The Impact of Property Taxes and Growth Restrictions on Real Estate Prices

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Abstract

This study examined the impact of development impact fees on residential house prices and demand. Using econometric analysis it was found that for the areas being studied, impact fees had no impact on the price of housing. However, there was a shift in the amount of development from the area imposing the impact fee to competing nearby areas. Indicating the mobility of capital. In addition the findings indicate that the city imposing the impact fees was able to lower its property tax millage. However, it was not determined how much of this was due to the revenue from the fee as opposed to reassessments in property values that occurred during the period of analysis.

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Introduction

One of the functions of government is to enhance the quality of life for its residents by providing services and regulating the different activities throughout the community. Property taxes and development restrictions are mechanisms governments used to help provide and control the quality of life within their jurisdiction.

Property taxes are levied as a source for government revenue. This revenue is used to cover a portion of the costs of providing public services. The direct affect of property taxes on real estate values is to cause property values to decrease. This is due to property taxes raising the overall costs of operating a house. Assuming there are two adjacent communities with similar characteristics but different tax rates, a similar house located in each community will have different property values. The house in the high-tax jurisdiction will face higher ownership costs as a result of the higher tax. Everything else being constant, this will cause the price of the house to be lower than the house in the low-tax jurisdiction.

Though the direct impact of taxes on real estate value is negative, there is an indirect impact that may cause the net impact to be positive, negative, or neutral. The indirect impact results from the quality and/or quantity of public services offered in the community. Public services that enhance the community's quality of living will tend to increase the value of property in the community. The more services the community offers that are desired by local residents the less negative effect taxes will have on property values. Depending upon on the local tax rates

and level and quality of public services, it is possible for the total impact to be positive. In this case, the benefits of the services outweigh the cost of the taxes.

Impact fees generally refer to local governmental charges that generate revenue to finance either onsite or offsite infrastructure necessitated by new development. The intent of the fee is to make new development cover the marginal cost of providing new infrastructure/services to the site(s). By forcing new residents to cover their marginal cost of new service provision, the system is hailed by proponents as being more efficient and equitable (Singell and Lillydahl). Singell and Lillydahl even suggested that developers might favor the fee since it tends to speed up project approvals.

Growth restrictions are used for a number of reasons, but typically they are implemented to control the demand for public services. Like taxes, the impact of growth restrictions can be positive or negative depending on the circumstances in which the restrictions are applied. In communities with many amenities and/or services, restrictions may improve property values by 1) decreasing the need to expand services over a larger area, and 2) potentially limiting the congestion that could occur from further growth. Nearby communities will likely see a decline or at least less rapid growth in their property values as the possibility of receiving these services in their community is diminished by the restrictions.

However, it is also possible for communities to put limits on to early. Communities that do not currently offer a significant amount of amenities may hinder their ability to offer additional services by restricting growth and thus limiting their tax base. In addition, the inability to improve and/or expand current services may encourage current residents to migrate out of the community, which puts additional downward pressure on real estate values.

The objectives of this research are to identify the impact of taxes and growth restrictions on property values. Historical data on property tax rates and property values will be analyzed to determine the extent to which taxes are capitalized (included in the price) in to the retail value of residential property.

Differences in quantity and/or quality of services across communities will affect the demand for housing in each community. To control for the indirect impact of quality of life factors across communities the level of services being provided will be included in the model. Growth restrictions will be analyzed to determine if certain restrictions are more likely to impact real estates values and to ascertain the magnitude and direction of the impact. In addition, data will be examined to see if there is an optimal community size before which restrictions should be imposed and/or if there is a limit as to the rate at which communities are allowed to grow.

The academic version of the report will include the theory from which we build the model, the sources and description of the data, the econometric results, an interpretation of the results, and conclusions. The conclusions will highlight how changes in tax policy and growth restrictions may affect the overall growth of the community and their impact on the real estate industry.

Literature Review

There have been many studies analyzing the impact of both impact fees and property taxes on the demand for and value of real estate. All of the empirical studies indicate that these charges increase the value of real estate, which decreases the demand (Skaburskis and Qadeer; Skidmore and Peddle; and Singell and Lillydahl). We would expect the demand decrease due to the Law of Demand. However, theoretical models indicate it is possible for the charges to have a

net positive impact under certain situations (Huffman et al.) Below is a brief summary of the literature addressing the impact of these charges on real estate.

