

ARE IMPACT FEES A DETERRENT TO DEVELOPMENT?

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INTRODUCTION

THIS PAPER ATTEMPTS TO DETERMINE WHAT effect impact fees have on housing market growth. Specifically, it examines what happens to the number of single-family housing permits issued by a local jurisdiction as impact fees rise and fall.¹ Impact fees are typically defined as one-time payments made by developers to jurisdictions at the time of development or approval thereof intended to cover the cost of extending public services to new residents. The fees, which fund a wide variety of public services, such as education, roads, parks, and public safety,² are usually made as monetary payments, although in some cases in-kind payments are accepted instead.³ Inasmuch as an impact fee can be thought of as a price, it is the “price” or marginal cost⁴ of public service extension,⁵ and hence it is determined by the demand for public services among new residents in a municipality and by the supply of such public services to new residents. Efficient development rests on equating the marginal cost of a new structure to the impact assessed on that structure (Blewett and Nelson, 1988).

The motivations for this question are manifold. Impact fees were designed to compel new growth to bear the cost it creates; in doing so, they raise the cost of development. Whether or not discouraging development was the intent is another issue, but the fact remains that impact fees do increase the price of new housing, a conclusion borne out in the existing research on the matter.⁶ Local governments are likely aware of this possibility, as well as the possibility that impact fees will affect the rate of growth within the county. As it stands, the literature is ambiguous on the effects of impact fees on residential growth rates. Additional research could shine more light on this issue and better inform local planners and developers of the effects of the impact fees that have become so common.

Further, if jurisdictions use impact fees as a gate control mechanism for approving new developments – development approval is largely contingent on the developer’s willingness to pay the fee – then the adoption of impact fees could have a positive effect on growth, holding all else constant. Devel-

opers would tend to be attracted to areas that have lower costs of development (i.e., shorter wait-times in gaining project approval and/or have higher rates of project approval). Alternately, if impact fees are used along with other development approval means and are not the sole criteria for approval, this positive effect could be reduced or nullified.

The second section of this paper examines the existing literature on impact fees and growth. The third section discusses theoretical issues and the fourth section presents the empirical model. The fifth section introduces the data, and results are discussed in the sixth section.

LITERATURE REVIEW

The existing literature is remarkably inconsistent in its conclusion about the effect of impact fees on housing market activity. The earliest empirical work on how impact fees affect housing market growth came in Skidmore and Peddle (1998). The authors examined the effects of residential impact fees on new housing in DuPage County, Illinois, between 1977 and 1992. Their results suggested that impact fees could reduce residential housing growth by around 25 percent, although they also made the point that impact fees could reduce property tax rates, which would tend to enhance growth, all else constant.

Brueckner (1997) examined some theoretical issues associated with impact fees and urban growth. His model estimated growth paths for cities under alternate funding mechanisms. His results indicated that unanticipated switching from a cost-sharing scheme to impact fees can temporarily halt residential development and increase the value of developed land, in a city whose population has exceeded an optimal level. However, in a city with a less-than-optimal population level, growth increases after the switch to impact fees, and the value of undeveloped land increases. Thus, the effect of impact fee use is ambiguous and depends on the growth path of the city.

More recently, Mayer and Somerville (2000) examined the effect of the use of impact fees on new housing construction. The data set covered 44

Metropolitan Statistical Areas (MSAs) across the United States and included information on housing starts, housing prices, and impact fee usage. The authors found that impact fees would tend to have a negative effect on housing starts, but that the coefficient was insignificant.⁷ Burge and Ihlanfeldt (2006b) reached opposite conclusions. They examined the effect of impact fee use in counties in Florida on the stock of single-family housing as well as housing prices. They found that impact fees used for purposes other than water and sewer lines tended to increase construction of small, medium, and large-size homes.⁸ Burge and Ihlanfeldt also concluded that water and sewer impact fees have a negative and insignificant effect on the housing stock.⁹

