

Impact Fees and Housing Affordability

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Executive Summary

Approximately 60 percent of U.S. cities with more than 25,000 residents now impose impact fees to fund infrastructure needed to service new housing and other development. (General Accounting Office (GAO) (2000)). In California, the state in which impact fees are most heavily used, the average amount of fees 89 jurisdictions selected for study imposed on single-family homes in new subdivisions in 1999 was \$19,552, with fees ranging from a low of \$6,783 to a high of \$47,742. (Landis et al. (2001)). While California jurisdictions impose fees that are higher—perhaps much higher—than those in other jurisdictions, impact fees are an increasingly important cost of development, especially in the fastest growing areas of the United States.

The increasing use of impact fees, and the costs that they may add to the development process, raises serious concerns about the effect using impact fees to fund infrastructure will have on the affordability of housing. This paper explores that controversy. Part I reviews how impact fees work and what role they currently play in the provision of infrastructure and the regulation of land use, and explores why impact fees have gained such prominence in recent years. Part I also surveys the empirical evidence about how and where these fees are being used, for what, and how much they are costing. Part II reviews the justifications for using impact fees to finance the provision of infrastructure, then explores the dangers impact fees pose. Part III explores the effect impact fees have on the price of housing. It begins by exploring economic theory about who will bear the incidence of impact fees under different market conditions. This section then surveys the empirical literature that seeks to test those economic theories by quantifying how impact fees affect the price of housing, the price of land, and the supply of land and housing. It concludes by suggesting what further research is needed to identify more clearly what effect impact fees have on the market for housing.

Part IV then turns to the effect impact fees may have on the affordability of housing to moderate-income households. This section also addresses the effect impact fees may have on the availability of housing to racial and ethnic minorities. Minorities disproportionately fall in the low- and moderate-income groups for whom housing affordability is especially critical, and traditionally have had their housing opportunities limited by racial discrimination in the housing, lending, and other related markets. Part IV again suggests what further research is necessary to understand those issues. The article concludes with a call for a research agenda that will allow policymakers to adopt sophisticated and careful impact fee programs that will improve the efficiency of land development without sacrificing housing affordability or opportunity.

A Brief Overview of Land Use Exactions and Impact Fees

The Nature of Exactions and Impact Fees

Land use “exactions” require that developers provide, or pay for, some public facility or other amenity as a condition for receiving permission for a land use that the local government could otherwise prohibit. Until the 1920s, local governments generally financed the extension of water, sewer, and other utilities to new development either with general revenues from property and other taxes, with indebtedness repaid with general revenues, or through a centuries-old practice of levying "special assessments" upon real property to pay for public improvements, such as paved streets, that provide a direct and special benefit to the property. (Been (1991); see also Altshuler and Gómez-Ibáñez (1993); Freilich and Bushek (1995)). Where infrastructure was financed through debt repaid by revenues from property (or other local) taxes, newcomers contributed to the financing of infrastructure that they used through payments on the indebtedness. Existing residents helped pay for infrastructure for newcomers, but that burden was offset, at least roughly, by the fact that existing residents used infrastructure financed in part by even earlier residents. (Brueckner (1997)).

In the 1920s and 1930s, widespread bankruptcies and subsequent delinquencies on property tax or special assessment payments left many local governments unable to recoup the costs of public improvements. Communities then sought ways to shift the initial costs of improvements (and the risk of failure to recoup those costs) to the developer. The Standard State Zoning Enabling Act, published by the U.S. Department of Commerce in 1926, and quickly adopted by many states, authorized local governments to require developers to construct streets, water mains, and sewer lines (U.S. Department of Commerce (1926)), and many did so by requiring *on-site dedications*, whereby the developer dedicated land within the subdivision on which the community could construct streets, sidewalks, utilities, and other such facilities. Alternatively, the local government required the developer to construct and dedicate these facilities to the community. Communities initially required dedications only for such basic facilities as streets and sidewalks, but communities eventually demanded that developers dedicate land within the subdivision for schools, fire and police stations, and parks or open space.

Land or facilities within a subdivision were not always ideally suited to meet a particular need, so local governments began to impose *off-site dedications*, which required developers to dedicate land or facilities not located within the subdivision. Local governments also began to charge *fees-in-lieu-of-dedication*, giving developers the option of either dedicating land or facilities, or contributing money to the community that it could then use to purchase land or construct public improvements.

Because dedications and fees-in-lieu-of-dedication typically could be applied only to subdivisions, many local governments began to implement broader *impact fees*, which assess developers for the costs that developments will impose upon the government's capital budget for public services. Impact fees can be levied upon apartment buildings or other residential dwellings that are not located in a subdivision, as well as upon office, commercial, and industrial developments.

Linkages are a hybrid of impact fees and off-site dedications. Linkage programs condition approval of certain central city developments (usually commercial or office space) upon the developer's provision of facilities or services for which the development will create a need, or that the development will displace. These programs have been adopted in a variety of cities for such needs as affordable housing, mass transit facilities, and day care services. *Set-asides or inclusionary zoning* programs are similar in concept to linkages, but are addressed specifically to the need for low- and moderate-income housing. They require a developer to make a certain percentage of the units within a development available at prices affordable to residents with low and moderate incomes, or to pay in-lieu-of contributions to an affordable housing fund.

There is some confusion about the terminology of exactions and impact fees. Although “exactions” is the umbrella term for all the various kinds of dedications, fees, and linkage programs, some people use the term to describe only the first generation devices: on- and off-site dedications and fees-in-lieu-of-dedications. Impact fees were a second-generation form of exaction. For clarity, this paper uses the term “exactions” to include all the different tools local governments have used to shift the burden of providing infrastructure to developers, and uses more specific terms to distinguish between traditional dedications and later generation tools such as impact fees or linkage programs. (Abbott et al. (2001); Altshuler and Gómez-Ibáñez (1993); Blaesse and Kentopp (1990)).

How and Where Impact Fees Are Being Used

The first national study² of the use of impact fees³ was conducted in late 1984 and early 1985. Gus Bauman and William Ethier (1987) surveyed 1,000 communities,⁴ and found that of the 220 responding, almost 45 percent were using impact fees.⁵ A more comprehensive national survey of a random sample of cities and counties, stratified by community population, conducted later in 1985 found that 58 percent of the cities and counties responding were imposing some form of impact fee. (Purdum and Frank (1987)). The Wharton Urban Decentralization Project survey of 900 communities across the United States in 1989 found that 37 percent of the jurisdictions were levying impact fees. (Gyourko (1991)). Another 1989 survey of city, county, and special district governments belonging to the Government Finance Officers Association found that 50 percent of the respondents were using impact fees, and another 26 percent were considering adopting an impact fee program.⁶ (Leithe and Montavon (1990)).

Over the past decade, that number undoubtedly grew, although differences in survey techniques and a paucity of recent information make historical comparisons difficult. The only recent nationwide study, a survey of cities with populations of 25,000 or more conducted by GAO in 2000, found that 59 percent of the cities responding were using impact fees, and 39 percent of the counties responding were doing so. (GAO (2000)). Recent state and regional studies show even higher percentages of local governments using impact fees in certain parts of the country. In Florida, for example, a 1991 survey revealed that 52 percent of Florida's counties used fees.⁷ (Florida Advisory Council on Intergovernmental Relations (1991)).

Not only are more communities using impact fees, but local governments also are using fees for a much wider range of infrastructure. In 1985, fees were most commonly used for sewer lines, water lines, roads and parks, with less than 5 percent of the communities using fees for such

things as solid waste facilities, police and fire stations, or low- and moderate-income housing. (Purdum and Frank (1987)). By contrast, in Florida in 1991, 33 percent of the jurisdictions levying impact fees did so for water and sewer; 20 percent did so for parks and recreation facilities; 16 percent levied transportation fees; 11 percent levied fire and emergency medical service fees; and 7 percent levied fees for police and correctional services. (Florida Advisory Council on Intergovernmental Relations (1991)). A recent extensive study (not a random sample) of 89 jurisdictions in California showed that 99 percent imposed fees for school construction; 97 percent for sewer connections; 91 percent for water connections; 87 percent for parks; 80 percent for local traffic mitigation; 60 percent for storm drainage; 55 percent for fire service; and between 10 and 30 percent for impacts on watersheds or aquifers, regional traffic, police service, open space and affordable housing.⁸ (Landis et al. (2001)).

Not enough is known about the kinds of local governments that are adopting fees, or the circumstances that appear to motivate them to do so. Bauman and Ethier's (1987) survey revealed substantial differences between the various regions of the country, with no New England communities using fees in 1984 and 1985, but with 45 percent of communities in the western states using fees, and 82 percent of the communities in California using fees. Purdum and Frank (1987) confirmed the regional nature of fee usage, finding that in 1985, California, Florida, Virginia, Arizona, Nevada, Washington, Maryland, and Colorado were the heaviest users of impact fees.⁹ Leithe and Montavon's (1990) survey found jurisdictions in 36 different states using impact fees in 1989, with the most frequent use in California, Florida, Oregon, Texas, Pennsylvania, Colorado, Illinois, and Washington.¹⁰ Because no comprehensive national surveys of impact fee use have been conducted for more than a decade, recent information about the distribution of the local governments using fees is not available, but anecdotal data suggests that Florida, California, and the western states continue to be the predominant users of impact fees.

Not surprisingly, communities undergoing the most growth, particularly those on the urban fringe, appear to be most likely to adopt fees.¹¹ Purdum and Frank (1987) found the effect of growth rates to be U-shaped, with low-growth-rate communities using fees more than moderate growth communities, with a real jump in use in high-growth communities.¹² Larger cities probably are more likely to adopt fees than smaller jurisdictions. In Texas, for example, a survey conducted in the early 1990s showed that 37 percent of larger cities had adopted impact fees, primarily for water and sewer connections, while only 5 percent of the smaller communities had adopted fees.¹³ (Clarke and Evans 1999). The effect may be bell-shaped, with the very largest and very smallest cities being disproportionately unlikely to use fees.¹⁴

The 1989 Wharton study found that among the jurisdictions that imposed fees, the mean fee for a 2,000-square-foot single-family home was \$2,902.¹⁵ (Gyourko (1991)). Although no more recent nationwide information about the amounts of impact fees that jurisdictions charge is available, several extensive studies document the amounts local governments within a particular state or region charge. In California, a research team from the University of California at Berkeley's Institute of Urban and Regional Development analyzed the impact fees imposed by 89 jurisdictions the research team had chosen for analysis because of their location, rate and type of construction activity, and diversity of housing types. (Landis et al. (2001)). For single-family homes in a 25-unit subdivision, the average per-unit cost of all impact fees levied was \$19,552,

and ranged from a low of \$6,783 to a high of \$47,742. For a single-family house in infill areas, the average per unit fee was \$16,547, with a range between \$5,600 and \$48,478. For a 45-unit apartment project, the average per unit cost of all impact fees was \$13,268, and ranged from a low of \$2,840 to a high of \$41,328.¹⁶ Some of the variation was attributable to regional differences, but within regions there also were huge variations.

In Florida, by contrast, the median of the total impact fees charged for a three-bedroom, two-bath, 1,500-square-foot single-family home was \$419 in 1991, with a range between \$6.00 and \$3,483. (Florida Advisory Council on Intergovernmental Relations (1991)). Similarly, in Texas, a survey conducted in the early 1990s showed that the average impact fee charged was about \$1,000 for a single-family house. (Clarke (1999)). In the Chicago metropolitan area, Baden and Coursey examined the impact fee practices of eight suburbs, and found that total fees assessed on a four-bedroom, single-family home on a quarter-acre lot ranged from \$2,224 to \$8,942 in 1997 dollars, with school and park fees accounting for the greatest share of the total fee. (Baden and Coursey (1999)).

The Promise—and Perils—of Impact Fees

The Promise

The main reason municipalities impose impact fees upon development is, of course, to shift to the developer, the owner of the land converted to development, or the consumers of the housing or other land use, the costs of the public infrastructure that the development requires. The motive for that shift may be entirely self-regarding—the desire of existing residents to avoid paying for newcomers' infrastructure—but the shift, nevertheless, may serve to promote greater efficiency. By forcing the developer and its customers to assume or share in the costs of infrastructure, impact fees may induce more efficient use of the infrastructure. Further, by requiring the developer and its customers to pay to mitigate the negative effects a development may have on a neighborhood, such as increased traffic congestion, noise and environmental degradation, impact fees again may encourage efficiency by making the developer and its customers internalize the full costs of the harms that the development causes.

Impact fees also may serve to increase housing supply by enabling growth. In areas that are growing so rapidly that the government cannot provide public facilities fast enough, exactions allow growth that might otherwise be stalled by growth control measures. Moreover, impact fees may serve to reduce uncertainty about the risks of future growth, thereby enabling more growth by decreasing existing residents' incentives to use growth control or management devices to avoid those risks. Each of these functions is explored in more detail in the following subsections.

Marginal cost versus average cost pricing. Where public services are subject to congestion—where the last units of service are more expensive to provide than the first—the cost of providing services to new residents may be higher than the cost of providing such services to existing residents. Unless new residents are asked to pay the marginal cost of services rather than the average cost, they will not bear the full cost of their decision to move to the community.¹⁷ (Snyder and Stegman (1986)). Property taxes, which are based on the value of property, are unlikely to be closely correlated with the marginal costs the property would impose on

infrastructure.¹⁸ (Downing and McCaleb (1987); Downing (1973)). Impact fees can be designed, however, to more nearly approach marginal cost pricing.¹⁹ (Blewett and Nelson (1988)). Accordingly, Brueckner finds that an impact fee scheme, compared to more property-tax-like schemes,²⁰ results in the efficient city size. (Brueckner (2001; 1997; 1990); Speir and Stephenson (2002)).

Even where the service is not subject to congestion, marginal cost pricing may induce greater efficiency because some types of uses (e.g., projects located further from the central plant, or projects built at a lower density than the community average) will cost more to service than the average use.²¹ (Burchell and Listokin (1995); Downing and McCaleb (1987); Frank (1989); Kasowski (1993); Nelson and Duncan (1995); Transit Cooperative Research (1998)). Charging those uses for the marginal cost the development imposes on the community will force those uses to take into account the costs of the leapfrog or lower-density character of the development. (Holcombe (1998); Netzer (1988); Slack and Bird (1991)). Further, charging users for the marginal cost of providing services to a development will encourage developers to build in areas already serviced by under-used infrastructure, such as in-fill areas, rather than on undeveloped agricultural “greenfield” land. (Brueckner (2001)).

