Large-Scale Redevelopment Initiatives and Home Values: The Case of the Atlanta Beltline Project

Immergluck, Dan

Georgia Institute of Technoligy

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Introduction

> It is time to set things right and start planning for growth once again. …above all, it means investing in an attractive public realm framework that will provide open space for old citizens and new, and that will lure better development…How does one pay for these improvements? The simple answer is that these are not expenditures but investments, and the dividend they yield comes in the form of increased tax revenue from developed property, which can pay the debt service on the bonds issued to cover the costs of these initial public investments…In Atlanta, my firm proposed just such a set of public realm improvements in the form of the Beltline Emerald Necklace, a 23-mile trail and light rail loop connecting over 2000 acres of new parkland. Thanks to the active support of Mayor Shirley Franklin, within one year the city approved the financing to implement the recommendations and has already acquired a property that will become the city's largest public park. The Beltline gained the widespread support of Atlantans because it offered growth with a high quality of life — growth that will make a better city.
>
> - Alexander Garvin (2006), chief designer of the Atlanta Beltline

> Our taxes have jumped….No building had happened there for years. Then this Beltline came out and all these speculative builders came in here.
>
> - Clarence Mackie, Atlanta resident who lives near the Beltline, quoted in McWhirter (2007)

A number of observers have argued that, since the 1990s, many cities have experienced a type of "third-wave" gentrification that involves more government leadership than the second-wave gentrification of the late 1970s and 1980s (Hackworth, 2007; Hackworth and Smith, 2001; Lees, Slater, and Wyly, 2007; Smith, 2002; Wyly and Hammel, 1999). In particular, many of these observers argue that, in this era of third-wave gentrification, local governments have become much more actively involved in promoting urban redevelopment in lower-income neighborhoods in part due to the fall of twentieth century American liberalism, or what some have called Keynesianism, recalling the federal interventionist policies of the New Deal and the Great Society programs (Hackworth and Smith, 2001).

This paper examines the impacts on residential property values of municipal-led planning for a large-scale, multi-use land development project called the Atlanta Beltline, which involves the production, over a 25 year period, of a wide array of greenspace, light rail transit, and related privately-owned real estate developments. The paper considers the impacts on homes within the target development area as well as in nearby locations, with a particular emphasis on the portion

of the Beltline adjacent to substantial low-income populations. Unlike many analyses of state-led development initiatives, the analysis here focuses on impacts that occur as a result of the early planning for the ultimate project – and the public knowledge of such planning – rather than on impacts that follow formal state intervention or actual physical redevelopment. Given the long timelines involved in large-scale projects, and the possibility that land speculators and others may drive up land values well before the formal adoption of state subsidies or the breaking of ground on actual redevelopment projects, it is important to analyze price changes from the point of initial public and investor awareness.

In short, I find that residential property values for properties within one quarter mile of the proposed target development area appreciated at substantially higher rates than those of otherwise similar properties in the City of Atlanta. Moreover, the period of rapid appreciation matches quite well with the early, initial coverage of the planning process in local media. From 2002 to the formal policy of tax increment financing was adopted in late 2005, values within a quarter mile of the Beltline area had appreciated as much as 30 percent or more than otherwise similar properties just a mile from the Beltline area, and this differential gain occurred over just a two to three year period.

The Atlanta Beltline project involves the development of a 6,500 acre ring of parks, open space, light rail transit and mixed-use development by tying together infrastructure and related development along an existing 22-mile industrial rail line that circles the Atlanta central business district and the greater core of the city. The project will be funded in part by a tax increment financing (TIF) district expected to provide as much as $1.7 billion in funding.[1] The Beltline is Atlanta's sixth TIF, although it is far larger than any of the previous five TIFs, and is a major initiative in the Atlanta region. From 2003 through 2005, the major principal daily paper, the

Atlanta Journal Constitution ran more than 130 stories that mentioned the project, with more than 100 of these appearing in 2005 alone.

Because of the scale and nature of the Beltline, as well as the large amount of press and public discussion that has focused on the project, the impacts of the project on nearby property values may be expected to far exceed those of the smaller, more targeted TIFs in Atlanta or elsewhere. Moreover, while some of the existing research on the effects of TIFs has focused on impacts on properties and activity *within* the TIFs *after* the TIF's adoption or implementation, the focus here is primarily on the effect on residential property and residents *near* the Beltline TIF *before* development – or even the formal adoption of the TIF – occurs. The focus on spillover impacts on housing values is expected partly because the Beltline TIF area itself currently contains relatively few residential units, but more importantly, because the TIF may have substantial impacts on nearby neighborhoods.

The primary empirical objective of this paper is to identify whether and to what extent the announcement of, and publicity around, the proposed Beltline TIF and associated redevelopment resulted in a bidding up of residential property values even before the TIF was adopted and well before any development occurred. The tool for doing this is the modeling of sales prices of single-family homes in the City of Atlanta over the 2000 to 2006 period.[2] While planning and public discussion of the Beltline project began in 2003, the TIF was not formally adopted until November of 2005.