THEORETICAL ISSUES

The theoretical framework in which this paper is grounded involves a number of economic agents involved in the development process. At the center are developers, profit-maximizing firms that employ labor and capital, along with land purchased from local landowners, with the goal of producing new housing. Developers are drawn to areas with strong expected demand, measured by changes in population and median income. New housing is purchased by households, who also consume a public good, the payment for which is the property tax, and some numeraire good with a normalized price. We assume that the development and housing markets are competitive among buyers and sellers. Overseeing this process of development is the local government of the jurisdiction in which the development occurs, which regulates the supply of new housing via a permitting process, in which developers apply for the right to develop subject to the remittance of impact fees and other requirements. The revenue generated from the impact fee assessment is combined with property tax revenue and used to provide the public good to households.¹⁰

Based on the above framework, there are several ways in which impact fees can affect housing market activity. Past research mentioned in the previous section suggests a positive, and in some cases, over-compensating response in housing prices to impact fees and a similar, negative effect on land prices. Of course, in a competitive housing market, prices are determined by the interaction of housing supply and demand, and so the effect of impact fees on the

quantity of development depends on how impact fees affect supply and demand within the housing market, as well as the process through which new development is approved at the local level.¹¹

Beginning with the supply side of the housing market, there are two potentially offsetting affects of impact fees on the supply of housing. First, impact fees do raise the out-of-pocket cost of constructing new housing,¹² sometimes by shocking amounts.¹³ As a result, we might expect a decrease in housing supply as a result of the adoption of or any increases in impact fees, depending on the degree to which developers can pass along those fees to purchasers of new housing. This supply-side adjustment would tend to increase housing prices and decrease the quantity of housing supplied.

Alternately, there is the possibility that impact fees would increase the supply of housing by hastening the development approval process.¹⁴ The rationale here is that if impact fees represent the true marginal cost of development, and can be adjusted according to changes in the market as housing growth and public service provision interact, then local planners can make better decisions about how to price this development and allow for a more efficient level of growth. This would in turn reduce the institutional burden and the development evaluation process.¹⁵

Impact fees could affect the demand for housing in a couple of ways. First, homeowners could prefer housing in jurisdictions that use impact fees because of the anticipation of lower property tax rates. Yinger (1998) discussed this inverse relationship between property tax rates and impact fees, and to the extent that households are aware of the impact fees assessed by a jurisdiction, we would observe that impact fee-carrying counties would have higher housing demand and hence greater permitting activity.

The demand-side effect could also be due to a linkage between changes in public service capital as funded by impact fee revenues and the subsequent changes in the quality of public services, and the extent to which public service quality is observable by residents and capitalized into housing values. If impact fee-funded investment in public capital greets newly arriving households, they could believe that jurisdictions that assess impact fees offer higher quality public services. We would then expect demand for housing in areas with impact fees to increase, spurring an increase in permitting activity.

EMPIRICAL MODEL

The central question of this paper is to what extent do impact fees affect the number of single-family housing permits issued by a county in a particular year. The dependent variable is the number of single-family housing building permits issued, observed for each county in the state of Florida, from 1990 through 2003. This variable was chosen because the data is easily obtained and because it is common for counties to require payment of some or the entire impact fee due on a particular development at the time a permit is issued.¹⁶ The observational unit is a county and the region in question is the state of Florida. The sample covers the time period 1990 through 2003; during that time period, 34 counties in Florida employed impact fees in one form or another.¹⁷ Table 1 shows the average fee levels over time and Table 2 shows the average impact fee levels across counties, and Table 3 summarizes the types and distribution of the 10 most widely used impact fees across counties.

A county is included in the sample if at any time between 1990 and 2003 it employed development impact fees. Thus there are some observations in the sample where the impact fee value is zero. This differs from other possible strategies – using only observations where impact fees are nonzero, or including all counties regardless of impact fee usage – but has the advantage of being able to capture any before-and-after-adoption effects in the local housing markets.