To encourage efficiency, however, impact fees must be structured as prices, meaning that they must fully reflect the costs of servicing the development, and accordingly must be tailored to the particular characteristics of a development (its distance from existing streets or roads, for example, or whether its geography makes it difficult to serve with water and sewer mains) that affect the cost of service. (Downing and McCaleb (1987)). If the fee does not do so, it may not approximate marginal cost any better than alternative forms of financing, and therefore may not encourage more efficient development. (Baden and Coursey (1999); Gómez-Ibáñez (1996)). Sophisticated models for accurately pricing impact fees certainly exist (see, e.g., Burchell (1994)) and consulting firms are available to provide expertise to local governments in setting fees. Not enough is known, however, about how local governments actually establish their fees to determine whether the use of those models or consulting expertise is widespread. Some of the empirical studies of impact fees have begun to explore whether fees vary in ways that would suggest marginal cost pricing, and those find some evidence that fees are being tailored to maximize their impact on efficiency. The Landis, et al. (2001) study in California, for example, found that subdivision homes are typically charged higher impact fees (and a larger number of fees) than are infill homes and apartment units. Similarly, single-family homes are charged higher school fees than apartment units. Further, a jurisdiction’s density was negatively related to the amount of fees charged for sewer and water facilities, as one would expect.

The Government Finance Officers Association survey of jurisdictions believed to have impact fee programs revealed that fees varied based upon the type of development, the number of bedrooms or square footage in the project’s units, the density of the projects, and the service area in which the development was proposed. (Leithe and Motavon (1990)). A 1989 survey of municipalities in British Columbia also showed that charges were differentiated both by the type of development proposed and by the area of the municipality in which the project would be located.²² (Slack (1990)). Much more research needs to be done, both to determine if local governments are using appropriate techniques to accurately price the marginal costs of new

development, and to develop easier-to-use models to help local government improve their pricing practices. (Speir and Stephenson (2002)).

Cost-internalization of harms. In order for the market for housing (or other forms of development) to be efficient—to maximize overall social utility—it is standard economic theory that the price of housing must include all of the benefits and costs that the development brings to, or imposes upon, society. Many critics of the current land use regulatory system assert that it allows development projects to externalize some (or even many) of the costs of the development: taxpayers, neighbors, and future generations are said to bear part of the clean-up or mitigation of the environmental damage the development creates, for example. To the extent that development imposes harms on a community (in economic terms, to the extent the true social cost of development is greater than its private, internalized costs), impact fees can serve as “prices” that the developer pays to the community for those harms or social costs. (Fischel (2001; 1995; 1985)).

There are several kinds of externalities that can be internalized through impact fees. Most obviously, when a development causes harms, such as water pollution, that will be born in whole or in part by those outside the development, the problem is not one of marginal versus average cost pricing, but simply a matter of ensuring that the developer and its homebuyers bear the full costs of the decision to develop in a particular way. Similarly, when a development reduces the commons available to others, such as open space, clean air, or natural habitat, the developer will tend to provide too much of the housing or other product if the developer and its homebuyers are not asked to internalize the full costs of the development’s use of the commons. (Brueckner (2001)).

Enabling growth. Impact fees may enable growth where infrastructure constraints would otherwise make it impossible. Where, for example, a development moratorium is in place until a jurisdiction can catch up with infrastructure demands, or where a jurisdiction has adopted either a staged growth plan or an adequate public facilities ordinance, impact fees may provide the capital necessary to hasten the local government’s provision of infrastructure necessary for development. While there appear to be no empirical studies evaluating how often impact fees function to enable the provision of infrastructure necessary to allow development to proceed, anecdotal evidence suggests that fees have enabled growth in a variety of jurisdictions.

Similarly, if designed to approximate marginal cost pricing, impact fees may reassure existing homeowners that they will not bear the downside risk of whether growth pays its own way, so that homeowners are less reluctant to allow growth. Professors Gatzlaff and Smith (1993) show, for example, that in a housing market that is “information efficient”—one in which prices accurately reflect the attributes and risk of various housing options—uncertainties about the effects of future growth will be capitalized into the price of housing. In such a market, if residents cannot accurately predict how much growth the community will have, what form it will take, where it will be located, or what impact it will have on surrounding neighborhoods, the resulting uncertainty about future tax levels and service quality will force housing prices down, relative to housing prices in a jurisdiction that offers less uncertainty (all other things being equal). Residents, therefore, will try to minimize such uncertainty (and the resulting decrease in housing values) by controlling growth. (Gyourko (1991); Turnball (2003)).

Impact fees, however, offer a more efficient alternative to reducing the risks of growth, to the extent that they are properly designed to serve as marginal cost pricing. (Blewett and Nelson (1988)). If they ensure that growth pays the marginal social costs it imposes, impact fees will limit the subsidies of growth required of existing residents, and ensure that any growth that occurs will be efficient. All other things being equal, then, a jurisdiction using impact fees as a form of marginal cost pricing will present a lower risk of future increases in taxes or decreases in service quality, and accordingly enjoy higher property values, than a jurisdiction in which the effects of growth are more uncertain. The reduced uncertainty that impact fees can provide existing homeowners, therefore, may enable growth in areas that would otherwise resort to growth control or growth management to minimize the risks posed by new growth.

The “growth enabling” potential of impact fees undoubtedly will be limited by residents’ distrust of the government’s ability and willingness to set impact fees at the marginal cost of development and to use impact fees to force internalization of the full range of costs new development may cause. Indeed, some opponents of sprawl recently cautioned that proponents of smart growth should not support the use of impact fees because such fees may “accommodat[e] development” without mitigating the actual impacts of the development. (Rosenberg (2003)). Nevertheless, impact fees may be of some help in enabling growth, at least at the margins. Where, for example, one community imposes no impact fees, and another imposes fees designed, even if imperfectly, to approximate marginal cost pricing, the use of impact fees may dissuade residents of the impact fee community from adopting growth controls as stringent as those of the no-fee community.

The Perils

Along with the potential advantages of impact fees in ensuring efficient growth, and in allowing efficient growth when communities might otherwise seek to prevent all growth, impact fees pose several real dangers (in addition to the effect on affordability that is the subject of this review).

Driving up the price of housing to exclude low-income or minority consumers. It is now commonly understood that jurisdictions may try to use “fiscal zoning” tools, including impact fees, to prevent newcomers (especially those with lower incomes) from purchasing sites with values below the community average. Jurisdictions try to force newcomers to buy high value sites in order to ensure that newcomers will not take advantage of the jurisdiction’s services at less cost than existing residents must pay. (Ellickson (1977); Inman and Rubinfeld (1979); Windsor (1979)). In addition, or instead, jurisdictions may use impact fees to seek to exclude people who are different in race, class, or other characteristics from the community’s existing (and preferred) demographic profile. (Bullard et al. (1994); Massey and Denton (1993); Yinger (1995); Ford (1994); Frug (1996)).

The evidence that growth control or management²³ tools in general are used for exclusionary purposes is mixed.²⁴ There is considerable anecdotal support for the proposition that traditional growth control devices, such as large-lot zoning, often were and are adopted for the purpose of excluding the poor and racial minorities from exclusive suburban communities.²⁵ Evidence that growth management tools, such as urban growth boundaries, are adopted for exclusionary

reasons is sparse and mixed, however. (Baldassare and Wilson (1996); Nelson et al. (2002); Pendall (2000)).

The evidence that impact fees, in particular, are used for such purposes is conflicted and thin. The Wharton 1989 survey, for example, found that jurisdictions do not consider impact fees to be the most effective devices to control growth. (Gyourko (1991)), and anecdotal experiences suggests that jurisdictions that wish to exclude or manage growth choose growth control techniques, such as growth caps or large lot zoning, or growth management techniques, such as growth boundaries that they believe will be more effective. The Government Finance Officers Association survey of jurisdictions believed to be using impact fees, for example, showed that outside Florida, which had a statewide growth management program in addition to local governments' impact fee programs, nearly 40 percent of jurisdictions in other states that were using impact fees also had some other form of growth control or growth management program in place. (Leithe and Montavon (1990)). On the other hand, the Wharton study found that the amount of the fees a jurisdiction imposed goes up (a statistically significant positive correlation) as the jurisdiction's beliefs about how effective fees are in excluding increases, and goes up (down) as the jurisdiction's ratings of how effective other growth control devices are at excluding decreases (increases) (a statistically significant negative correlation). (Gyourko (1991)).

Additional evidence that impact fees may be used for exclusionary purposes lies in what little we know about the characteristics of jurisdictions imposing impact fees. As noted above, the last comprehensive nationwide survey of jurisdictions took place in the 1980s and provides limited data about the characteristics of jurisdictions that choose to impose fees (or that choose to impose higher fees than the average jurisdiction). One of the studies shows that low-growth-rate communities use fees more than moderate-growth communities, but that the predominant users are high-growth communities. That might suggest that the low-growth communities may be using fees to maintain their exclusive status, although other explanations might be valid as well or instead; no multivariate analysis of the characteristics of the communities using fees was performed.²⁶

More recently, Clarke and Evans (1999) surveyed 350 cities (a stratified sample based upon population) regarding their use of impact fees and their capital spending. Based on the data acquired from the 23 percent of the cities responding to the survey, Clarke and Evans regressed the per capita capital spending of each city in 1995 against a dummy variable for whether the city imposed impact fees, and against various population and demographic characteristics of the cities. The authors found that the impact fee variable was negatively correlated with capital spending, with a statistically significant coefficient of -175.02, meaning that cities that used impact fees spent \$175 less per capita in 1995 than cities that did not use impact fees, everything else (captured by the model) being equal. Clarke and Evans speculate that the negative correlation between the use of impact fees and capital spending per capita may result from cities using impact fees as a no-growth policy. It could, however, be that the jurisdictions using impact fees need to spend less because their use of impact fees has enabled them to adopt a more efficient capital facilities planning process, or has resulted in savings in the construction or operation of facilities.

Further, impact fees appear to be most widely used in those areas of the country where suburbs are integrating most rapidly. (Frey (2001)). That may mean that fees are not being used for exclusionary purposes, or it may mean that some jurisdictions within the integrating regions are adopting fees in order to resist the changing demographics of the region. Again, so little is known about the characteristics of the jurisdictions using the fees that it is impossible to determine if impact fees are tools for exclusion, or are instead enabling growth in the areas that are relatively hospitable to the increasing suburbanization of racial and ethnic minorities.

Transitional unfairness. As discussed fully in the next section, impact fees will be borne either by the consumer of housing, the owner of undeveloped land, or the developer, depending upon the relative elasticities of supply and demand for land and housing. If consumers of housing bear the cost of impact fees, the impact fee is equivalent to a pre-paid (or up-front) property tax.²⁷ The consumer also will pay the jurisdictions' annual property taxes, however. To the extent that those property taxes have been or continue to be used to finance infrastructure used by other residents of the community, several sources of potential unfairness arise. First, if property taxes have been used in the past to pay for infrastructure needed to support new growth, then the infrastructure provided to existing residents was subsidized in part by prior generations of taxpayers, and that subsidy is being denied new residents. That transition problem accompanies any change in tax structure (or any legal transition), of course, and has been extensively analyzed elsewhere. (Shaviro (2000); Kaplow (1986); Levmore (1999)).

Second, if the property taxes new residents pay include a charge for the debt service on infrastructure already provided to existing residents, or a levy for current or future capital expenditures that will benefit primarily existing residents, then new residents are being asked to subsidize existing residents. (Slack (1990)). Impact fee systems can be designed to avoid those subsidies, and many jurisdictions report that they credit new developments for the portion of property taxes the new residents will contribute to retire the indebtedness on already existing infrastructure (or to finance future infrastructure) that will not benefit new residents. To the extent that a jurisdiction does not grant such credits, the subsidization of existing residents by new residents is unjustified (and probably illegal).²⁸

Rent-seeking. If the impact fees charged to new development are not sufficiently tailored to the costs the new development actually imposes, and instead are charged on the basis of "what the market will bear," the fees will represent unfair rent-seeking by existing residents—either of new residents (who often will not be residents able to protect themselves in the jurisdiction's political process) or of the owners of undeveloped land. (Ellickson (1977)). The courts' nexus and proportionality tests are designed to prevent those types of unfairness, but to the extent that they are not applied to impact fees, or are not sufficiently enforced, some unfairness may remain.²⁹

Impact Fees and the Price of Housing

Both scholars and interest group advocates have raised a variety of concerns about whether impact fees will increase the price of housing and thereby decrease the affordability of new and existing housing for consumers. They worry as well that increased prices resulting from impact fees may hinder efforts to better integrate communities and to distribute the benefits of homeownership more widely among all racial and ethnic groups within our society. Indeed,

opponents of impact fees have asserted that impact fees “add to the walls of segregation” and “ke[ep] out low-income citizens.” (Braun (2003)). Opponents argue that even apart from the direct effects impact fees may have on the price of housing, they have indirect exclusionary effects as well. Baden and Coursey (1999) claim, for example, that:

If buyers of expensive homes are less sensitive to marginal increases in the price of their purchases (as predicted by economic theory), then developers have an incentive to build higher-priced houses. This . . . price[s] low-income people out of suburban neighborhoods. To the extent that income is correlated with race, impact fees may create barriers against the migration of minorities into the suburbs.

The potential effect impact fees may have on the availability of land, the supply of housing, the price of housing, and the consequent affordability of housing, however, is quite a complicated subject, about which surprisingly little is known. This section of the paper addresses the potential effect impact fees may have on the supply and price of land and the supply and price of housing. Section IV then addresses the potential effect impact fees may have on what is traditionally meant by housing “affordability” and “opportunity”—the ability of moderate- and middle-income consumers to purchase their own home, and the opportunity for people of all races and ethnic groups to secure housing equally.