Huffman et al. addressed who bore the burden of impact fees. They concluded that consumers - homebuyers, renters, or non-residential tenants - would pay the majority of the impact fee over time.

They base this conclusion on the theory of property taxation that indicates that the incidence of the tax will be shared by producers (developers) and consumers depending on the relative elasticity of supply and demand. The more elastic the supply curve the less the burden will be borne by producers. Conversely, the greater the elasticity of the demand curve the less the burden will be borne by consumers. The authors indicate that under most circumstances (free [or nearly free] mobility of capital for producers and restricted mobility of consumers) will lead to consumers having a much smaller elasticity measure than producers.

Other consequences of the fee mentioned by the authors were that in highly desirable markets, developers might shift strictly to producing upscale housing. The markup on upscale houses makes it easier for the developers to cover the costs of the impact fee. Another consequence is that the increase in the cost of new housing will shift the demand for existing housing upward. This will cause the price of existing houses to increase providing a windfall gain to current homeowners.

These factors may also enhance the financial situation of the community. One, the increase in property values of existing housing stock will lead to greater assessed values in the community which will lead to greater tax collections. Two, to the extent that developers shift to producing more upscale housing, communities will likely benefit by reducing their expenditures for social services.

Singell and Lillydahl suggest impact fees will be passed forward to consumers not backward to landowners. Landowners are able to avoid the burden for several reasons. One, developers typically purchase land or at least enter a contract for land considerably earlier than when they actually intend to develop the land (Huffman et al.). Therefore the impact of the fee will not affect most landowners because they have already sold the land at the time the fee is imposed. Two, the fees are imposed on the impacts from development not the actual land. The model they use is based on the law of demand. Since the impact fees will increase the price of housing, they assume there will be a decrease in the demand for new housing. Furthermore, some of the people who were priced out of the new house market will continue to want to live in the area so that the demand of older housing will increase. This increase in demand for existing houses will cause the price of these houses to increase.

The model described above assumes that demand remains constant. However, the authors point out that demand could shift upward for one of two reasons. One, if buyers anticipate the impact fee, they will move their purchase decision forward to avoid paying the fee. Two, if existing homeowners believe that they no longer will be paying for new construction due to growth they may increase their demand for housing.

In general if the demand (supply) curve for housing is relatively more elastic, then consumers (producers) will pay more of the fee. Elasticity of demand will be higher where there are a number of similar communities in close proximity to one another. Supply elasticity increases with producer mobility. If producers can easily enter into another market, their elasticity in any one market will be higher.

In most cases, buyers of housing see alternative communities as inferior substitutes while builders face few barriers to building in other communities. Thus, consumers are likely to face

most of the burden of the fee. Furthermore, if builders are completely mobile, consumers will pay the fee and associated financing costs.

To test their hypotheses, the authors collected data on Loveland, Colorado for January 1983 to December 1985. Housing prices and characteristics were collected for 429 houses from the *Multiple Listings Services Sold* books.

The authors used the following model to analyze the data:

$P_{o,n} = F(M_i, C_j, H_k, IF)$

where:

P is the selling price of the house, which may be new (n) or old (o),

M_i is a vector of regional market conditions

C_j is a vector of variables influencing the cost of construction

H_k is a vector of housing characteristics,

IF is the impact fee

The variables selected to operationalize the model were interest rate, square feet, bedrooms, bathrooms, lot-size, house age, and a time path measure. The construction cost measure and the median price of houses selling in Denver were omitted due to insignificance. Two equations were estimated, one for new houses and one for existing houses.

The results indicate impact fees not only increased house prices, but that the fees were anticipated by three months. This was evidenced by an increase in house prices three months prior to the fee taking place.

For new houses the coefficient on the fee variable indicates that housing prices increased by $3,800 after the imposition of the fee (which was only $1,182). The authors list three reasons for the large increase. One, builders may mark up the fee to carry additional carrying costs.

Two, the builders may have reevaluated their total pricing system to better account for all fees and licenses imposed by government. Three, the builders improved the quality of new homes believing this would be easier to pass in the higher priced markets.

Other findings were that an additional square foot added $17 to the price. Adding a bathroom or bedroom added $2,000 and $4,200, respectively. A one-point increase in the interest rate removed $1,500 from the price.

The results for existing homes were very similar to those for new homes except that the impact fee had nearly twice the price effect. The authors did not provide any explanation for the unexpected large result.