Because the impact fee and housing permit variables are observed annually for all counties in the sample, a panel data approach is appropriate. More specifically, a fixed-effects model with unbalanced panel data is employed.¹⁸ Following is the regression equation estimated.

$$PERMITS_{i,t} = \beta_0 + \beta_1 RTOTALIF_{i,t} + \beta_2 POP_{i,t} + \beta_3 POPDEN_{i,t} + \beta_4 RMEDINC_{i,t} + \gamma_i + \phi_t + \epsilon_{i,t}$$

The right-hand-side variables are described in more detail in the following section. The dependent variable *PERMITS* is observed across multiple time periods (*t*) and counties (*i*) as are *POP* (population), and *MEDINC* (median income).

The variables γ and ϕ represent the county-specific and time fixed effects, respectively. It captures any variations in county permitting policies or growth management strategies, or other market-related differences, that would affect the level of permits issued. Any unobserved heterogeneity across counties is captured in this variable.

We do not expect endogeneity between the impact fee variable and the permit variable to be an issue. This is because, while the impact fee variable for a particular year is observed on the first day of the year, that level of impact fee might have been in place for as long as 11 months prior. Thus there is a built-in lag in the impact fee variable. Additionally, the permit variable is observed in the fall of each year, many months after the impact fee is observed.

Table 1
**Average Total Impact Fees
1990-2003, Florida Counties**

<i>Year</i>	<i>Average Impact Fee</i>
1990	\$992.23
1991	1203.08
1992	1245.53
1993	1426.38
1994	1462.21
1995	1509.16
1996	1612.28
1997	1690.96
1998	1823.72
1999	2096.80
2000	2313.59
2001	2399.17
2002	2581.52
2003	2969.51

DATA

Information about the levels of impact fees was gathered from all 67 counties in Florida. Of course, not all counties use impact fees, but for those that do, information about the date of impact fee adoption, any changes in impact fee levels, and other relevant information was collected. The variable *TOTALIF* sums all impact fees in use in a county at the beginning of a calendar year. For those counties that vary the level of a particular fee across impact fee benefit areas,¹⁹ the average of those fees is used. Additionally, some counties vary the level of an impact fee across houses of varying sizes; the observed house in question is assumed to be 2500 square feet. Summary statistics for all variables are presented in Table 3.

Table 2
Average Impact Fees, 1990-2003

County	Average Impact Fee	County	Average Impact Fee
Bay	\$42.86	Marion	\$977.53
Brevard	1092.87	Martin	2561.41
Broward	1868.86	Monroe	2095.82
Charlotte	2285.21	Nassau	752.32
Citrus	1600.64	Orange	3216.87
Collier	6996.49	Osceola	2373.00
Dade	1593.99	Palm Beach	4529.14
Dixie	367.86	Pasco	2240.74
Flagler	646.94	Pinellas	1642.36
Gilchrist	411.80	Polk	458.07
Hernando	2402.93	St. Johns	1940.71
Hillsborough	2120.76	St. Lucie	2769.76
Indian River	962.76	Sarasota	4021.63
Lafayette	192.86	Seminole	1379.80
Lake	2145.29	Sumter	60.64
Lee	2931.86	Volusia	1703.56
Manatee	1898.18	Wakulla	623.40

Table 3
Summary Statistics

Variable Name (n = 476)	Description	Mean	Standard Deviation	Minimum	Maximum
RTOTALIF	Total Impact Fee, First of the Year (\$), CPI Adjusted	1431.56	1307.70	0	11603.87
POP	County Population	331183	365895.75	5572	1731347
CCI	Construction Cost Index	5704.43	607.0756	4732	6694
RMEDINC	County Median Income (\$), CPI Adjusted	26583.58	4506.30	14637	39653.26
PERMITS	New Housing Permits	2545.46	2322.91	0	10920

There is some ambiguity in the study of impact fees about what sort of local fees or charges are rightly considered *impact fees*. Many jurisdictions have funding instruments that for all intents and purposes are impact fees – they are one-time payments made by developers; they are intended to cover capital expansion for some public service – but go by other names, such as “Capacity Expansion Fee.” This is particularly relevant in the case of water and sewer/wastewater impact fees. Very few counties in Florida assess “impact fees” for those purposes, but others, like Sarasota County, do assess fees that behave just like an impact fee.