Theoretical Framework for Evaluating the Price Effect of Impact Fees

Impact Fees and the Amenities They Provide

As Ellickson (1977) recognized some 25 years ago, any analysis of the effect fees may have on the price of housing depends first upon whether the land (or housing) on which the fee is imposed receives any incremental municipal services or amenities as a result of the payment.³⁰ Subsequent writers seemed to forget that important opening move, usually treating impact fees as equivalent to an excise tax that produces no benefits to the housing consumer. (Weitz (1985)). That omission prompted John Yinger (1998) to advance a corrective that some have called a “new view” of the allocative effects of impact fees.³¹ Yinger starts his analysis of the incidence of impact fees by assuming that impact fees will fund infrastructure that consumers value.³² Although Yinger does not focus on this point, impact fees also may be of value to consumers if they finance infrastructure more cheaply than the property taxes, special assessments, or other taxes that the consumer would otherwise be assessed to pay for the infrastructure. (Hodge and Cameron (1989)). Further, as noted above, if impact fees approximate marginal cost pricing, they may reduce the risk that a homeowner will be liable for taxes to fund infrastructure needed for later residents, and that risk reduction may be capitalized into the price of the house. (Gatzlaff and Smith (1993)). If the infrastructure financed by the fee (or the avoidance of other taxes, or the insurance policy against future rate increases) is valuable to the consumer, demand for housing serviced by that infrastructure (or financing package) will increase, and the price of the housing will increase accordingly. As long as the impact fee is efficient (funds infrastructure worth the cost of the fee, or reduces other tax liability or risk of tax liability by at least as much as the fee or risk premium), however, consumers will suffer no net loss because they will receive in benefits a value equal to (or greater than) the cost of the infrastructure financed (or other taxes avoided) by the fee. Developers will receive the cost of the fee in higher sales prices, so they too will suffer no loss.

The landowner, however, may still bear some of the cost of the fee.³³ If the property tax rate remains stable after the impact fee is imposed, the benefit the consumer receives in infrastructure will trigger higher property tax payments (because the value of the house increased). Consumers accordingly will discount the amount they will pay for the value added by the infrastructure to account for the expected amount of the increased tax payment. Who pays that tax will depend upon the same analysis one would use for property taxes in general—if the consumer can get similar housing with the amenity from a jurisdiction that has lower taxes, s/he will be unwilling to pay the tax. Assuming that the developer is operating in a competitive market, such that s/he cannot reduce profits, the tax will be passed back to the landowner.

Because the increase in home values will result in higher property tax revenues, however, to keep all else equal, the jurisdiction should lower its tax rates. That reduction in property tax liability will be capitalized into a higher sales price for the housing, perhaps generating sufficient revenues to pay the impact fee without passing any of its cost back to the landowner. How much of the discount that would otherwise be passed back to the landowner will be offset by the capitalization of lower tax rates into the housing values depends upon the relative number of houses benefiting from the amenity versus the number of taxpayers receiving the benefit of any reduction in property tax rate that results from the higher housing values occasioned by the amenity financed by the impact fee.

This argument draws upon an analogy to the capitalization of property tax rates into house values.³⁴ In a competitive market, if a jurisdiction increases its property taxes, but does not increase the quality or quantity of services it provides with property tax revenue, consumers will purchase housing in jurisdictions with lower property tax rates. Decreased demand then will reduce the price of housing in the taxing jurisdiction, such that the total house price/property tax/service package will remain competitive with other jurisdictions. On the other hand, if a jurisdiction increases its property tax rate, but also improves the quality or quantity of services it provides beyond that offered by competing jurisdictions, consumers who value those public services at least as much as their cost will continue to buy in the taxing jurisdiction, and housing prices will not fall. The overall house price/property tax package will increase in cost, but that increase will be offset by the value of the increase in public services available to homebuyers.

Similarly, when the amenity (or the reduction in property tax liability for infrastructure needed for new residents) is taken into account, impact fees will have a similar effect. If impact fee revenues are not used to provide amenities or services superior to those consumers can get by purchasing in jurisdictions with lower (or no) impact fees, then consumers will reduce the amount they offer for housing so that the total housing price/impact fee/property tax/service package remains competitive with other jurisdictions. But if the impact fees provide infrastructure (or tax savings or risk reduction) that consumers value and cannot get elsewhere for the same housing price/property tax payment, then consumers will be willing to pay more for the housing.³⁵ Prices will increase, but consumers will be no worse off because they are receiving additional value for the extra price they pay.

Indeed, consumers will be willing to pay more even for existing housing in the jurisdiction, if that housing benefits from the amenities provided by the infrastructure (which would raise

questions about the legality of the impact fee), or if that housing benefits from the reduction in property taxes resulting from the higher tax base attributable to the value added to the new houses by those amenities.³⁶ Under those circumstances, impact fees would result in a capital gain for existing residents.³⁷

Legal restrictions on the use of exactions in the United States are intended, in part, to ensure that the consumer receives appropriate value for the infrastructure or services funded by the impact fee.³⁸ Nevertheless, there are several things that can undermine the process just described. First, of course, the infrastructure financed by the fee may not bring benefits in excess of costs. If the infrastructure is installed by the government in a low-quality or inefficient manner, if the infrastructure installed is not actually desired by consumers, or if the infrastructure installed primarily benefits existing homes, then its value to the consumers of new housing may be less than its cost. (Downing and McCaleb (1987)). In addition, the supposed savings in property taxes occasioned by the higher tax base resulting from the increased value of new homes may be spent on projects that do not benefit the owners of new homes—it even may be squandered—rather than being rebated to consumers or landowners.

Second, if substitute housing is available with a similar infrastructure/property tax rate package in the jurisdiction, but without the fee, or if competing jurisdictions are providing substitute housing with a similar infrastructure/tax package without charging a fee, then those consumers who are mobile will be unwilling to pay the full cost of the impact fee jurisdiction's infrastructure/tax package. These consumers will buy elsewhere instead, until the increase in prices for substitute housing attributable to increasing demand (assuming sufficient numbers of consumers are mobile bring the market back into equilibrium.

The Incidence of Impact Fees That Don't Provide Value Worth Their Costs or That Fund Amenities Available for Less in Other Jurisdictions

When impact fees don't provide infrastructure or financing advantages worth their costs, or when competition from other jurisdictions allows consumers to obtain the same value for less money, impact fees can be analogized to a one-time excise tax that produces no benefits to the taxpayer.³⁹ In that case, the fee will increase the price of housing either directly or indirectly, depending upon whether the consumer, the developer, or the developer's factors of production, such as the landowner, bears the cost of the impact fee. Whether consumers, developers, or landowners bear the cost of the fee depends on the relative elasticities of supply and demand for undeveloped land and for housing—that is, on how the quantities of undeveloped land and housing supplied and demanded within the impact fee jurisdiction would vary with changes in the market price of housing. (Ellickson and Been (2000); Ellickson (1977); Huffman (1988); Slack (1990); Weitz (1985)).

If the consumer bears all or most of the cost, housing prices will increase directly. If the landowner bears all or most of the cost, quantities of land available to be converted to housing will fall, at least in the short run, thereby restricting the supply of housing and eventually raising prices on the limited supply available (assuming demand is rising).⁴⁰ If the developer bears all or most of the cost, quantities of land converted for development again will fall, at least in the short run, with consequent increases in the price of housing in the face of rising demand.

Figure 1 illustrates the problem. The horizontal axis represents the quantity of housing supplied, and the vertical axis represents the price per unit of that housing. The S_1 and D curves in Figure 1 indicate, respectively, the supply and demand for new housing in the jurisdiction before the impact fee is imposed.⁴¹ These curves intersect at point A, the equilibrium for the pre-fee market. Before the fee is imposed, quantity Q_a of new housing would be sold at price P_a per unit. If the locality were to impose an impact fee of F per unit of housing, the supply curve would shift upward by distance F .⁴² The new supply curve would be S_2 and the post-fee market equilibrium would be B, the intersection of D and S_2 . The fee would cause the price of housing to rise from P_a to P_b , and the quantity sold to drop from Q_a to Q_b . The fee, represented by rectangle P_bBCP_c , would be paid to the municipality, with the consumer's share represented by P_bBAP_a and the developer or landowner's share represented by P_aACP_c .

Where the dividing line between the consumer's share and the developer or landowner's share falls will depend upon the relative slope of the supply and demand curves. Where developers are able to pass on the entire amount of the impact fee (plus any cost of the fee, such as financing charges)⁴³ to the consumer, then the increase in the price of housing would equal F (or the line BC). That would be the case if either the supply curve or the demand curve were perfectly inelastic, (if the quantity of housing supplied were not responsive to the price at which it is sold, or if consumers were completely insensitive to price such that demand was not responsive to changes in price). But, if either the supply curve is upward sloping, or the demand curve is downward sloping—indicating that supply and demand are sensitive to changes in price—then the developer will not be able to pass the entire cost of the fee to the consumer, and the amount that cannot be passed forward must either be born by the developer or by the landowner.⁴⁴

More precisely, where consumers are freely mobile and where substitutes for the new housing upon which an impact fee has been imposed are available either in the jurisdiction imposing the fee (existing housing not subject to the fee, for example), or in comparable jurisdictions in the same housing market that do not impose fees, consumers will refuse to pay higher prices for the new housing subject to the impact fee. In this *fungible jurisdiction, unusual exaction* case, consumers can obtain an equivalent new house in another suburb, or even an equivalent used dwelling in the taxing suburb, for the pre-exaction price, so the developer will be unable to raise prices to consumers. In more technical terms, where the demand for housing is perfectly elastic, an impact fee (or other "tax" on development) will not be passed on to consumers. (Pollakowski and Wachter (1990)). Instead, developers aware of the fee will bid less for land in the jurisdiction imposing the fee, and the fee will be passed backward and fall upon owners of undeveloped land in that jurisdiction. In that case, if the supply of land is elastic, all other things being equal, the lower land prices will delay the rate at which land is converted to urban use, and, thereby, produce a drop in the quantity of housing being built in the jurisdiction, until increased demand drives the price of the land back up. (Downing and McCaleb (1987)). Unless the reduction in the supply of housing can be "made up" once increased demand makes conversion worthwhile, the shortage will eventually raise housing prices in the face of increasing demand to a level higher than they would have been had the impact fee never been imposed.

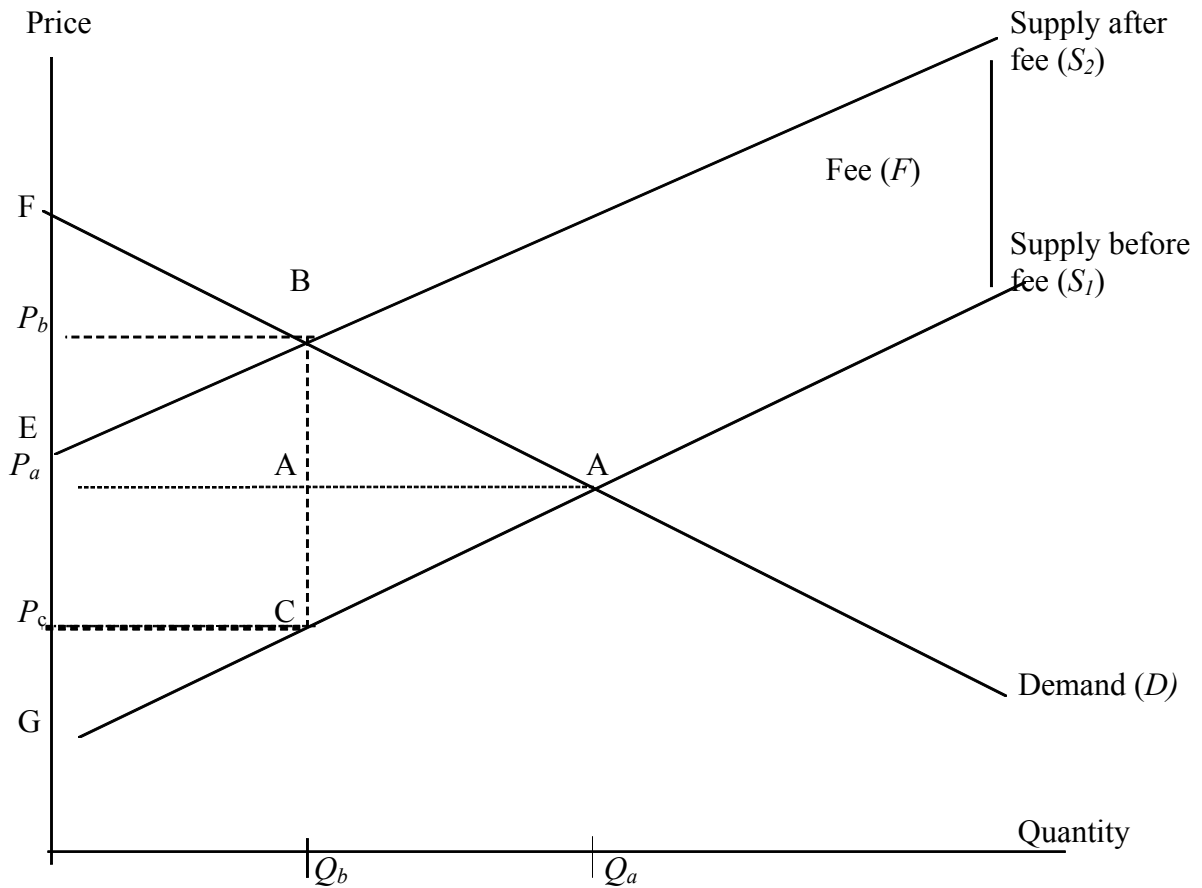


Figure1
A Hypothetical Market for Land Improvements

Of course, not all housing has perfect substitutes and not all municipalities are perfectly fungible. Further, not all consumers are perfectly informed about the substitutes that exist, nor are they perfectly mobile even if fully informed about substitutes. Nevertheless, in general, the more substitutes for new housing in a jurisdiction imposing impact fees that are available, the less likely it is that the cost of the impact fee will be born by consumers (Dresch and Sheffren

(1997)). There are four major scenarios regarding who would bear the cost of the fee that require analysis:

Incidence of Impact Fees that Provide No Value to Consumer

Competitiveness of Housing Market	Uniqueness of Exaction		
	<i>Unusual Exaction</i>	<i>Widespread Exaction</i>	
<i>Fungible Jurisdiction</i> (competitive housing market and elastic housing demand)	Landowner or developer or owners of capital bear fee in short term; consumers may pay higher prices in long run		
	<i>Elastic land supply:</i> either landowners will take less for their land or will withhold land from conversion until rising demand again drives prices back up (then consumers will pay higher prices if quantity cannot “catch up”)	<i>Inelastic (and limited) land supply:</i> landowners will be unwilling to take lower prices for limited supply of land, so developers will stop building until rising demand again drives prices back up, or will substitute more housing amenities for less land, provide higher-end housing, or seek to pass the fee on to other factors such as lenders	Consumers pay or demand less housing across all jurisdictions (if demand drops across all jurisdictions, landowners will bear some of the cost)
<i>Unique or Free-Standing Jurisdiction</i> (inelastic housing demand)	<i>Unusual Exaction</i>		
	Consumer or landowner pay		
	<i>Elastic land supply:</i> consumer will pay most of fee	<i>Inelastic (and limited) land supply:</i> consumer again will pay most of the fee; or developers will provide higher end housing	Consumer pays

In the second scenario—the *fungible jurisdiction, widespread exaction* case—even though the housing market is competitive and the demand for housing is elastic, the consumer will pay all or most of the impact fee. The consumer will be unable to find substitute housing that is not subject to the fee because by definition, the exaction is imposed on all or most of the housing in the market. Unless the consumer can reduce demand by, for example, doubling up in housing units (young adults living longer with parents, or elderly parents moving back in with their adult children before they otherwise would), the consumer will bear the fee. To the extent that consumers can reduce demand for housing, part of the fee will be passed back to the landowners under the same terms as explained in the *fungible jurisdiction, unique exaction* case.⁴⁵

In the third scenario—*unique jurisdiction, unusual exaction*—where the local government possesses a combination of features (such as topography, location, and public services) unique enough that most consumers regard the locality as having no perfect substitute, the developer will be able to pass the cost of the impact fee on to consumers, so the price of housing will rise.⁴⁶ (Hodge and Cameron (1989)). Unless the jurisdiction is completely unique, and housing demand is completely inelastic, however, the price increase will not be as great as the fee, and the balance of the cost of the fee will be passed backward to owners of undeveloped land. Where the demand for housing is inelastic because of the lack of substitute housing, impact fees will raise the price of both new and old housing. Developers will pass the cost of the impact fee on to consumers of new housing, but some will bid instead for existing housing, until the price for existing housing has risen to equal that of new housing.⁴⁷ (Huffman et al. (1988)).