The authors conclude that, depending on property tax rates, increased revenue generated from property tax collections resulting from existing property's appreciation may produce more revenue than the fee itself. New homebuyers are likely to face an increase in house prices that is greater than the fee. Developers are likely to face little or no burden of the fee and existing homeowners are likely to experience a capital gain from appreciation. Finally, to the extent rental rates are determined from housing prices, renters will likely face higher costs.

Skaburskis and Qadeer estimate the effect of impact fees on undeveloped land. They use the model outlined by Capozza and Helsley to study the timing of development of vacant lots in three suburbs of Toronto.

This model indicates that land will sell for less as you move away from the urban core (farther away from jobs and cultural activities). The model also indicates that there will be a gap at the periphery due to the expected future growth of the city. Land that is expected to be brought into the city sooner will be priced higher (at a premium) than land that is expected to stay in agriculture.

The empirical model is represented by the following equation:

$PL_i = f(C_i, LF_i, GP_i, E_i)$ i=1,.., n

which represent the price of land, development cost factors, locational factors, the growth premium, and an error term. Data were collected on location; price and date of sell for three Toronto suburbs (Brampton, Mississauga, and Pickering) between 1977-86.

The results indicate that for each dollar increase in impact fees the price of housing increases by $1.23 (this assumes a 2.33 percent growth rate, when the growth rate is 0 there is a $1.88 increase in housing price). The magnitude of the influence differed across the three cities. Furthermore, the coefficient for Pickering was negative. However, the overall impact was still higher fees leads to higher prices.

They conclude that development impact fees directly increase lot prices by an amount that is approximately 20 percent greater than the fee. They also indicate a need for more analysis before stronger conclusions can be drawn.

Peiser constructs a spreadsheet that indicates the potential relative burden impact fees place on current and future residents. In this analysis, he highlights an equity-neutral impact fee. The neutral fee assesses all users the same amount for the same level of service, regardless of when they move into the community. The neutral fee is also adjusted for the length of time the user will benefit from the service.

The main point of his analysis was to make planners and local officials think about the amount of excess capacity they design into their infrastructure plans. Since development is a continuous process (new businesses and dwellings are always being added), it is necessary to build in excess capacity to meet those future needs. However, who pays for that excess capacity

is the central issue in the use on impact fees. The purpose of impact fees is to shift the burden onto future consumers of the service as opposed to having current residents pay for the capacity. Peiser shows that the equity neutral way of imposing the fee would be to collect an annual fee that covers the annual debt service for constructing the facilities. In the initial years, there will not be adequate revenues to cover the debt. Thus, each resident is also imposed a surcharge to provide the additional revenue needed to cover the principal and interest that accrues until the community reaches capacity. The surcharge would have to be linked to inflation to insure that future residents pay the same amount as current residents.

In his analysis he also shows that the surcharge will be sensitive to interest rates, inflation, and the growth rate. The rate was particularly sensitive to the growth rate. He uses the sensitivity of the fee to growth rates to indicate that there is an inverse relationship between the expected future growth of the community and the need to build excess capacity.

Anderson constructs a conceptual model of the relationship between property taxes and the timing of development. The model essentially estimates the present value of the income streams from undeveloped and developed land. The model yields an estimate of the optimal time of development. This point is found where the rate of increase in the value of developed land is equal to the rate of interest plus the property tax rate for developed property minus the ratio of the income stream from undeveloped land to the income stream of developed land.

He also shows that when property is taxed differently for developed and undeveloped land that changes in one of the tax rates could influence the timing of development. Increasing (decreasing) the predevelopment tax rate will accelerate (retard) the rate of development. If the post-development tax rate is lower than the pre-development tax rate then an increase (decrease) in the post development tax rate will postpone (boost) the rate of development. If the post-

development tax rate is higher than the pre-development tax rate then an increase (decrease) in the post development tax rate will postpone (advance) the rate of development only if 'the capitalized value of the higher tax rate after development (which is negative) were less than the present value of the post-development net income stream' (p. 489).

In the case where there is a uniform tax rate the timing of development will depend on the housing market. If the market is expanding, then an increase (decrease) in the tax rate will stimulate (delay) development. However, if the market is declining, an increase (decrease) in the tax rate will postpone (quicken) development.

Skidmore and Peddle examine the relationship between impact fees and the rate of residential development. They collect data for all municipalities in Dupage County, Illinois for years 1977 through 1992. The model they estimate is:

HGROWa = f(Xit, IMPit, REGIONt)

Which represents the number of new homes built in municipality I in time t, a vector of municipal attributes; dummy variables for impact fee use; and a vector of variables that account for yearly variations in the costs and demand factors.

