adjusted for depreciation. The target taxable value of both developed and undeveloped zoned land is 73.5 percent of the annually evaluated local market price of a similar undeveloped lot. However, the valuation regulations allow concessions when land prices are rising. Thus in practice taxable values may follow market values sluggishly.[5]

The current Finnish property tax system allows municipalities to apply different tax rates to different types of real property. Here only the taxation of residential land and buildings is discussed.[6] Municipalities decide annually, within limits set by the government, what rates will be used in their particular municipality for each type of real property. In 2007, the limits set for property tax rates were the following:

- general property tax 0.50–1.00 percent (zoned land, commercial buildings, etc.),
- property tax on permanent dwellings 0.22–0.50 percent,
- property tax on undeveloped residential lots 1.00–3.00 percent.

Applying the undeveloped residential land tax is optional. If the municipality chooses not to apply it, undeveloped residential lots will be taxed at the general property tax rate. Before the reform of 2001, all land was taxed at the general property tax rate. The reform gave municipalities the option to tax undeveloped land at a higher rate.[7]

Table 1 shows the proportion of municipalities with a three-rate property tax system in 2000–2007. Roughly 11 percent of municipalities adopted the three-rate system right from the beginning in 2001, and the share of three-rate municipalities has been rising thereafter. In 2006, the share of municipalities with a three-rate system rose from 20 to 27 percent, partly because the government forced 14 municipalities in the province of Uusimaa around the capital Helsinki to introduce the three-rate system with a pre-development land tax at least one percentage point higher than the post-development land tax. Two of these municipalities already had a three-rate system, and thus only 12 municipalities were affected. In 2007, almost 30 percent of municipalities had a three-rate system. Only a few of the municipalities that introduced the three-rate system have switched back to the two-rate system.

Along with the imposition of three-rate taxation in the Helsinki area, a concession was made which possibly limited the potential effect of three-rate taxation on construction activity in the

[3] Property tax is deductible from taxable capital income, provided that the property has been used for rental or business purposes. All the property of the taxpayer was also subject to net wealth tax until 2006, when the wealth tax was abolished.

[4] Farm land is subject to property taxation only if the size of the farm (including forest land) is less than two hectares. Yards and buildings of farms larger than two hectare are taxed, but not farmland or forest land.

[5] The valuation method utilizes regional data on transactions of vacant lots. The data is used to estimate the market value of a square meter of land zoned for different purposes. For lots with building permits the estimated value of building permits is included in the calculation.

[6] In addition, it is possible to apply separate rates to non-permanent dwellings (vacation homes), non-profit organizations and power stations.

[7] Whether the pre- or post-development land tax is applied depends on the state of the site at the beginning of the year. The site is regarded as undeveloped until foundation work starts. The pre-development land tax can be applied only to lots that are zoned for residential purposes and have sufficient infrastructure.