In the fourth scenario, where the jurisdiction is unique, and the exaction is widespread, the consumer will be even more likely to pay.⁴⁸ Even the consumers willing to forego the unique benefits of a particular jurisdiction will be unable to escape the fee by buying substitute housing elsewhere, so the developer again will seek to pass the charge on to consumers by charging a higher price or by reducing quality or size of houses offered. Again, the increased housing prices resulting from the impact fee will affect both new and existing housing in a jurisdiction.

In each of those cases, it is assumed that the developers will bear none of the fee, because if their profit margins were high enough to absorb the fee, competition already would have either reduced the price of housing to the consumer, or increased the prices paid to the landowner.⁴⁹ If the market for development is not competitive, such that developers were earning abnormal profits, the developer may bear some of the costs of the fee. (Slack (1990)).

The developer also might be forced to bear some of the cost of the fee if the developer did not anticipate the fee at the time they bid for the land. (Downing and McCaleb (1987); Ellickson (1977); Slack (1990)). If the developer knew the fee in advance with certainty, they would bid less for the land, thus passing the fee back to the landowner. However, if the developer is surprised by the fee after committing to the purchase price of the land, then the developer will bear its cost. (Ellickson (1977); Weitz (1985)). In that case, the developer is likely to try to build more expensive houses (increasing the housing amenities provided on the same-sized lot), and to aim “up-market” to increase the chance of recovering the fee from the buyer. (Huffman et al. (1988)).

Empirical Evidence Regarding the Price Effects of Impact Fees

Empirical Studies of Growth Control and Management Generally

Over the past 15 years, there have been many empirical investigations into the effect that growth management or control mechanisms have on the supply and price of housing. While impact fees differ from growth management tools in important ways, as discussed below, the literature on growth control and management provides some insight into the effects impact fees may have on the price of housing. There is considerable controversy over the terms “growth control,” “growth management,” and “smart growth,” and this paper seeks to avoid engaging in that controversy. In general, *growth control* and *growth management* have been used together in this paper, and *smart growth* has been avoided altogether. For purposes of this paper, *growth control* refers to efforts to stop or limit growth through traditional regulatory tools, such as growth caps, or indefinite moratoria not tied to a particular goal, such as completing a comprehensive plan. *Growth management* means efforts to channel (but not stop or limit) growth into particular areas. Growth management tools include urban growth boundaries that seek to contain the geographical spread of a city, but to accommodate growth within the boundary through higher density or infill development. Growth management also may take the form of concurrency requirements that seek to direct growth to areas in which infrastructure is already available or planned, rather than allowing it to occur without regard to the availability of infrastructure.⁵⁰

Many cross-sectional studies have attempted to measure the effect regulatory constraints have on the price of housing by comparing the relationship between the existence of regulatory constraints in a particular jurisdiction and the price of housing in that jurisdiction versus an unregulated control market. Time-series studies have examined the price of housing before and after the introduction or increase in regulatory constraints. Most cross-sectional and time-series studies use hedonic price models to seek to isolate the effect regulatory constraints have on the price of housing; some look at the effect constraints have on the value of undeveloped land, and a few examine the effect constraints have on the rate at which agricultural land is converted to development.

Most of those studies find that land use regulatory constraints, especially traditional growth control measures, are associated with higher housing prices. (Deakin (1989); Fischel (1990); Lillydahl and Singell (1987); Nelson et al. (2002)). Some find that growth control and management are correlated with lower values for undeveloped (and constrained) land. Some show that such constraints are associated with decreased supply of developable land, or decreases in the responsiveness of supply to demand.

While many of the studies assume that higher housing prices are inefficient or otherwise undesirable, evidence of higher prices is not necessarily proof of inefficiency, as Fischel (1990) has pointed out. If the restraints studied raise the value of the housing or the neighborhood to consumers, or prevent congestion or other disamenities that would lower the value of the housing or neighborhood, then the fact that housing prices rise in response to the regulation signals that the regulations are working as intended, and are increasing demand for the housing.⁵¹ (Fischel (1990); Nelson et al. (2002)). In addition, because the studies do not control for the reasons that restrictive communities had for adopting growth management regulations, they may be confusing

cause and effect. If communities adopt growth management regulations to address rapid growth, higher housing prices in the community (relative to non-restrictive communities) may be capturing the price effect of growth, rather than the price effect of the growth management techniques. (Fischel (1990)).

Further, even if growth management regulations increase the price of housing, if they increase its value to consumers (rather than inefficiently increasing the cost of development without adding value), those increases do not necessarily mean that housing is less affordable. If, for example, growth management techniques increase the accessibility of housing to public transportation, an increase in housing prices may be offset by a decrease in a family's transportation costs. Further, if growth management increases the price of housing in a particular jurisdiction, but substitute housing in communities that are fungible with the restrictive community is available, the overall supply of affordable housing will not be affected. (Fischel (1990)). Of course, if the restrictive community is not fungible, because of the unique job opportunities it offers, for example, then the reduction in affordable housing in that particular jurisdiction will be problematic.⁵² If the restrictive community's policies have spillover effects by raising prices in nearby communities, without providing any benefits to those communities, that too would have a negative effect on housing affordability. (Pollakowski and Wachter (1990)).

Those caveats, in particular, are likely to apply in the case of impact fees, for several reasons. First, impact fees, by definition, pay for infrastructure or other amenities that have value to the housing consumer, and impact fees, therefore, may increase housing values. As noted above, if the fees pay for infrastructure (or a level or quality of services) that otherwise would be provided without cost to the consumer, the value of the infrastructure should not be capitalized into the land if the housing market is competitive. But, if the fees pay for infrastructure that would otherwise not be provided, or if they pay for infrastructure that would be provided only through increases in consumer's property taxes (or other expenses) greater than the impact fee, the value of the infrastructure should increase the demand for the housing, and, therefore, should be reflected in housing prices. All land use regulations may produce benefits, such that increases in the price of housing associated with regulations may be a measure of the regulations' benefit, rather than a measure of the regulations' costs, as noted above. But impact fees may be more likely than other regulations to produce direct and tangible benefits, to the extent that legal constraints work to ensure that fees collected are actually used to provide the infrastructure needed.

Second, impact fees may enable growth that would not otherwise occur, because of a moratorium on development until infrastructure can be provided, for example. Impact fees in those circumstances would be expected to increase the development value of undeveloped land, therefore affecting the supply of land converted to development. While growth control, and even growth management, restrictions are unlikely to enable growth, impact fees may do so by allowing growth to occur in advance of the jurisdiction's timetable for supplying infrastructure. The funds to build infrastructure must come from somewhere, so whether impact fees actually restrict or enable growth will depend upon how the jurisdiction facing a shortfall of funds for infrastructure would react to the crisis if precluded from adopting impact fees. Such a jurisdiction could adopt more restrictive growth management policies (thereby affecting housing supply and prices), raise taxes, special assessments or other forms of financing (again affecting

housing prices), find the funds by reducing other programs (possibly affecting other items in the consumer's budget), find the funds by decreasing neighborhood quality and thereby affecting house prices, or find the funds through increases in productivity or other "costless" means. (Fischel (1990)).

Finally, to the extent that other regulatory constraints raise costs by increasing the uncertainty and risk of development, impact fees can be structured to be more transparent and certain than most growth management tools. Where impact fees are scheduled, the schedule is readily understandable by the developer, and the scheduled rate is stable, developers will know exactly what they must pay, and there will be few delays imposed by the application of the fee schedule. Where the city must do individual cost or nexus studies to determine the fee, however, that process will introduce delay and uncertainty.⁵³

The differences between impact fees and other regulatory tools that may be used to limit or manage growth make the general literature about the supply and price effects of growth control and management tools particularly difficult to apply to impact fees. There is, however, a more specific literature about the price and supply effects of impact fees.

Empirical Studies of the Price Effects of Impact Fees in Particular

Studies that specifically focus on the price or supply effects of development impact fees generally show that impact fees raise the price of both new and existing housing.⁵⁴ The studies are analyzed here by type and chronological order. To set the stage for the ensuing discussion of advances researchers need to make in the future, this section highlights shortcomings of the various studies, without meaning to disparage the very significant contributions each made in the development of our understanding of the effects of impact fees.

The first major study, by *Charles Delaney and Marc Smith* (1989a) used hedonic regressions⁵⁵ to examine the effect that a \$1,150 impact fee that Dunedin, Florida, adopted in 1974 had on the price of new, single-family dwellings in Dunedin over the 12-year period from 1971 to 1982, relative to three surrounding communities that had not adopted such fees or had adopted only very minor fees. Delaney and Smith began by regressing a few housing characteristics and the cost per square foot of the land when the home was originally built (which the authors use as a proxy for neighborhood quality) on housing prices,⁵⁶ and using those estimations to calculate the price of a new, "constant quality" house for each city in each year.⁵⁷ They then regressed, for each year, the ratio of Dunedin's estimated price for a constant quality home to the estimated price for such a home in the comparison city against a dummy variable coded one for the years when the impact fee was expected to influence housing prices.

Delaney and Smith found that there was a statistically significant difference between the price of new housing in Dunedin and prices in two of the three non-impact fee cities between 1973 and 1978, but not thereafter. The coefficients for the impact fee dummy variable in the regressions for those two comparison cities were more than three times the actual amount of the fee (indicating that every \$1.00 in impact fees raised the price of housing by more than \$3.00).

Delaney and Smith (1989b) later extended the study to examine the effects the impact fee had on the prices of existing housing. Using only one of the comparison cities, Clearwater, the authors regressed the sales prices of existing dwellings on the housing characteristics and the neighborhood quality proxy, as well as the age of the house. They used those regression results to construct “constant quality” price indices for existing housing in Dunedin and the comparison city. Delaney and Smith then regressed the ratios of Dunedin’s index for new housing to its index for existing housing, as well as the ratios of Dunedin’s index for existing housing to Clearwater’s index for existing housing, against a dummy variable again coded one in years where the impact fees were expected to raise prices.

The results showed that the price of new housing, compared to the price of existing housing, rose in Dunedin until 1978. The price difference of \$2,600 was more than twice the amount of the \$1,150 fee. In addition, the price of existing housing in Dunedin rose compared to the price of existing housing in Clearwater, until 1979. That price difference averaged \$1,643. Both price differentials dissipated after 1978 and 1979, which the authors interpret to mean that whatever market imperfections allowed the price differentials to occur despite the substitutability of the housing were eventually overcome. Based upon both papers, therefore, the authors concluded that the introduction of impact fees in Dunedin: (1) raised the price of new housing in Dunedin relative to new housing in two of the three control communities; (2) raised the price of new housing in Dunedin relative to the price of its existing housing; and (3) raised the price of existing housing in Dunedin relative to Clearwater’s existing housing. All three effects lasted for a period of six years before the housing market was able to adjust to eliminate the price differentials.

There are several limitations to the Delaney and Smith studies. First, as Delaney and Smith note, during the years studied, the market for housing in Pinellas County was characterized by rapid growth and low vacancy rates, suggesting a market with inelastic demand—precisely the market in which impact fees are most likely to be capitalized into housing prices. The results, therefore, might not be applicable to markets in which demand is more elastic. The study area also was unusual in that several years of controversy and litigation preceded the implementation of the fee actually studied, and several observers have posited that the differential in prices may have resulted in part from different expectations about the potential benefits of the fee by those involved in the controversy (presumably existing residents) and those less knowledgeable (newcomers or people in the neighboring comparison communities).

Second, the sharpness of the break between 1978 and later years (the ratio of new home prices to existing home prices in Dunedin, for example, fell from 1.11 in 1978 to 1.04 in 1979) raises the possibility that some omitted variable (a particularly favorable employment climate that ended in 1978, for example) may account for the differential and its disappearance.

Third, Delaney and Smith included no direct neighborhood variables in their regression, and their proxy for neighborhood effects—the square foot cost of land—is a very attenuated proxy for such determinants of demand as school quality or the race, income, and household type of neighborhood residents.⁵⁸

Fourth, Delaney and Smith note that the fees provided little or no benefit, because they generated too little revenue to result in improvements to infrastructure (or presumably savings in other taxes). The lack of any possible amenity value from the fee makes the magnitude of the price effects found especially difficult to understand. Delaney and Smith posit that the magnitude of the effect might be explained by the costs of financing the fee, along with overhead and related expenses, but they acknowledge that it is doubtful those expenses could be large enough to explain the “over-shifting.”

Finally, differences between current housing markets and the Florida market in the 1970s as described by Delaney and Smith raise serious questions about how applicable their findings are today. They note, for example, that limitations in the 1970s Multiple Listing Service may have explained consumers’ failure to reject the higher prices in Dunedin in favor of substitute housing in Clearwater. With ready access to information about houses around the nation and the world on the Internet today, it is hard to imagine the information imperfections that allowed the differential between Dunedin and Clearwater (if it were actually attributable to the impact fee) to persist for six years.