A broader goal of this paper is to develop a stronger approach to measuring the gentrifying impacts of a major state-led development project on lower-income neighborhoods in a major U.S. city. Much of the literature on property value impact modeling has not been closely linked to the broader gentrification literature. In fact, much work on property value modeling has

assumed that higher property values are desired policy outcomes, with little regard for adverse consequences in the form of displacement. More specifically, little work has examined the potential gentrification and displacement effects of tax increment financing, which has become a key tool for redevelopment in U.S. cities.

A good deal of research has examined the role of spatially targeted state-led redevelopment projects in engendering, fueling, and shaping gentrification. Smith's (1996) classic descriptions of first-wave gentrification in places like Philadelphia's Society Hill provide prime examples. More recently Goetz (2003), Hackworth (2007) and Keating (2000) have documented the role that public housing "transformations" in places such as Minneapolis, Chicago and Atlanta in facilitating localized displacement and gentrification. While funded and supported by the federal HOPE VI program, these projects have been locally driven and controlled, typically by local housing authorities closely allied with municipal administrations. State-led gentrification is of course not solely a U.S. phenomenon. Davidson and Lees (2005), for example, document the "dramatic transformation" of London's riverside as a result of intervention by the Greater London Authority; Slater (2004) exposes how the City of Toronto facilitated gentrification in South Parkdale by prohibiting certain multifamily housing arrangements; and Wong (2006) describes the highly orchestrated redevelopment of Singapore's Waterfront organized by its Urban Redevelopment Authority.

Despite the substantial literature liking spatially targeted development and gentrification, and despite the fact that TIFs are often the primary financing tool available to local government in the U.S. for subsidizing redevelopment projects, there has been relatively little discussion of the effects of TIFs on property values in lower-income communities or of gentrification more specifically. Some exceptions include Quigley (2007) and Weber (2003), although these papers

provide no empirical evidence on the issue. One paper that does attempt to measure TIF-induced effects on nearby property values is Weber, Bhatta, and Merriman (2007), in which the authors find that proximity to TIFs focused on industrial development actually lead to reduced residential property values in Chicago, but that TIFs involving a mix of residential and commercial property led to higher values in nearby neighborhoods. However, the scale of individual TIFs in Chicago is very small compared to the very large, multipurpose TIF that has been adopted for the Atlanta Beltline. Thus, the scale of the impacts might be expected to be substantially larger in the Beltline case.

In the local Atlanta media, concerns about gentrification and displacement have been raised around the Beltline project specifically, particularly by groups advocating for lower-income residents in neighborhoods in and around the southern and western parts of the Beltline TIF (Karson, 2007; Shalhoup, 2007). There have been anecdotal discussions that the Beltline had already spurred property value increases in nearby neighborhoods even before the November 2005 adoption of the TIF.

Of course, the stimulation of higher property values in neighborhoods surrounding the TIF may be desired by development officials and TIF proponents. Moreover, if a TIF can generate additional property tax revenues in areas outside the TIF district, these revenues may offset the effective diversion of future tax revenues in the TIF away from general revenue budgets for local governments and school systems. However, if the gains in tax revenues in nearby neighborhoods come at the expense of lower-income residents in these neighborhoods, then this raises serious concerns about issues of tax equity and potential displacement.

Tax Increment Financing and Third-Wave, State-Led Gentrification

Tax increment financing (TIF) is a development finance tool authorized by state-level government in the U.S. that has generally been promoted as an economic development tool designed to spur job creation and the "revitalization" of underdeveloped or blighted areas. TIF is not a new development finance tool. It dates back to at least 1952, when California adopted it as a way to match federal grants (Dye and Merriman, 2006). But until the late 1980s, it was not a widely used public financing scheme. In the U.S., beginning in the Carter and especially the Reagan administrations, federal intervention in urban development – part of a broader Keynesian liberal policy system – was generally dismantled in favor of a minimalist or laissez faire federal approach to cities. In addition to the earlier dismantling of direct grant programs like the Urban Development Action Grants, the 1986 Tax Reform Act placed severe restrictions on the use of industrial revenue bonds, which had been widely used to spur central city revitalization.

In this era of "second wave" gentrification (Hackworth and Smith, 2001), redevelopment often was of a small-scale, "mom and pop" nature at least as compared to the larger-scale, state-led third-wave type. State and local government solutions often relied on "getting out of the way" of private capital via concepts like enterprise or foreign trade zones.

During and after a recession-induced pause in gentrification in the late 1980s and early 1990s (Hackworth and Smith, 2001), local government found itself needing to play a stronger role in prompting and leading redevelopment initiatives. Deregulatory moves by themselves proved insufficient for luring investors into central cities at sufficient scale. Local governments began deploying their own sources of project-specific subsidy for spurring capital investment, with an eye toward priming their overall tax bases. In many cities in the U.S., TIFs became a

principal – if not *the* principal – development finance tool that could be controlled and utilized by local government.