In determining what types of impact fees were used by counties over the sample period, every effort was made to be as inclusive as possible and not strictly limit the sample to instruments bearing the name “Impact Fee.” However, it is not uncommon for water and sewer fees to be administered

by local utilities rather than the planning or growth management departments that typically handle impact fees. Since the primary means for gathering impact fee data was via phone interviews, some fees were likely omitted inadvertently.

The variables *POP*, *PERMITS*, and *MEDINC*²⁰ came from the U.S. Census Bureau (various years), the latter from the Small Area Income and Poverty Estimates data. *CCI* was gathered from the Engineering News-Record (various years) survey of construction costs. All dollar-denominated variables – *TOTALIF* and *MEDINC* – are adjusted for inflation using the Consumer Price Index, published by the Bureau of Labor Statistics (various years).

RESULTS

The regression results summarized in Table 4 suggest that the net effect of impact fees on per-

Table 4
Regression Results

Variable	Coefficient	Standard Error
TOTALIF	-0.00725	0.056859
POP	0.00577***	0.000996
CCI	4.46544***	1.186628
MEDINC	0.10840***	0.026489
$R^2 = 0.899$	*** significant at the 1 percent level	

mitting is not terribly significant.²¹ The coefficient on the impact fee variable is negative, indicating that the supply-side effects outweigh the demand-side effects, but is insignificant at even the 10 percent level. The other regression variables are all significant at the 1 percent level, although CCI has an unexpected positive coefficient.²² This is most likely reflective of rising construction costs over time rather than a reflection of such costs on development.

There are several possible interpretations of the impact fee coefficient. First, impact fees really do not have that much of an effect. If homebuyers are unaware of the impact fees assessed on their property and developers can fully pass along any fee to buyers, there is little reason to believe that impact fees would inhibit either the supply or demand for new housing.²³ Alternately, it could be that impact fees have no demand-side effect and that the opposing supply-side effects cancel out one another, or that rightward shifts in demand negate any leftward shifts in supply.

It is also possible that the impact fee variable is picking up noise from an omitted variable, such as the presence or absence of city-level impact fees. Of the approximately 70 townships and cities in the six counties surrounding Orlando, Florida, over 70 percent used impact fees as of 2001,²⁴ and likely more do today. If the use of impact fees by cities is correlated with use by the encompassing county, then any demand-side responses to the city-level fees could be picked up by the county-level fee coefficient, potentially skewing the results. Future versions of this paper will consider this issue. Further, more robust measures of construction costs, that reflect the effects of higher wages or land costs, could account for some cost-based supply-side pressure, allowing for better estimation of the impact fee coefficient. Additionally, cost data that is Florida-specific instead of a national average could refine the results.

Finally, there is the possibility that if developers do pay attention to impact fees in making development decisions, developers might seek out counties with low fees, all else constant, assuming developer distaste for higher fees. This implies some degree of interjurisdictional impact fee effects, where one county sees a change in development activity when a neighboring county alters its impact fees.²⁵

CONCLUSIONS

The results described herein suggest that, on net, impact fees do not adversely or positively effect housing permit activity at the county level. These results are not in agreement with the results from some past research and in agreement with other past efforts, although there is no general consensus among researchers on this topic. Further research is needed in this area, in particular that which incorporates information about subcounty level impact fee usage, additional explanatory variables related to the development approval process, more robust measures of construction costs, and perhaps impact fee usage in states other than Florida. It is no coincidence that so much research has focused on the Sunshine State, given its long and deep history with impact fees, but considering the widespread adoption of impact fees across the country, other states might have stories to tell.

Notes

- ¹ Refer to Somerville (2001) for a discussion on the advantages and disadvantages of using permits versus completions to measure housing market activity.
- ² See Tables 1-3 for summaries of impact fee usage across counties and over time in Florida.
- ³ For example, prior to 1999, the city of Casselberry, Florida, located just north of Orlando, assessed a parks impact fee payable in land set aside for park space. After 1999, the fee was modified to be a flat dollar amount, \$390.00 per single-family house.
- ⁴ Several papers have explored the extent to which impact fees actually approach the true marginal cost of development. For example, Downing and Frank (1983) surveyed jurisdictions about their impact fee usage and found that many admit to watering down their fees for political purposes.
- ⁵ Of course, not all aspects of that marginal cost are identical across structures. There are size-variant and distance-variant aspects, as well as some which are constant across structures. See Blewett and Nelson, 1988, pp. 281-282.