Larry Singell and Jane Lillydahl (1990) studied the effect that an increase of approximately \$1,182 in impact fees in Loveland, Colorado in 1984 had on the prices of new and existing housing. The study focused on the 18 months before and after the adoption of the higher fee, and regressed, separately for new and existing housing, the log of the sales price against the logs of interest rates, the logs of five characteristics of the house,⁵⁹ a time variable for the month the house was sold, and a dummy variable for the time the impact fee was in effect.⁶⁰ The results indicated that the impact fee had a significant effect on both new and old housing prices, increasing the price of new housing by approximately \$3,800, and the price of existing housing by about \$7,000. Like Delaney and Smith, the Singell and Lillydahl study did not include neighborhood characteristics.

The Singell and Lillydahl study again may be hard to generalize because the authors describe Loveland as being an unusual community, with few substitutes. The 18-month period may be too short to reflect the market’s adjustment to the fee (especially if Delaney and Smith’s finding that the market took six years to adjust to price differentials in Florida is correct). The magnitude of the price effect Singell and Lillydahl find again is hard to understand.⁶¹ (Yinger (1998)). So, too, is the large differential between the price effect on new and existing housing, and the fact that the differential is in the opposite direction of that found by Delaney and Smith. Singell and Lillydahl find the magnitude of the effect on existing housing “surprising,” but provide no explanation for the larger effect on existing housing.⁶² As explained above, economic theory regarding the incidence of fees suggests that if fees provide no amenity value, but are passed on to consumers, both existing housing and new housing will increase in price as consumers bid up the prices of existing housing while trying to escape the impact fee imposed upon new houses. If the fee does provide an amenity value not available to existing housing, existing housing will rise in price only to the extent that the higher value of new houses may provide a reduction in taxes demanded of existing homes. There is no reason under either scenario, however, for existing housing to become *more* valuable than the new housing.⁶³ (Yinger (1998)).

Marla Dresch and Steven Sheffrin (1997) studied the effect of development fees ranging from \$16,000 to \$24,000 per house on housing prices in Contra Costa County, California, between 1992 and 1996.⁶⁴ The period studied coincided with a slump in the real estate market, so prices generally were declining sharply, but the authors accounted for the falling market by allowing the sales price variable to differ for every four-month period in the years studied. Although Dresch and Sheffrin did not include neighborhood characteristics in their model directly, they did use dummy variables for each of the different communities in the sample to try to account for differences among the communities. To account for significant differences in the quality and price of homes in different parts of the county, Dresch and Sheffrin also divided the county into distinct data pools.⁶⁵

For the less wealthy, eastern, portion of the county, Dresch and Sheffrin found that every \$1.00 in fees increased new housing prices by \$0.25. The findings suggest that consumers were bearing only a fraction of the impact fees; the study could not determine if developers or landowners, or both, were bearing the remaining portion. For the wealthier, western, portion of the county, Dresch and Sheffrin found that every \$1.00 increase in fees would raise new housing prices \$1.88.⁶⁶ Dresch and Sheffrin speculate that the difference between the two parts of the county was based upon greater distress in the housing market for the less wealthy communities. Presumably, the two parts of the county were not seen as substitutes for each other, or competition would have equalized any effect of the impact fees.

Dresch and Sheffrin also studied the effect of fees on the prices of existing homes by regressing average fees on the sales prices of existing homes, and by adding variables for the age of the existing housing. In the less wealthy portion of the county, they estimated that every \$1.00 of fees raised the prices of existing homes by \$0.23. In the wealthier portion of the county, the authors found no relationship between the average fee imposed on new housing and the sales prices of existing housing. They offer no explanation for the different price effect the impact fees had on new and used housing in the wealthier portion of the county. If the impact fee did not add value for the consumer, then any increase in prices caused by the fee should be reflected in both new and used housing, because they are substitutes for one another. If the impact fee did add value for consumers, then the different price effect for new and used housing may be explained as the capitalization of value into the new housing that primarily enjoys the new amenity, with any positive externality to the used housing being much smaller in value.

Two studies explored the effect impact fees had on the price of undeveloped land (rather than housing prices). *Nelson and Lillydahl et al.* (1992) used Loveland, Colorado, as one study area, regressing land prices on a development fee variable that captured differences in fees over time, as well as on neighborhood characteristics.⁶⁷ The study found no statistically significant effect on *land* prices (Singell and Lillydahl, described earlier, studied the effect impact fees in Loveland had on *housing* prices). Nelson and Lillydahl et al. also studied Sarasota County, Florida, and found that land prices were significantly higher in those areas of the county in which impact fees were higher.⁶⁸ Rather than finding land prices depressed because of a pass-back of the fee, therefore, they found an increase in land prices. The authors speculate that the impact fee led to greater expectations that infrastructure would be provided for the land, or may have allowed developers to receive development permits faster, and that such increased certainty about development potential or such time-savings (and accompanying risk reduction) might

explain the increase in land values. (Nelson and Lillydahl et al. (1992); Nelson, Frank and Nicholas (1992)).

Skaburskis and Qadeer (1992) studied the effect impact fees had on the prices of a 10-percent sample of all vacant single-family lots sold in three suburbs of Toronto between 1977 and 1986. The authors regressed the prices of 1,021 observed lot sales on the amounts of impact fees paid for each lot, a coefficient describing the interaction of the fee and the region's rate of growth at the time of the sale, development costs, locational factors, expected future growth in housing prices, and expected growth in construction costs.⁶⁹ The regressions did not include any data about the amenities available to the lots, nor any information about neighborhood quality, but the authors believed that any variation between the lots on those characteristics was minor.

Skaburskis and Qadeer found that each dollar in fees increased *lot* prices by approximately \$1.88 when the growth rate of building permits was zero, but only about \$1.23 when the growth rate was the period's average of 2.33 percent per year. It is hard to know what to make of those findings without more information about the nature of the housing market. If there was no growth in building permits because there was no demand for housing, it should have been a buyer's market, and the price effect of the impact fee should have been lower than in a higher-growth period, not higher. On the other hand, if the lack of growth in building permits was due to artificial constraints upon supply (such as a development moratorium), then the larger price effect of the fee in the constrained market would be consistent with the incidence theory described above. The authors mention a recession, and seek to explain differences between the three suburbs as based upon one jurisdiction's efforts to attract developers. If no building is underway because demand is low, then the study's findings are unexpected—it is difficult to understand why consumers would pay more of the impact fee (or more for the value the infrastructure funded by the fee added to the house) when demand is low than when demand is higher.

Several studies in recent years have examined the effect that impact fees have on the supply of housing, rather than on prices. *Mark Skidmore and Michael Peddle* (1998) examined the effects impact fees had on the number of new homes built each year over a 15-year period in municipalities in Dupage County, Illinois. Dupage County is a rapidly growing suburban county with considerable variation among its municipalities in both growth rates and use of impact fees. Skidmore and Peddle regressed the number of new homes built each year in each municipality against a dummy variable for whether a municipality used impact fees (regardless of the amount of the impact fee), as well as against such municipal variables as tax base and tax burdens. The regression included a time dummy variable to control for changes over time in factors, such as the cost of construction, which were likely to affect all municipalities equally. The regression also included a municipality dummy variable to control for unobserved differences among the municipalities that did not vary over time. The data did not allow Skidmore and Peddle to control directly for changes over time within individual municipalities, such as changes in the quality or quantity of public services provided.

Skidmore and Peddle found that the introduction of an impact fee was correlated with a reduction in the number of new homes built of approximately 30 percent.⁷⁰ The authors did not

directly examine the effect the introduction of the impact fee had on the price of housing, although presumably a decrease in supply will result in an increase in price.

Christopher Mayer and C. Somerville (2000) used quarterly data from 44 U.S. metropolitan areas for the years 1985 to 1996 to examine the relationship of changes in supply (as proxied by the number of new single-family building permits issued each quarter) to measures of regulatory restrictiveness (the number of months required for subdivision approval, the number of ways growth management techniques had been introduced, and whether impact fees were imposed). The authors found that while regulatory constraints, such as growth management policies and regulatory delays, were associated with lower new construction levels, development fees had little effect on the rate of new construction. The study used the presence or absence of impact fees, rather than the amount, as its variable. Mayer and Somerville explain their findings regarding the effect of impact fees by noting that builders complain that the uncertainty surrounding other land use regulations creates more problems for the builders than the predictable costs of fees.

Finally, two recent studies have returned to analysis of the effects impact fees have on the price of housing. *Baden and Coursey* (1999) studied eight Chicago suburbs over the three-year period of 1995 through 1997. They regressed the log of the sales price of both new and existing homes on the logs of a wider range of housing characteristics than earlier studies had included in their models.⁷¹ Baden and Coursey did not include neighborhood quality variables other than the municipality's 1990 population in the regressions; however, in one of the regressions, the authors assigned each municipality a separate indicator to control for unspecified differences between the municipalities.

Baden and Coursey found that the coefficient for the impact fee variable was positive and statistically significant. They used those coefficients to calculate the effect the fees each community actually charged would have on the price of a four-bedroom house on a quarter-acre lot. The increase in house prices ranged from 70 to 210 percent of the actual amount of the fee imposed. For existing homes, Baden and Coursey estimated the price effect of fees on the average price of 25-year-old houses with four bedrooms, and found a statistically significant price effect, but one that was lower than the price effect for new homes.⁷² Because Baden and Coursey pooled the new and existing home sale data, their results are difficult to interpret or compare with those of earlier studies.

Keith Ihlanfeldt and Timothy Shaughnessy (2003), in the most recent study of the effect of impact fees on housing prices, strongly criticize all the earlier studies: “[T]he reliability of the evidence presented by these studies is questionable because it is generally not consistent with expectations derived from economic theory, and emanates from sparsely specified hedonic price models that omit variables that are likely correlated with impact fees. Perhaps an even more significant limitation of the extant literature is that there is little evidence on the impact that fees have on the value of vacant land, despite the fact that economic theory suggests that landowners may be heavily impacted by fees.” To remedy all those errors, Ihlanfeldt and Shaughnessy estimate the effects impact fees had on the prices of new and existing homes and undeveloped residential land using time-series data for Dade County, Florida.

Ihlanfeldt and Shaughnessy's two-stage model begins by using hedonic price and repeat sale models to construct monthly indices of the price of new and existing housing and undeveloped residential land of constant quality. Unlike earlier studies, their hedonic model includes both the structural characteristics of the houses and neighborhood characteristics such as race, income, percentage of rental housing, and distance to employment centers, but no data on the quality of public services or infrastructure in the neighborhood. In the second stage, the monthly indices for new and used housing were regressed separately on construction costs, interest rates, housing stock, rent, per capita income, tax millage rate, change in the price index for the previous year, and a continuous impact fee variable.

Ihlanfeldt and Shaughnessy found that the coefficient for the impact fee variable in the regression for new homes was 1.64, and the coefficient for the impact fee variable in the existing home regression was 1.68. Both were statistically significant, although neither is significantly different from one. Thus, for every dollar of impact fees assessed, new and existing home prices increased by \$1.64 and \$1.68, respectively (although the results cannot rule out the possibility that the increase is \$1.00 for \$1.00).

Ihlanfeldt and Shaughnessy interpret their results to mean that consumers perceive a value for the property tax savings they will enjoy from the switch from property tax financing of infrastructure to impact fee financing. Their regressions showed that impact fees did reduce the property tax rate, but that the effect was statistically significant only after a three-year lag. The authors calculate the present value of the expected savings in property taxes to be about \$1.20 for each \$1.00 in impact fees.⁷³ Finally, Ihlanfeldt and Shaughnessy also found that land prices declined by about eight percent, or by roughly the amount of the impact fees, because of the use of impact fees.⁷⁴

Ihlanfeldt and Shaughnessy see their results as a major advance in the literature and vindication of the view that impact fees add value for consumers that is capitalized into home prices, rather than serving merely as an excise tax that provides no value to the consumer but may be passed on to consumers in certain market situations. The authors' explanation of their results, however, is muddled. They posit that the increase in house prices "should equal the capitalized value of the property tax savings that homeowners expect from the reduction in the tax rate." But why tax rates will fall is unclear. At one point, Ihlanfeldt and Shaughnessy argue that the reduction in taxes will result from higher property tax revenues occasioned by the fact that "the benefits that accrue to new homebuyers from the infrastructure financed from the fee are capitalized into new home prices."

If that capitalization occurred, however, then the price effects of the fee would be different for new and existing homes. The Ihlanfeldt and Shaughnessy theory posits that new home prices will rise to reflect the value of the amenities financed by impact fees.⁷⁵ That rise in prices will result in increased property tax revenues, which, in turn, will induce a reduction in property tax rates for all residents. That reduction in property tax rates will increase the value of both new and existing homes. But the amenity value resulting from the impact fee should be capitalized only into existing homes (unless the amenities provided benefit new and existing homes equally, which would raise legal concerns). The property tax savings that results from the higher taxes

received for the amenity-enhanced value of new homes will be spread over all new and (many more) existing homes.

Thus, the fact that Ihlanfeldt and Shaughnessy find equal impacts for new and existing homes is troubling, rather than a vindication of incidence theory. If new home prices rise to reflect the amenity financed by the fee, and both new and existing home values rise to reflect the property tax rate change, then new home prices should rise more than existing home prices. The price increase for new and existing homes would be the same only if the impact fee in fact added no amenity value to the new homes (or if the price effect of the added value were competed away because the amenities could be purchased elsewhere for less). But, if the fee added no value (or were competed away), then there would not be the increase in property tax revenue that drives Ihlanfeldt's and Shaughnessy's explanation.

Further, it seems odd that homebuyers would be so sure that property taxes would fall as a result of increases in home values that they would be willing to pay increased prices in advance of the decrease (the impact fee's effect on tax rates becomes statistically significant only after a three-year lag). In the real world, property taxes are rarely lowered because of the increasing value of the jurisdiction's tax base—the increased value is eaten up by increases in the cost of doing business, increased demands for services, and so on. An increase in the value of the home of between \$1.00 and \$1.68 per \$1.00 of impact fee on the promise of a rate rollback accordingly seems extraordinarily optimistic on the part of the home purchasers.

Elsewhere in the paper, Ihlanfeldt and Shaughnessy offer a different explanation for the price effect—arguing that if an impact fee provides no change in infrastructure quality for new houses (relative to existing houses), then the fee will increase the prices of new and existing homes by equal amounts because homeowners will realize a savings on property taxes by shifting the costs of infrastructure from taxpayers to developers. The authors claim, however, that “based upon our housing model results, developers of new housing appear to be fully compensated for the impact fees that they pay by increases in the prices that they can charge for new homes.”⁷⁶ The shift in financing, then, was not from taxpayers to the developer, but from taxpayers to new homebuyers. If the impact fee was passed on to new homebuyers, it also would drive the price of existing housing up as buyers seek substitutes for the higher-priced new housing. That would be reflected in equal price increases for new and used homes, as the authors found, but the price increase for existing homes would largely be a windfall gain, not the “present value of the property tax savings” expected from the shift in financing methods, as Ihlanfeldt and Shaughnessy claim. Moreover, again, the argument unrealistically assumes that homebuyers will be willing to pay more for their housing based on the promise of property tax rate reductions in the future.

