

## The Regulatory Tax: Assessing and Tracking the Impact of Land Use Regulation on House Prices in Leon County

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### *Introduction*

Land use regulations in Florida attempt to influence favorably the pattern of urban development, but they may also affect the affordability of housing. Cities and counties throughout the state have continued to increase their regulations, which include, for example, lot size and zoning restrictions, concurrency requirements, impact fees, and environmental impact assessments. These regulations often introduce costs associated with compliance and delay, costs which may ultimately be embodied in the price of newly constructed homes. The portion of a home's selling price that is attributable to the costs of local regulations is referred to as the "regulatory tax," a term popularized by Harvard economist Edward Glaeser and University of Pennsylvania economist Joseph Gyourko. Understanding the magnitude and the consequences of the regulatory tax is important for those interested in the rapidly rising cost of housing, whether they are developers, homebuyers or policy makers.

In a multi-part project undertaken with Keith Ihlanfeldt and Thomas Mayock, we took several steps to study the impact of the regulatory tax: first, we used an extensive house-level data set to calculate the regulatory tax borne by an individual homebuyer; next, we tracked the trends in the regulatory tax over a twenty-year period; finally, we examined how the burden of the regulatory tax was distributed across neighborhoods of different incomes and demographic composition.

### *Measurement of the Stringency of Regulation – Two Different Theoretical Approaches*

The motivation for the regulatory tax comes from the question: "How do we measure the degree to which local land use regulations affect the prices of new housing units?" Researchers have taken two different approaches to answer this question. The standard approach is to formulate an index that measures the regulatory stringency of a jurisdiction and then empirically estimate the effect of this index on housing price. The most common index simply counts the number of regulations that a jurisdiction has on its books. However, this approach has two major shortcomings. First, count indexes assume that the impact of each individual regulation is identical, which may not be the case. Second, most residential development is characterized by substantial negotiation between builders and planners, so that

regulations on the books may not reflect the actual amount of regulation that goes on in any given project.

The regulatory tax approach, on the other hand, has a different theoretical basis. In a competitive housing market in the absence of any land use regulations, the sales price of a newly constructed house equals the sum of the cost of constructing the house and the value of the lot that the house sits on. The cost of construction includes the cost of labor and materials and also a normal return for the developer. The regulatory tax hypothesis holds that regulations, because they add to the costs of construction, introduce a wedge that drives the selling price of the house higher than the sum of construction and land costs. Using this approach with appropriate data allows us to calculate the regulatory tax burden borne by the purchasers of *individual houses*. We can therefore address not only whether land use regulations increase housing price, but also whether regulations increase price more for some household types in comparison to others.

### *Data and Methods*

We demonstrate the regulatory tax approach by calculating the tax for houses in Leon County over a twenty-year period. The housing data, from the Leon County tax rolls, comprise all single-family detached houses sold during three time intervals: 1983-1985; 1993-1995 and 2003-2005.

The regulatory tax borne by a house equals the difference between the actual value of the lot (ALOT) and the estimated value the lot would have in a free market without any regulation (FLOT). ALOT reflects both the pure consumption value of the lot and the value from having satisfied all development regulations; FLOT reflects only the consumption value. Hence, the regulatory tax is  $ALOT - FLOT$ .

To estimate ALOT for each house, we take its sales price and subtract an estimate of its construction costs. Construction costs are provided by the RS Means Company for houses of various sizes and qualities in Leon County. We obtain FLOT by comparing the prices of similar homes sitting on different size lots. To illustrate, the difference in price between a house sitting on a one-acre lot and a similar one sitting on a one-half acre lot reflects the consumption value of having an additional half acre of land. This difference is not affected by regulations because the same devel-

opment regulations have been satisfied, regardless of the size of the lot.

### ***The Regulatory Tax in Leon County over Time***

We first report the estimated regulatory tax in both the City of Tallahassee and in unincorporated Leon County over the three time periods. Summarized below are the median estimated regulatory taxes for each locality and time period. The second column gives the tax in dollars, while the last column expresses the tax as a percentage of the price of the house.

City of Tallahassee		
Years	Median Regulatory Tax in Dollars	Median Regulatory Tax as a Percentage of House Price
1983 – 1985	\$3,374.20	5.6 %
1993 – 1995	\$11,490.90	14.4 %
2003 – 2005	\$60,942.20	39.8 %
Unincorporated Leon Co.		
Years	Median Regulatory Tax in Dollars	Median Regulatory Tax as a Percentage of Housing Value
1983 – 1985	\$4,469.00	8.0 %
1993 – 1995	\$12,151.50	13.4 %
2003 – 2005	\$59,548.80	36.0 %

In both the city and the county, the tax has grown dramatically over time. In the 1980s the regulatory tax only made up about six percent of the price of a house, but the percentage had risen to nearly forty percent in 2003-2005. A comparison of the two areas shows that the City of Tallahassee had a substantially lower regulatory tax than the rest of the county in the 1980s, but caught up to unincorporated Leon in the 1990s and surpassed it in 2003.

### ***The Incidence of the Regulatory Tax in Leon County***

Our estimation methodology and data set also allow us to link individual house data to neighborhood characteristics. We use this to perform incidence analysis, where we examine whether the burden of the regulatory tax varies according to demographic or economic characteristics. Each

house is matched to its census block group, a very fine unit of disaggregation consisting of less than a thousand housing units. Depending on the time period the house is observed in, we then assign to the house 1980, 1990 or 2000 census characteristics from that block group.

We address the standard definition of tax incidence by asking whether the burden of the tax (measured as a percentage of the household's budget) falls more or less on wealthier neighborhoods. For 2003-05 our results show that although houses located in wealthier neighborhoods on average pay a higher regulatory tax, the tax does not climb as fast as income. A 10% rise in median income is associated with just a 3% rise in the regulatory tax. Therefore, the regulatory tax in 2003-05 is regressive, with a greater burden placed on neighborhoods with lower median incomes.

We also examine whether the burden of the regulatory tax varies with different racial or ethnic compositions. For 2003-05 the regulatory tax is marginally lower in black and Hispanic neighborhoods in comparison to white neighborhoods. However, because black and Hispanic neighborhoods tend to have lower median incomes, we may simply be picking up the effect of income rather than the effect of race on the regulatory tax. When we control for the income of the block group, we obtain even smaller racial differences in the tax among neighborhoods; this suggests that it is differences in income, not race, that are driving the incidence of the regulatory tax.

### ***Conclusions & Policy Implications***

Results from our analysis suggest that a large proportion of the run-up in house prices in Leon County can be attributed to the higher costs of regulations, rather than attributed solely to higher construction or land costs. In 2003-05, the regulatory tax represented about 40% of the price of a house, which is a rate nearly three times that of ten years ago.

From a policy perspective, our study stresses that it is important not to neglect the impact of growing regulation on the affordability of housing. The regulatory tax burden is one of the negative byproducts of land use regulation that should be weighed against possible benefits when making land use decisions within Leon County and the rest of Florida.

**Ron Cheung** is .....

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