- ⁶ Several papers concur on this point, that impact fees generally increase the price of new housing, although the degree of shifting varies. They include Baden and Coursey (2002), Campbell (2004), Delaney and Smith (1989), Downing and Frank (1983), Ihlanfeldt and Shaughnessy (2004), and Singell and Lillydahl (1990).
- ⁷ The authors attribute this to the fact that a dummy variable for impact fee use is employed, not the actual impact fee level.
- ⁸ It is worth noting that Burge and Ihlanfeldt (2006b) employ a different left-hand-side variable than other studies, including this one. They use the change in housing stock, as observed from data obtained from local tax rolls, whereas other studies look at housing permit or start activity.
- ⁹ Burge and Ihlanfeldt (2006a) reached similar conclusions about the effect of impact fees on multi-family construction.
- ¹⁰ Again, jurisdictions are typically restricted in where they can spend impact fee revenue, which might or might not align with the boundaries of the permit-granting government. For simplicity, we assume that the two do align.
- ¹¹ A formalized theoretical model will appear in future versions of this paper.
- ¹² Although, if housing developers are able to partially or fully shift the fees into homebuyers or landowners – a conclusion suggested by past research – then higher fees would not change the behavior of developers as much as they would the decisions of home buyers and land sellers.
- ¹³ On 30 June, 2006, total impact fees assessed on a new, 2500 sq. ft. house will increase to over \$35,635 per house. This is a 78 percent increase over the previous year and a 474 percent increase from fees charged a decade before.
- ¹⁴ Blewett and Nelson (1988).
- ¹⁵ There is further evidence that impact fees can hasten growth by increasing the supply of land available for development. This is accomplished by reducing the risk associated with development via increasing the supply of infrastructure, rendering more land suitable for building (Nelson and Moody, 2003).
- ¹⁶ Other counties require that fees be paid at the time a Certificate of Occupancy is issued, but the fee schedule is typically provided at the time of permit issuance and could still affect development decisions at that time.
- ¹⁷ Leon County, not one of the 34 listed, did briefly use a transportation impact fee in the 1990s, but data on the level and duration of the fee were not made available as of this writing.
- ¹⁸ Alternate approaches, such as random-effects models, were considered, but in the absence of an obvious random component, fixed-effects are preferred.
- ¹⁹ This is very common in Florida. Approximately one-third of the counties in the sample vary their fees

across so-called impact fee benefit zones, and over one-half base their fee schedules on some aspect of the house itself, such as square footage or number of bedrooms.

- ²⁰ Median income data were not available for all years between 1990 and 2003. Specifically, median income data was not available for 1990, so data from 1989 was used. To estimate the data for 1991 and 1992, one-third of the difference between the 1990 data and the 1993 data was used for 1991, and two-thirds of the difference for 1992. While actual Census data is available for 1990, the interceding years (between 1990 and 2002, exclusive) are estimates, not actual observations. Median income for 1994 and 1996 were estimated using the averages of the preceding and following years: 1993 and 1995 and 1995 and 1997, respectively. To keep the median income data consistent, only estimates were used.
- ²¹ The standard errors are corrected for heteroskedasticity.
- ²² The county or year coefficients were not presented or discussed for expedience, but are available on request.
- ²³ According to Campbell (2004), between 1997 and 2001 the average real price of housing in the Orlando area was just over \$72,500 and the average impact fee was \$5408.70 – on average, impact fees accounted for less than 8 percent of the price of a house. At the highest, in the city of Sanford, total impact fees equaled less than 16 percent of the price of a house.
- ²⁴ Campbell (2004).
- ²⁵ Refer to Jeong (2004) for results on the degree to which the impact fee-adoption of a given jurisdiction is influenced by the same behavior of neighboring (i.e., contiguous) jurisdictions.

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