Ihlanfeldt and Shaughnessy, thus, offer evidence of a price effect from impact fees, but despite their claims, their model does not distinguish between an “excise” tax effect and a capitalization of value added (or property tax reductions achieved) by the impact fee. That issue remains the most troubling gap in the incidence studies—while most find a price effect from impact fees, none is able to distinguish between a price effect that reflects added value to the homebuyer from the amenities for which the fee was spent (or from efficiencies achieved by the shift in financing methods), and a simple “pass-through” of a tax that adds no value for the consumer.⁷⁷ That difference is key to understanding the effect impact fees have on the affordability of housing,

because a price increase offset by increased value to the consumer is quite different from a unmitigated price increase. Further, because the various studies analyzed above find such different magnitudes of effect, and such differences between the effects on new and existing homes, the literature overall raises serious doubts about whether the models are insufficiently or incorrectly specified.

Research Needed

The introduction of, or an increase in, impact fees could cause housing prices to rise for several different—and for policy purposes—conflicting, reasons. Increases could reflect the value the fee adds to the property, either by providing better infrastructure or other amenities, or by reducing the homeowner’s liability for property taxes for future infrastructure. Conversely, increases in housing prices instead could reflect a dead-weight loss to the consumer as a tax that provides no value to the homes on which the fee is levied. To evaluate which of those alternatives (or perhaps others) may be at play in the price effects of impact fees, researchers might try several different approaches.

First, to understand if any price effect of an impact fee reflects value added or a dead-weight loss to the housing consumer, it is critical to include variables related to the infrastructure and other amenities that may be financed from the impact fee in the models. Similarly, to understand if the transition from property tax to impact fee financing of infrastructure adds value to residents either by reducing uncertainty about the effect of future growth, or by reducing subsidies for inefficient growth, it is important to add variables to the model that capture changes in property tax rates, or rates of increase.

Second, it would be helpful if studies of price effects were more attentive to the effect fees have on the supply of housing in the jurisdiction. Mayer and Somerville (2000), Skidmore and Peddle (1998), and McFarlane (1999) have begun to work on this issue, but much more could be done. If price effects are seen in situations in which supply is increasing, it may be more likely that the price effect is a capitalization of value added (which is contributing to demand) rather than a pass-through of an inefficient fee. If price effects are seen in situations in which supply is decreasing, it may be especially important to account for other growth controls or artificial limitations on supply in the model. To help elucidate the relationship between price effects and changes in supply and demand, it similarly would be helpful if studies of price effects sought to include variables that would proxy demand, such as the differential between asking prices and sales prices, or the period during which a listing remains unsold.

Third, because an inefficient impact fee is most likely to be passed through to consumers when the consumer has few substitutes for the housing, it would be helpful to adapt the work of Pollakowski and Wachter (1990) to test if the price effect of impact fees varies with the level of fees charged in neighboring jurisdictions.

Fourth, because opponents of impact fees often are concerned that they are, in fact, growth control devices, while resigned proponents sometimes view fees as a necessary evil to prevent worse forms of growth management (Altshuler and Gómez-Ibáñez 1993), it would be helpful to try to assess the relationship between impact fee use and various measures of growth, as the

Clarke and Evans (1999) study discussed in Section II begins to do. The introduction of variables that proxy for supply and demand characteristics would help shed light on the issue, as would more attention to the relationship between property tax rates and impact fees, as suggested earlier. In addition, however, further attention to spending levels for infrastructure in impact fee and non-impact fee jurisdictions would be helpful.

The Relationship Between Price Effects and the Affordability of Housing

Even assuming that growth control or growth management regulations, in general—and impact fees, in particular—may increase the price of housing by more than the benefits those regulations add to the housing, that does not necessarily mean that such regulations, in general—or impact fees, in particular—decrease the affordability of housing. If a regulation increases the price of housing by more than it adds value to the housing, by definition it raises the cost of housing, and, therefore, might be thought automatically to decrease the affordability of housing.⁷⁸ But, that conclusion is too simplistic, for several reasons.

First, if an impact fee makes the price of housing to consumers equal to the net cost the housing imposes upon society, by forcing the producers of housing to internalize harms the development imposes, then the fee promotes efficiency, even if housing is less “affordable” as a result. Such a price increase would correct a market imperfection—the failure of the price system to reflect accurately the total social costs of the housing. If housing previously was affordable only because the market was not accurately pricing the cost the housing imposes on society as a whole, then correcting the price will promote greater efficiency.

While efficiency enhancing, however, the correction to the price of housing may raise distributional concerns. The transition to more accurate prices may seem unfair to those who expected to be able to benefit from the under-pricing of housing. If society allowed homebuyers to externalize the costs of development during a time when homebuyers were disproportionately Caucasian, but insists on correcting prices by forcing internalization of all social costs just as significant numbers of people of color begin to buy homes, the transition may be especially unfair. The solution to the unfairness probably would not be to continue to allow housing producers to externalize harms, however, but to provide some form of redistribution to ease the transition to a more accurate pricing system.

Second, even if impact fees raise the price of housing by more than the benefits they provide to that housing (or by more than the social costs they force consumers to internalize), fees may offset that effect by encouraging a more efficient use of infrastructure or land or by encouraging higher density development. Similarly, the increase to the price of housing may be offset by reductions in other items (such as transportation costs) in a family’s budget. In such cases, the overall affordability of housing within a jurisdiction might not be affected by an increase in the average sales price of housing, because that increase would be counter-balanced by a decrease in property taxes from the more efficient use of infrastructure, an offsetting decrease in the price of certain types of housing as a result of more efficient use of land, or a decrease in other family expenditures.

Third, in order to promote housing affordability for moderate-income groups, and for racial and ethnic minorities, it is especially important to increase the supply of new “starter” homes, multi-family housing, rental housing, and especially “affordable” rental housing. Those housing types are especially important to efforts to make housing affordable and available to moderate-income families and to people of color because research shows that new neighborhoods of “starter” homes are more racially mixed than established neighborhoods. (Pendall (2000)). It is unclear if impact fees are imposed upon all those types of housing to the same extent that such fees are imposed upon higher-value single-family housing. It also is unclear if fees have the same price effects on those types of housing that they do on higher value, single-family housing. There is some evidence that the introduction of impact fees may result in the provision of more high-density and multi-family housing (Pendall (2000)), and that increase in supply may help to offset any price effects of an impact fee. To fully understand the effect impact fees have on the affordability of housing accordingly requires greater understanding of how impact fees are being used, and of the effects impact fees have on the provision of the different types of housing, and upon the prices of those different housing types.

Fourth, even if impact fees raise the price of housing, that effect might be countered by an increase in the provision of housing specially targeted for moderate-income families, through linkage programs, for example. Where impact fees or linkage programs are used to create moderate-income housing, the overall effect of the fee program may be to raise housing prices for the purchasers of the new homes subject to the impact fee, and any close substitutes for that new housing, but to use that price increase essentially to subsidize the provision of housing for moderate-income consumers. Whether that cross-subsidization is appropriate will depend upon the relative wealth of the new home purchasers versus the beneficiaries of the subsidized housing, among other things. It also will depend upon whether filtering processes mean that a price increase in the market for new housing and its substitutes will lead to price increases as well in the market for the moderate-income housing subsidized by the inclusionary zoning impact fee or linkage program, and if those increases will outweigh the effects of increasing supply in that market.

Finally, price effects from impact fees may be countered by increases in the supply made possible by the use of impact fees. As noted earlier, impact fees, in some cases, may enable growth that would otherwise be constricted by concurrency requirements or adequate public facility ordinances, or by a jurisdiction’s use of traditional zoning tools. Further, because impact fees are relatively transparent and non-discretionary, they may provide greater certainty than many other forms of land use regulation, and, thus, again may result in more housing being built than under traditional zoning, growth control, or growth management schemes.

To account for those factors, several important issues need to be added to the research agenda. More attention needs to be paid to the difference between the effect impact fees may have on housing prices and the ultimate effect they may have on the affordability of housing. The distributional implications of a transition to impact fee financing of infrastructure should receive careful attention. More work should be done to account for the benefits that impact fees provide by financing neighborhood amenities, reducing taxes, or reducing risk. All discussions of the effect impact fees have on housing affordability and opportunity should consider that effect relative to the effect of other means of financing infrastructure. Finally, research should focus on

the relationship between impact fees and programs explicitly designed to increase the efficiency of the land development process, as well as programs designed to increase the supply of affordable housing. Each of those issues is explored below.

Prices versus affordability. Because impact fees are assessed on new housing, more work must be done to understand how price effects on new (and, therefore, usually higher quality) housing translate to effects on the housing that is most commonly purchased (or rented) by moderate-income households. One study that has tackled that issue,⁷⁹ Somerville and Mayer (2002), examined how the use of growth management techniques and impact fees in an area affected changes in the stock of affordable housing (defined as units for which gross rents were less than or equal to 30 percent of household income for a household with 35 percent of the area's median household income). The authors hypothesized that as restrictions on new construction such as growth management tools or impact fees decrease the supply of new high-quality, "unaffordable" housing, owners will invest in repair and maintenance of affordable housing units sufficiently to cause units to "filter up" to a less affordable market. Somerville and Mayer use as their impact fee variable a dummy for whether jurisdictions within the area impose impact fees (they do not specify if just one jurisdiction within the area will trigger the variable, or if there is some percentage that must use fees in order to trigger the variable).⁸⁰

Somerville and Mayer found that the presence of impact fees increases the probability that an affordable rental unit filters up to become unaffordable, although the effect is small: a 10 percent change in the dummy variable for if jurisdictions in the area impose fees results in a 0.92 percent change in the probability that an affordable unit filters up to become unaffordable. The Somerville and Mayer study is hampered by the bluntness of the impact fee variable used. It is unclear exactly what a 10-percent change in the dummy variable that measures whether a jurisdiction within a metropolitan area imposes an impact fee means. It could mean either that more of the metropolitan areas studied have such jurisdictions, or that more housing falls within an area that has a jurisdiction using fees. Neither of those measures is clearly linked to either the probability that a fee adds value to the home, or to the elasticity of supply and demand thought to determine if a dead-weight fee can be passed on to consumers. Further, nothing in the Somerville and Mayer model addresses the possibility that impact fees fund amenities that increase demand for new housing (rather than restricting the supply of new housing, as the authors hypothesize). In addition, unless the number of jurisdictions within an area imposing impact fees is relatively constant across the 44 metropolitan areas in the sample, and unless the areas are roughly equivalent in terms of the elasticity of their housing markets, one would not expect the effect of the impact fee variable on the filtering up process to be uniform across areas. But without variables about the individual areas in the study, it is hard to evaluate the increase in odds ratios the authors find to be correlated with the impact fee dummy.

Nevertheless, Somerville and Mayer are right to be trying to test the effect price increases caused by impact fees have on actual measures of affordability, rather than just upon prices, and more work along those lines should be undertaken.

Distributional effects. Price increases occasioned by impact fees (and, as just noted, the changes in the stock of affordable housing occasioned by impact fees) may have effects on the already very troubling disparity in the rates of home ownership between Caucasians and African

Americans, Latinos, Asians, and other racial and ethnic minorities. African American home ownership rates, for example, have trailed Caucasian home ownership rates by between 20 and 30 percentage points for most of the last century. (Masnick (2001); Simmons (2001)). Those differences persist even when differences in demographic and income factors known to affect homeownership rates, such as income, age, and educational attainment, are accounted for. (Segal and Sullivan (1998); Wachter and Megbolugbe (1992)). A transition from property tax funding of infrastructure to impact fee financing may have differential effects on the various racial and ethnic groups. If impact fees have a greater impact on first-time homebuyers, for example, that may have different impacts on racial minorities than on Caucasians because so many more Caucasians than minorities already own their own homes. There is an urgent need, therefore, for a very careful parsing of the likely effects impact fees may have upon racial and ethnic minorities.

Accounting for the benefits provided by impact fees. As noted above, because an impact fee may raise prices of housing but provide amenities or savings on other taxes or expenses that are of value to consumers, it is not necessarily “bad” that impact fees raise the price of housing. If impact fees provide better access to public transit for a home, for example, the increase in housing price may be more than offset by the decrease in the homeowner’s transportation costs. Similarly, if impact fees provide better storm-water drainage, the increase in the price of the home may be more than offset by reductions in future losses from flooding. If impact fees reduce the homeowner’s property tax liability, of course, the affordability of the total home/service/tax package will be unaffected. Understanding the benefits impact fees are financing, accordingly, is critical to assessing the effect such fees may have on the affordability of housing. While quantifying those benefits is extremely difficult, the need to do so should be paramount on the research agenda.⁸¹

The relativity of the effect of impact fees on affordability. Similarly, discussing the effect impact fees may have on the affordability of housing in the abstract, without a comparison to the effect that alternative forms of financing will have on affordability, is not helpful. If the infrastructure financed with impact fees is cost-efficient because it either adds value to housing and neighborhood quality or avoids harms greater than its cost, the infrastructure would be desirable to provide even if impact fees were to be banned.⁸² If the infrastructure is provided, it must be paid for, and every source of financing will have effects on the affordability of housing or some other basic item in a household’s budget. The research focus, accordingly needs to be on a comparative analysis of the effects that impact fees have on the affordability of housing (and other related items in the consumer’s budget) *relative* to the effects that other realistic forms of financing would have.

As noted previously, discussions of the relative affordability of alternative housing/service/financing packages need to be attentive to potential differences in the effect of alternative packages for different racial and ethnic minorities. For example, a shift from property tax financing to impact fees means that although existing residents enjoyed a subsidy for property taxes used to finance infrastructure because property taxes were deductible from federal income taxes, new residents will not enjoy that subsidy for their infrastructure payments. New residents, instead, will receive the mortgage tax deduction on the consumer’s indebtedness (which will include the impact fee). If the property tax subsidy was more valuable for some reason, and if

new residents are likely to be more racially diverse than owners of existing homes, the transition from property taxes to impact fees would have distributional consequences that must be considered. Any transition has distributional consequences, of course,⁸³ but better information about the demographics of those homeowners whose infrastructure is financed by impact fees compared with those whose infrastructure is (or was) financed by property taxes would help shed light on if the transition costs have unacceptable racial implications.