The results indicate that total municipal revenues, per household total revenue and the share of property tax revenue in the total significantly reduce the rate of housing development. The model finds that impact fees will likely reduce the rate of housing development by roughly 30 percent.

A simple analysis of impact fees and property tax revenue indicates that there is a negative relationship between the two sources of revenue. The estimated impact was a positive four (4) percent increase in housing development. Thus, the net effect of impact fees would still be around 25 percent reduction in housing development.

Theoretical model

The supply of housing is affected by incomes, construction costs, house prices, interest rates, economic activity, population changes, prices of substitutes, and taxes. Profits for developers are determined by subtracting construction costs, administrations costs (sales and advertising) and impact fees from the house price. Assuming construction costs and administration costs do not change, profits will be a function of price and impact fees. The higher the price relative to the fee, the easier it will be to incorporate impact fees into higher prices and/or lower profits. Therefore, one would expect impact fees to have a greater impact in low to moderate-income communities versus higher income communities. Also, one would expect developers to switch to more affluent house production after the impact fee is imposed because the impact of the fee will have less of an impact on profit margins.

In addition, because the fee adds additional costs to the production of the house, one would expect that development would be slowed significantly in times of economic depression or slow down. This impact could be avoided if the fee was not collected until after the house is sold and not at the time of its development.

The hedonic model differs from the regular regression model in that it determines price based on the attributes of the product / commodity being sold. In the regular regression model, the price is being estimated from factors that determine the shape and location of the supply and demand curve. They both use similar modeling technology (OLS) but tend to have different independent variables.

For a study on housing, the hedonic model will have as its independent variables the number of bedrooms, number of baths, square footage, outside finish, interior amenities,

neighborhood attributes, and other similar variables. However, it will overlook many intangibles that may have a significant impact on the house price. Such as curb appeal, interior painting scheme, tastes of the individual buyer concerning colors, trees, etc., shape and layout of the landscape.

The demand and/or supply model will have explanatory variables that describe the shape and location of the demand or supply curve. For demand, the variables will be price, income, market size, tastes, and expectations. On the supply side, the variables will be price of inputs, price/returns of alternative production commodities, and market conditions. However, the demand/supply model ignores many of the attributes that may influence price the hedonic model captures.

Most of the impact fee studies do not measure how the fees affect service provision. Thus it is not possible to determine positively whether in the long run housing development will stay below its rate of growth prior to the impact fee imposition. If services in the community improve as a result of the fee over time, it may cause future development rates to be higher than what they otherwise would have been.

Empirical Model

This study uses a pricing model that specifies that price is determined by characteristics of the house and community as well as current economic conditions. The model can be specified as follows:

P=(HC, CC, EC)

Where P represents the price of the house sold; HC represents characteristics of the house being sold; CC measure attributes of the community; and EC represent what local economic

conditions. Several variables can be used to specify the attributes of the house. These include, square feet, age, lot size, road frontage, number of bedrooms and bathrooms, special amenities such as fireplace, pool, lake/ocean access and/or view.

Crime and education variables can be used to represent the community. Other possible measures are parks, museums, hospital beds and theatres. Gross state product and interest rates are economic measures that will impact the price of housing.

Data

Data was collected for two suburbs of the Charleston, South Carolina metro area, Mt. Pleasant and Goose Creek. The city of Mt. Pleasant instituted development impact fees on July 1, 1988. Therefore, data was collected from 1986 to 1991 in order to analysis the two and a half years preceding and following the enactment of fees in Mt. Pleasant. Residential sales and house characteristics were obtained from the county assessors office.

The fee amounted to $892 for each residential unit that was built and $360 for each multifamily or townhouse unit that was constructed[1]. The breakout of the fee is given below in Table 1. This information was obtained from the city of Mt. Pleasant ordinances.

Other variables were obtained from the South Carolina Budget and Control Board Office by way of the Strom Thurmon Institute at Clemson University (population); Census Bureau, (regional economic activity and income); and Federal Reserve Board (interest rates and price indices)

[1] Developers could waive the park and recreation fee by donating land to the city for park and recreation use.

Table 1. Development Impact Fees Imposed by the City of Mt. Pleasant.