It also is important to learn more about the regressivity of impact fees relative to other forms of infrastructure finance. Legally, impact fees cannot be based upon ability to pay, absent evidence that facility costs decline with family income. That is unlikely to be the case for most services. (Netzer, Schill and Susin (2001)). Accordingly, impact fees are undoubtedly regressive (they increase as a percentage of income as income decreases). (Nicholas 1992). But again, the issue is relative: are impact fees more regressive than property taxes or the other alternative forms of infrastructure finance? A second question is how impact fees can be designed to minimize their regressivity, without sacrificing other goals. James Nicholas (1992) has begun that important work, but more needs to be done. Nicholas showed that basing fees on the square footage of a unit was less regressive than basing the fees on the number of bedrooms in a residential unit, which, in turn, was less regressive than basing fees simply on the type of unit (single-family detached versus multi-family apartment, for example). Basing the fee upon unit size also is likely to be more accurate in measuring the impact of the development on local facilities because unit size correlates better with the number of people in the unit than does the type of unit or the number of bedrooms. Similarly, Malizia and Norton (1997) show that school impact fees based upon housing type and size were less regressive than flat-fee programs.

Examining the relationship between impact fees and measures to increase affordability by encouraging more efficient land use, more efficient regulatory systems, or greater density. Many growth management proponents claim that any restrictions on supply caused by the adoption of growth management tools will be offset by increases in density that will channel the market toward the provision of more multi-family housing. Little study has been done about the extent to which jurisdictions adopting impact fees already have or adopt measures that would allow increased density,⁸⁴ or measures that would allow developers other savings, such as fast track permitting. To assess the effect impact fees have on housing affordability, the relationship between impact fees and measures to improve the efficiency of development patterns and reduce the costs of the development process should be examined.

The relationship between impact fees and programs explicitly designed to increase affordable housing. Finally, it is crucial to incorporate evaluations of “mitigation” measures aimed explicitly at addressing the affordability issue into the discussion of the effect impact fees, relative to other financing mechanisms, may have on housing affordability. Increasing evidence suggests that jurisdictions are seeking to address any effect that impact fees may have on affordability by waiving fees, providing grants to cover the amounts of fees to moderate-income home-buyers, or by assessing fees to fund affordable housing. Rolf Pendall’s (1995) survey of jurisdictions with 1990 populations of 10,000 located in the 25 largest metropolitan areas of the U.S. found that 85 of the 1,152 respondents, or 7.4 percent, offer waivers of planning or impact fees on affordable housing developments, and 10 percent had inclusionary zoning requirements. An in-depth study of the impact fee practices of 89 communities in California showed that 37

percent waived or reduced fees for affordable housing. (Landis et al. (2001)). In Florida, a 1991 survey showed that 11 percent of the governments imposing impact fees had waivers or other accommodations for affordable housing. (Florida Advisory Council on Intergovernmental Relations (1991)). Little is known, however, about how well those programs are working—who they actually benefit, what they cost in relation to the benefits they provide, and if they distort the housing market in unintended ways.

Conclusions

Opponents of impact fees decry fees (and growth management tools, in general) as the “new segregation.” (The Center for Environmental Justice of the National Center for Public Policy Research (2002)). The careful analysis of the existing research discussed in Part III, however, reveals that the existing literature does not yet establish that impact fees raise the net price of housing—the price after off-setting benefits such as amenities or savings on alternative financing mechanisms are accounted for. The evidence that a transition from existing methods of financing growth to greater use of impact fees will have disproportionate effects on low- and moderate-income consumers in general, or racial minorities in particular, or otherwise lead to a “new segregation” is even thinner, because the issue only has just begun to be addressed by rigorous testing and analysis. This article has attempted to set out an agenda for the research academics, policymakers, and housing affordability advocates must undertake in order to provide local governments with tools they can use to ensure that they are pricing the cost of development accurately, and ensuring that development pays its own way, without sacrificing the affordability and availability of housing to moderate-income families and people of color.

Impact fees can be used to correct the myriad of market failures that have allowed inefficient development to harm the natural and built environments of our communities, often at taxpayer expense. But impact fees also can be abused, either to exclude low- and moderate-income residents or people of color from communities, or to exploit new homebuyers, who have no vote in the community. They also can be unfair to those caught in the transition from other forms of infrastructure finance. By careful attention to the myriad of issues identified in Parts III and IV above, researchers can help local governments seize the potential impact fees offer for promoting more efficient development patterns while minimizing any negative effects impact fees might have on the affordability of housing and the distribution of housing opportunities to all residents.

Endnotes

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² Although this paper primarily addresses impact fees in the United States, impact fees are gaining favor around the world. See Alterman (2001); Slack and Bird (1991).

³ While this paper focuses on impact fees, it should be noted that two closely related financing mechanisms—adequate public facilities requirements and user fees—also have enjoyed a surge in popularity. Rolf Pendall's (1995) survey, conducted in 1994, of planning officials in jurisdictions with 1990 populations over 10,000 in the 25 largest metropolitan areas in the U.S., found that almost 30 percent of the jurisdictions responding (77 percent of those sampled responded) had adopted Adequate Public Facilities Ordinances (APFOs). APFOs typically prohibit new housing if development would reduce levels of service for specified facilities below existing or specified levels. Pendall found that APFOs tend to be adopted by large jurisdictions (the jurisdictions with such ordinances had an average 1990 population of 94,000), and tend to be in the high-growth sunbelt areas such as Florida, California, Texas, and Colorado. The APFOs most often applied to parks, water supply and wastewater facilities, and transportation facilities. APFOs are roughly interchangeable with impact fee ordinances because they essentially force developers either to pay for the infrastructure necessary to service a development or to relocate to communities with excess capacity in their public facilities.

Similarly, there has been an increase in the use of user fees for sewer and wastewater treatment, and those user fees also are analogous to impact fees. See Netzer, Schill and Susin (2001).

⁴ The communities surveyed were subscribers to the American Planning Association's planning advisory service. If subscription to that service means, as it might, that the community is somewhat more sophisticated and innovative than the average community, the results are likely to be biased in favor of the use of exactions.

⁵ Twenty-two percent of those surveyed responded.

⁶ The survey was included in a Government Finance Officers Association (GFOA) newsletter to 12,459 subscribers, including 8,417 cities, counties, and special district governments. The response rate was 5.8 percent, or 485 governments.

⁷ All 67 of Florida's counties responded to the survey; 173 of its 390 cities (44 percent) responded. Of the cities responding, 53 percent used impact fees.

⁸ The 89 local governments studied were not randomly sampled, so the percentages are undoubtedly higher than in the total population of local governments.

⁹ The Wharton 1989 study again found much higher rates of impact fee use in California, documenting that 84 percent of the California cities in the sample imposed impact fees, compared with only 32 percent of the jurisdictions sampled from the Philadelphia metropolitan area. See Gyourko (1991).

¹⁰ The GFOA conducted a second national survey of 367 jurisdictions in 28 different states believed to have impact fee programs (not a random sample of jurisdictions) in 1989. That survey found that among the states that were the heaviest users of impact fees, the percentage of the jurisdictions' capital budgets paid for by impact fees ranged from an average of two percent in Texas to an average of 60 percent in California.

¹¹ See also Skaburskis and Qadeer (1992), finding that amount of impact fees imposed increased with distance from the city's central business district and decreased with distance to suburban centers.

¹² Greater use of fees in low-growth communities than in moderate-growth communities may signal their use as growth control devices.

¹³ But see Landis, et al. (2001).

¹⁴ Leithe and Montavon (1990), however, found that the greatest number of respondents to their survey that were using fees were cities of less than 25,000, and that the least number of respondents were from cities of more than 500,000. The authors provided no information about how the response rate related to the number of jurisdictions of those sizes surveyed.

¹⁵ See also Frank and Downing (1988), compiling evidence from four studies about the average fees levied on a variety of different fees; Leithe and Montavon (1990) finding that average fees for single-family dwellings were \$746 for water treatment facilities, \$1,295 for sewer treatment facilities, \$1,329 for roads, and \$519 for parks.

¹⁶ Throughout their report, the authors often combine administrative planning fees and building permit and inspection fees with impact fees, so their analyses and conclusions must be carefully parsed to isolate the role that impact fees alone play.

¹⁷ A related problem arises not because of congestion effects, but because of what Joseph Gyourko (1991) has referred to (citing private communications with Peter Linneman) as an “incentive compatibility” problem: when public services are financed by general obligation bonds paid off with general tax revenues, families in life-cycle stages that put especially heavy demands on public services (when they have children using the public schools, for example) are able to seek to have those services financed by bonds, then leave the community after their heavy demand years to avoid paying the indebtedness incurred to finance the services.

¹⁸ See also Downing’s (1973) comparison of the financing of sewer service under marginal cost pricing, average cost pricing and property taxes, which found that property taxes better approximate marginal costing than do average cost schemes, but overcharged both outlying and central areas to the advantage of the intermediate distance and density development.

¹⁹ Marginal cost pricing will not be appropriate where the facility or service provides benefits to all of society; thus, it should be funded by society as a whole. Education, for example, may not be appropriately financed through impact fees (or through local property taxes) because of the many benefits a well-educated citizenry provides to society as a whole.

²⁰ Brueckner (1997) compares impact fee financing to a current cost-sharing scheme where infrastructure is paid for at the time it is installed, then the cost is shared among city residents, or a perpetual-sharing scheme where the cost is financed by the sale of infinite-maturity bonds, and the interest payments in the future are shared among all owners of the urban land at the time the payment comes due. Both those latter options capture features of the property tax schemes commonly used by local governments.

²¹ For contrary views, see Gordon and Richardson (1997).

²² Slack’s survey found “some uniformity in regional housing markets,” which Slack took to mean that charges were based on what the market would bear rather than on actual costs of service. Slack’s survey results show a considerable range in fees charged, so it is not clear what he believes constitutes sufficient “uniformity” to signal that fees are not based upon the actual cost of service. In addition, his conclusion

that there was some “uniformity” is not based on multi-variate analysis, and therefore does not account for differences among municipalities that might otherwise explain the apparent convergence in fees.

²³ The definitions of growth control and growth management, and the differences between them, which are especially important to any discussion of the motivations behind growth controls or management programs, are discussed below.

²⁴ See, e.g., Branfman et al. (1973), finding no substantial relationship between clustering of the poor and fiscal incentives for exclusionary controls, but finding that clustering increased as the number of zoning authorities increased and as the proportion of African Americans and Latinos increased; Clingermayer (1996), finding correlation between level of exclusionary zoning and levels of home ownership, thereby supporting fiscal zoning motive for exclusionary zoning; Rolleston (1987), restrictiveness of zoning positively correlated with fiscal measures such as the proportion of the local tax base derived from nonresidential property and positively correlated with extent to which the adopting community had smaller percentages of racial minorities than its neighboring jurisdictions. But see Bogart (1993), discussing flaws in the models for identifying motivations for exclusionary zoning.

²⁵ See, e.g., *Southern Burlington County NAACP v. Mount Laurel* (finding that municipalities use large lot zoning and other traditional growth control tools to “in effect build[] a wall around [themselves] to keep out those people or entities not adding favorably to the tax base . . .”) See also Babcock (1966); Danielson (1976); Haar (1996); Kirp (1995); Williams and Norman (1971).

²⁶ Greater use of fees in low-growth communities than in moderate-growth communities may signal their use as growth control devices.

²⁷ Note that there may be inefficiencies or distributional concerns in having consumers pay an up-front property tax, financed through their mortgage, rather than having them pay for the infrastructure in annual property tax payments over time. In terms of efficiency, one would need to compare the relative cost of public borrowing financed through property taxes versus private borrowing to finance impact fees. In terms of distributional impact, one would need to compare the relative progressivity or regressivity of property taxes versus impact fees, and to compare consumers’ ability to purchase a lower housing price/higher property tax package with their ability to purchase a higher housing price (with impact fee)/lower property tax package.

²⁸ For recent overviews of the legal constraints currently imposed on impact fees, see, e.g., Fenster (forthcoming 2004); Bringardner (2000); Rosenberg (2003).

²⁹ There are several other problems that may arise in the use of impact fees that should receive further attention in research. As noted earlier in the text, it may be inappropriate to use impact fees to finance facilities that have considerable positive externalities for other citizens or for society as a whole. Some have criticized the use of impact fees for financing the construction of schools, for example, arguing that education provides such broad benefits to society that all aspects of education, including facility costs, should be financed through general taxation. Similarly, it may be that the use of impact fees contributes to urban sprawl, by encouraging developers to locate in rural jurisdictions less likely to impose fees. Finally, any comparison of the wisdom of replacing property tax financing with impact fee financing of infrastructure should include attention to both the administrative and financing costs of impact fees versus property taxes, and to any differences in the openness and transparency of the processes of setting and implementing impact fees versus property taxes.

³⁰ Ellickson's exploration of the price effects of impact fees then proceeded from the assumption that the housing market already was at a social optimum before the impact fee was imposed, such that the fee would "necessarily raise the costs of housing construction by more than the prospect of additional services would increase the value of that housing to consumers."

³¹ Yinger did not claim to be offering a "new view," but claims that "most previous studies ignore the capitalization of infrastructure benefits into house values, and no previous study recognizes the impact of property tax capitalization on the incidence of development fees." The "new view" claim is made on Yinger's behalf by Ihlandfeldt and Shaughnessy (2002). Neither Yinger nor Ihlandfeldt and Shaughnessy cite to Ellickson's work.

³² Several earlier writers had flagged the problems involved in treating impact fees as excise taxes. See, e.g., Downing and McCaleb (1987).

³³ If the value of the infrastructure financed by the impact fee exceeds its cost, the price of housing will rise by more than the amount of the fee (and its associated financing and other costs). In that case, assuming that the developer cannot make supra-normal profits because of the competitiveness of the development market, the landowner may receive more for the land—a capital gain (see Yinger (1999)).

³⁴ For well-written summaries of the literature about the capitalization of property taxes and public service quality into housing prices, see, e.g., Yinger et al. (1988) and Ross and Yinger (1999).

³⁵ Similarly, if the fees decrease property tax liability for new growth, consumers may be willing to pay more for housing in a jurisdiction that offers that "insurance" than in jurisdictions that do not.

³⁶ Existing housing also would benefit from the reduced risk of liability for infrastructure needed for future residents, and that value will be capitalized into the prices of existing housing.

³⁷ The size of the capital gain to existing homeowners relative to the price effect for new homes will depend upon such factors as if the amenity provided is equally valuable for existing homeowners (which would be suspicious, from a legal standpoint) and the percentage of the housing stock represented by existing housing (which would affect the share of any savings on property taxes that would accrue to new homeowners).