		Residential Units	Multi-Family and Townhouse Units
Public Services	Sanitation	$114	$0
	Refuse container	60	
	General Maintenance	27	27
Park and Recreation	--	358	358
Police	--	69	69
Fire	--	231	231
General Services	Fleet Maintenance	16	16
	Computer system	17	17
Total per dwelling unit		892	718

Note: Residential and Multi-Family developments could waive the park and recreation fee by donating land for park and recreation use.

Results

As Table 2 indicates the model explained 58% of the variation in house prices. However, only three of the explanatory variables were statistically significant at the 10 percent level of significance. The significant variables were BAREA, AGE, and CREED. All three of the significant variables had the expected sign.

BAREA had the hypothesized positive sign. square feet and age both had a negative relationship with price. This is expected because as the size of the house increases it requires more resource to build. AGE had the hypothesized negative relationship with house prices. The older homes sell at a lower price per unit because they typically do not have the latest technology in appliances. Older homes are also more likely to have higher maintenance cost.

Table 2. Econometric estimate of Impact Fees and other factors influence on house prices.

	Coefficient Estimates	T-value	Elasticity calculated At the means
BAREA	47.5	76.59	1.02
AGE	-117.3	-4.66	-0.01
IMPFEER	-0.4	-0.60	-0.00
POPCHG	209.2	0.82	0.02
PCIN	-0.3	-0.64	-0.06
INTRATE	224.0	0.47	0.03
CREED	-5022.6	-1.74	-0.01
TREND	-419.5	-1.28	-0.03
INTERCEPT	2219.8	0.29	

$R^2 =$ 0.58 DW = 1.76

The other significant variable was the dummy variable for Goose Creek (CREED), the control city. Quality of life measures were not quite as high in the control city as in the Mt. Pleasant leading to the lower expectations on for house values there.

There were several variables included in the model that were not statistically significant in explaining changes in house values in the study. These were per capita income, interest rates, and population changes.

Economic theory would suggest that each of these insignificant variables would have an influence on the price of houses being sold. As income increase, individuals (families) tend to buy more/larger houses. There is no apparent explanation for the lack of significance at this time, except that the income measure was correlated with several variables originally included (to be discussed later) in the model and that is correlation may be causing a problem.

Theory would also suggest that the price of houses would increase as the population changes. Growing (declining) populations would indicate an increase (decrease) in demand for houses

driving up (down) the price. It could be that the supply was expanding and keeping pace with the rise in demand such that profit margins were held constant over the time period examined.

Interest rates were expected to have a negative relationship with price because higher rates increase in the cost of buying a home. So that at higher rates families will have to buy a lower priced home to fit it in their budget. However, the statistical significance of the variable is rejected at the 90% level of confidence, indicating a no relationship.

The main variable under consideration impact fees was not statistically related to changes in residential house prices. It could be that the impact of the fee is felt more in terms of lot and house size or other quality aspects and not in price. However, as mentioned earlier the services provided in the impact fee area are much higher than those in the non impact fee area and it could be that the prices already reflect the service differential and fee simply represents a shift from current to new residents as taxes are already high.

Two variables had to be dropped from the model due to collinearity problems with the income variable. These were crime statistics and changes in regional economic activity. The crime measured was hypothesized to have a negative relationship with house prices as higher crimes indicate a lower quality of life in the community. Regional economic activity was believed to be a proxy for overall demand for resources in the area. Also as regional economy expands, households' confidence in the economy strengthens and they tend to spend more.

Of the statistically significant variables, BAREA had an elasticity measure just greater than 1. This implies that for each percentage increase in the size of the house that the price of the house will increase by just over 1 percent. It is likely that the increased costs are a consequence of higher quality finishing and appliances.

The AGE measure had an elasticity of almost 0. This small elasticity for house age indicates that though older homes will sell for less there is not a significant drop in price as homes age (assuming that they are well maintained).

Implications

The results of this study indicate that development impart fees have no impact on residential house prices. However, their impact on demand was significant. During a time of strong demand locally and in the region house sales decreased by over 10% the year the fee was imposed and remained low for an additional year. On the other hand, demand in the control city increased by over 40%. This implies, though there was little price impact, other characteristics of the house market changed such that demand diminished. Or profit margins were squeezed such that some developers decided to move to other locations. This last point could be very important for some cities that are competing with other nearby locations. Raising the cost of housing in your jurisdiction will lead to some development being transferred to those nearby cities.

A positive impact for local residents is that taxes did not increase as much as they would have without the fee. Millage rates were raised two years after the fee went in place but were reduced below their pre-fee levels 3 years later.

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