³⁸ The legal tests have been applied by the U.S. Supreme Court, to land dedications, and possibly in-lieu-of-fees, at least if they are negotiated on an ad hoc basis, but do not necessarily apply to impact fees. See Fenster forthcoming 2004. The analogy to the property tax capitalization arguments suggests that the proportionality and nexus tests might actually protect jurisdictions against inadvertently pricing themselves out of the market.

³⁹ The difference between the capitalization of amenity value created by impact fees into home prices versus the pass-through of an excise tax in housing prices is analogous to the amenity-creation and supply-restriction models of the price effects of growth controls more generally. See, e.g., Brueckner and Lai (1996); Brueckner (1995); Brueckner (1990).

⁴⁰ For a thorough exploration of the effect impact fees may have on the timing of development, see McFarlane (1999). In short, McFarlane finds that a fee on housing will delay development; a fee on capital (such as a fee based upon floor space) will delay the timing of development if agricultural rent on undeveloped land is positive and will be neutral if agricultural rent is zero; and a fee on land area will delay development.

⁴¹ In reality, of course, the housing supply of a jurisdiction would consist of both new and existing housing. For diagrams that incorporate the supply curves for both new and existing housing, see Ellickson (1977).

⁴² Note that if the impact fee is efficient (produces infrastructure or other amenities the consumers value as much as the cost of fee), then it would result in a shift in the demand curve as well, as discussed in the previous section. See Ihlanfeldt and Shaughnessy (2002). But, this discussion considers only impact fees that either do not produce amenities or tax savings that consumers value, or that do so in a market that provides the same amenities or tax savings without a fee.

⁴³ According to Snyder and Stegman (1986), a large developer in Colorado Springs, Colorado, reported that he would mark the impact fee up by about 28 percent to cover his costs of financing and overhead, and to maintain his profit margin.

⁴⁴ Or the developer's other factors of supply, such as capital. See Ellickson and Been (2000).

⁴⁵ Ian Hodge and Gordon Cameron (1989) argue that even where there is a perfectly inelastic supply of land (e.g., where the land zoned for development is strictly constrained), the landowner, nevertheless, will bear the fee if consumer demand is perfectly elastic. The matrix presented in the text assume, however, that landowners will be unwilling to bear the fee if the supply of land is constrained, because the present value of the higher gains they anticipate from converting the land in the future as demand increases will exceed the carrying costs of the land.

⁴⁶ Yinger (1998) argues that if households are mobile, the assumption of downward sloping (inelastic) demand curves for housing in "unique" jurisdictions is misplaced, because the nonreproducible characteristics of the jurisdiction will be capitalized into the price of the housing, but will have no effect on the consumer demand curve. Yinger's argument reveals that there is confusion in the literature about the relationship between a "unique" jurisdiction's attributes and limitations on consumer mobility. The argument that the consumer will pay most of the fee in a unique jurisdiction because of inelastic demand also doesn't explain why, if the consumer can be made to pay the fee, even though by definition it doesn't bring any value to the consumer, developers would not already have been charging higher prices for the housing.

⁴⁷ Note that the increase in prices for existing housing that results from substitution when an inefficient impact fee is passed forward to the buyers of new homes is different from increases in the value of existing homes that might occur when an efficient impact fee provides amenities for both new and existing housing.

⁴⁸ Some theorists predict that in this widespread impact fee situation, a portion of the fee would fall ultimately on owners of capital. They argue that because all development would be subject to the impact fee, developers would be less eager to develop, and, as a result, lenders would have to charge lower interest rates to induce them to proceed. See Ellickson and Been (2000).

⁴⁹ The exception is Watkins (1999), who argues, using mathematical proofs, that the developer will always bear at least half the development charge. Watkins does not provide an intuitive explanation for that surprising result, and his argument has been largely ignored in the literature.

⁵⁰ For discussion of the differences between growth control and growth management, see, e.g., Nelson et al. (2002).

⁵¹ Similarly, if the restraints force the internalization of externalities, then the fact that housing prices rise in response to the regulation signals that the regulations are working as intended to correct the previous market failure.

⁵² Even if many consumers are mobile, those who are bound to a jurisdiction by family or job ties, or by emotional connections with the community, may face housing affordability problems in a community that imposes growth control or growth management.

⁵³ For discussion of the role uncertainty plays in land prices and the rate by which agricultural land is converted for development, see, e.g., Capozza (1994); for discussion of the role instability about the amount of impact fees may have played in the price effects of impact fees, see Baden and Coursey (1999).

⁵⁴ Several studies of land use regulations, in general, include exactions (generally) or impact fees (specifically) in their studies. Several find no price or supply effect. See, e.g. Green (1999) (requirements that developers provide curbs and gutters, or that they provide sidewalks, had no statistically significant effect on house prices.)

⁵⁵ Hedonic regressions are a standard econometric technique that seeks to separate the contribution (or detriment), each one of various attributes of a house and its neighborhood make to the sales price of the house. Under the hedonic technique, data about variables representing each important attribute of a house are regressed on the actual sales prices of homes in the study area to assign a value to the attribute

⁵⁶ The housing characteristic variables used were the total living area of the house and the lot size. Delaney and Smith (1989), as well as Singell and Lillydahl (1990), include very few variables relating to housing characteristics in their regressions. For discussion of the virtues of parsimony versus the need to include relevant variables, see e.g., Fischel (1990); Butler (1982), finding that estimations based upon four independent variables were statistically indistinguishable from those using eleven variables.

⁵⁷ The “constant quality” house is at the mean of each of the explanatory variables.

⁵⁸ Yinger (1998) has pointed out that Delaney and Smith held constant the cost of land, so that their analysis could not detect any “pass-back” of the impact fee to the landowner (and any reductions in housing prices flowing from reductions in land prices). The results, therefore, may have overstated the price effect the impact fee had on housing prices. The use of land cost as a variable also introduces an endogeneity problem into the regressions.

⁵⁹ The housing characteristics used as variables were the square footage, number of bedrooms, number of bathrooms, lot size, and age.

⁶⁰ The authors included a three-month lead-time during which the fee increase was anticipated in the dummy variable for the impact fee.

⁶¹ Singell and Lillydahl (1990) speculate that the price effect on new homes was higher than the impact fee because the developers sought recovery not only of the fee but for the costs of financing the fee, or may have used the occasion to seek to pass on other fees that the developer had previously born, or may have increased the quality of the housing provided. It is hard to understand why developers would have chosen to absorb the fees before 1984 but sought to pass them on after 1984, unless there was some change in the market, in which case that change may be an alternative explanation for the price increases.

⁶² Yinger (1998) suggests that the explanation must be that some time-related variable increasing housing values for both new and existing housing was omitted from the analysis.

⁶³ Existing housing could become more valuable than new housing if the new housing were receiving no benefit, but were absorbing the cost of the impact fee, and providing a benefit to the existing housing (i.e., paying for infrastructure of value to the existing homes rather than the new homes). Legal constraints are designed to prevent that from occurring, but may not be working to do so.

⁶⁴ The authors counted as fees some charges that are not typically thought of as impact fees because they are administrative charges for processing permit applications, unrelated to infrastructure provided for the homes. Those charges are unlikely to add any value to a house from the buyer's perspective.

⁶⁵ Dresch and Sheffrin (1997) used a simple linear model, rather than using logs or other techniques that allow consideration of the diminishing marginal utility of housing characteristics. A linear model assumes that each housing attribute has a linear relationship to the price of the fact, such that each additional unit of the attribute has the same effect on price. But after some point, the effect of the attribute is likely to diminish. The use of the simple linear model may limit somewhat the usefulness of the Dresch and Sheffrin results. See Baden and Coursey (1999). Delaney and Smith (1989a; 1989b)); also used a linear reduced form equation, rather than logs. The remainder of the regressions reported in the text used the log form of the hedonic method.

⁶⁶ The results had a standard error of 0.65, however, so it was possible that the relationship between fees and price increases was actually \$1.00 for \$1.00. If prices did rise by more than the fee charged, Dresch and Sheffrin speculate that the data did not capture all the fees associated with new construction, nor account for the full cost of the fees (such as financing costs) to developers, so that the fee variable understated the fee and the price effect better reflected its actual cost. It is possible, however, that the fees charged were used to provide infrastructure or amenities that consumers valued, such that the increase in housing prices in the wealthy area actually is the capitalization of value added by the fee.

⁶⁷ Yinger (1998) criticizes the Nelson et al. regression as subject to endogeneity bias because both sides of the regression contain the number of acres or the number of sites as variables.

⁶⁸ See also Nelson, Frank and Nicholas (1992). The study period ran from July 1981 to June 1987. The county adopted its impact fee program in 1983. The regression includes a variable for the month in which the land sales took place, which, in those parts of the county that implemented the fee, may be correlated with the variable for the amount of the fee, leading to a multi-collinearity problem. An additional problem with the Nelson et al. studies is that they were based upon very small sample sizes: the Sarasota data involved only 40 observations. See Ihlandfeldt (2002) for criticism of the Nelson et al. methodology.

⁶⁹ For one of the suburbs, the authors used as a variable the amount the fee schedule required for the type of lot, rather than the actual fee imposed.

⁷⁰ The coefficient for the impact fee dummy variable was significant at the 95 percent level in one model and at the 90 percent level in another.

⁷¹ Baden and Coursey's housing characteristic variables were the number of rooms; the number of bathrooms; the square footage of the master bedroom, the 2nd through 5th bedrooms, kitchen, dining room, living room, and the sum of the remaining rooms; the presence of a "great room"; the age of existing housing; the size of the garage; and the size and irregular shape of the lot (a proxy for if the lot is on a cul-de-sac). The authors used the square footage of the various rooms to avoid multi-collinearity

problems posed by using the number of bedrooms, given that several of the fees studied were based upon the number of bedrooms.

⁷² Baden and Coursey are unclear about why they chose to pool the data for the new and existing homes in the regression, and why the coefficient on the impact fee variable should be attributed to both new and existing homes equally when there doesn't seem to be a dummy variable to distinguish new houses from existing houses. Adding to the confusion, at one point in the paper, the authors note, "while this analysis could not prove that the price of existing houses increases, other studies have found these effects."

⁷³ Skidmore and Peddle (1998) also attempted to measure the correlation between the introduction of impact fees and property tax rates. Although those authors caution that the results are preliminary and hampered by various data constraints, the initial estimates found that the introduction of impact fees was associated with reductions in property taxes.

⁷⁴ Ihlandfeldt and Shaughnessy explain the decrease in land values, given that the full cost of the impact fees appears to have been passed forward to the consumer, as reflecting developers' uncertainty about future increases in impact fees and about regulatory delays. The explanatory power of their model for land prices, however, is quite low ($R^2 = 0.1849$). See also Wachter (2002).

⁷⁵ Ihlandfeldt and Shaughnessy might have tried to account for if impact fees added value (rather than served as an excise tax) by using quality of neighborhood amenity variables to the regression.

⁷⁶ It could be that Ihlandfeldt and Shaughnessy mean that developers will be fully compensated for impact fees if they are able to charge higher prices for new homes because the price for new homes will capitalize the savings in property taxes that all residents of the jurisdiction will enjoy by shifting the financing of new infrastructure to impact fees. However, that scenario is simply implausible. First, as pointed out in text, the promise that property taxes will be reduced in the future (or will not rise as fast as they otherwise would) because of a shift in financing methods is full of political risk, and consumers would surely discount the expected property tax savings by that risk. Second, for new home values to rise by enough to compensate developers for impact fees, growth rates would have to be extremely high. The savings from shifting to impact fee financing would accrue to all residents, while the impact fees would be paid only for new homes. Normally, there would be so many more existing homes eligible for a tax decrease than new homes upon which an impact fee could be imposed that the property tax savings enjoyed by each household would be a small fraction of the impact fee charged for new houses.

⁷⁷ Mayer and Somerville (2000) have recognized the problems posed by the studies' focus on prices, which cannot distinguish if price increases are due to higher demand because of the capitalization of benefits regulation provides consumers or lower supply.

⁷⁸ What constitutes "affordable" housing is a much-contested issue. In controversies over growth control and growth management, particular concern has been raised about the effect land use regulation of all kinds has on low- and moderate-income consumers, and the racial and ethnic groups that traditionally have been discriminated against in housing markets. This section focuses on that controversy.

⁷⁹ Two other studies of the effect of impact fees on affordability to moderate-income consumers bears mention. Anthony (2003) found that Florida's Growth Management Act, which among other things requires "concurrency," by mandating that infrastructure needed to service a development be available before the development is completed, was significantly related to decreases in housing affordability, as measured by a composite index based upon the income needed to qualify for a mortgage to buy an existing median-price home in the state. Although the Growth Management Act's concurrency

requirement encouraged some jurisdictions to impose impact fees to finance the infrastructure needed to meet the concurrency requirement, it resulted in the implementation of a number of other “growth management” tools as well (and may have encouraged developers to meet concurrency requirements by relocating to jurisdictions that had less congested infrastructure, possibly leading to worse sprawl). Anthony’s findings do not separate out the effect of impact fees from the effects of those other controls, so it is not possible to determine if impact fees alone were correlated with decreases in housing affordability. Pendall (2000) studied the effect that adequate public facilities ordinances, which are essentially concurrency requirements, had on the type of housing produced, and found that they encouraged a shift toward multi-family housing.

⁸⁰ Somerville and Mayer report that the “mean” for the impact fee dummy variable is 0.36 for affordable units and 0.51 for unaffordable units. It appears that the reported mean relates to the number of all affordable and unaffordable units that are located in a jurisdiction that imposes impact fees. The mean, therefore, does not signal if many or few jurisdictions within a metropolitan area impose fees.

⁸¹ Interesting efforts to quantify the benefits of some of the amenities sometimes financed with impact fees include Cheshire and Sheppard (2002); Malpezzi and Mayo (1997).

⁸² If a particular kind of infrastructure is not cost-efficient, then the problem lies not in the choice of impact fees over other forms of financing, but in the decision to impose the subdivision regulation, building code, or zoning restriction that mandates the infrastructure.

⁸³ The best elucidation of the “intergenerational equity” concerns raised by the transition from property taxes to impact fees remains (Snyder and Stegman (1986); Levine (1994)).

⁸⁴ It is far from clear that increasing density necessarily increases housing affordability, at least for a constant-quality housing/neighborhood/service package. Any research about if increased density mitigates any effect impact fees may have on affordability has to account for that issue.

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