Today, all but two states allow for some form of tax increment financing, although the use of TIFs varies widely across states. Minnesota, for example, has more than 2,000 TIF districts. The city perhaps best known for the widespread use of TIFs is Chicago, which as of 2005 had 136 TIF districts (Quigley, 2005). Cook County as a whole, in which Chicago sits, had 373 TIFs at this time.

Tax increment financing involves the designation of a geographic area (commonly referred to as a "TIF district") in which the taxable value of real estate (and sometimes other taxes) is frozen at pre-development levels, so that increases in property taxes that follow the development (commonly referred to as the "increment") is dedicated to financing development in the TIF district. In one common approach, the increment is used to amortize a revenue bond that funds capital investment in the district. This might include infrastructure, but also might include subsidies for privately owned commercial or residential real estate or other property. However, TIFs can involve other financing schemes. For example, the City of Chicago frequently uses a "pay as you go" approach to front-funding TIF projects, in which private developers obtain their own financing (typically bank loans), using the promise of future TIF proceeds later on to obtain the loans (Weber, 2003). The lenders require warrants from the City as part of the developer's loan package. The City has done this in part to limit its overall debt exposure and to place more risk on the backs of developers rather than the city or bond investors.

TIF financing is used at a variety of spatial and financial scales. Cities have frequently designed TIFs that are relatively small – on the order of a few adjacent neighborhoods or below. For example, Chicago's 136 TIFs together only account for 26 percent of the city's land area

(Quigley, 2007), while the Beltline TIF alone accounts for 8 percent of Atlanta's. Of course, Atlanta's land area is less than 60 percent of the City of Chicago's, but the average TIF in Chicago is less than 280 acres, with many much smaller than this.

The beauty of the TIF tool from the pro-redevelopment local government's perspective is twofold. First, although broadly authorized at the state level, it is essentially controlled by local government. The approval of a TIF is generally accomplished by approval of local taxing bodies (in the U.S., this principally means municipal and county government and the local school system). Because political control of these three governmental bodies is often held by political allies (or appointees in the cases of many urban school systems) of municipal government, the urban power structure controls the allocation of TIF resources. The second major advantage of TIF funding is its "flexibility;" there are relatively few bureaucratic restrictions imposed by higher levels of government regarding what the funds can be used for. This contrasts to the generally elaborate qualification and control schemes employed in federal transfer monies to cities in the U.S. such as Community Development Block Grants, Low Income Housing Tax Credits, New Markets Tax Credits, and others.

Proximity to TIFs and Housing Prices: Causation or Capture?

If a TIF brings positive amenities to residents of an area – for example by eliminating blight or increasing urban amenities such as retail stores, parks, or transit services – then residential values within and near the TIF may be expected to increase. In general, identifying the extent to which TIFs affect nearby property values is difficult because it is possible that planners will attempt to designate TIFs in areas where property values are expected to grow even without the designation of the TIF, thereby capturing anticipated, increased revenue streams that

can diverted to development purposes and away from conventional uses, such as schools and basic public services (Quigley, 2007). Due to the spatial correlation of housing price trends, this means that TIFs might be designated in areas where they are likely to be surrounded by appreciating neighborhoods. In analytical terms, this means that the geographic parameters of the TIF are possibly endogenous, and not exogenous, to neighboring property value trends.

Weber (2003) discusses the question of the endogeneity of TIF designation and location as one of two competing hypotheses: "pure attribution" versus "pure capture." The former hypothesis assumes that the TIF causes all changes in values associate with the TIF. The latter assumes that the all changes in values would have occurred without the TIF and that the TIF is a device to capture revenues going to other purposes and redirect them toward subsidizing the development project. The empirical research on causation versus capture is equivocal at this point. Dye and Merriman (2000), for example, find that the adoption of TIFs has a negative effect on municipal property tax revenue, giving support to the capture hypothesis, while Byrne (2005) finds that TIFs are not used to capture or divert revenue from preexisting uses.

There are at least two reasons why the location of the Beltline TIF is treated here as exogenous to housing price trends, so that housing price changes are attributed to the TIF designation, and not the other way around. The first is the research method used here, which looks at changes in property values after serious public planning about the Beltline began, and compares such changes near the Beltline to changes in places farther from the Beltline. Of course, if officials were able to anticipate the geographic patterns of future property value trends, then this method may remain insufficient to assert exogeneity. The second, and more theoretically compelling, reason to treat the Beltline location as exogenous is the fact that the location of the Beltline was not simply chosen by development officials from a wide variety of

potential locations for a large TIF, but was determined primarily by the location of the chain of pre-existing railroad rights of way and the large parcels of land surrounding them. While officials could influence the precise boundaries of the TIF, the constraints of the original rights of way used to assemble the TIF significantly constrained their ability to define the general parameters of the TIF district. Thus, the Beltline TIF presents an excellent case study for which to test the anticipatory impacts of property values of a large-scale multipurpose TIF-funded project.

Anticipating Housing Price Impacts: The Announcement Effect of Planning a Major Redevelopment Project

From the period of initial conceptualization and discussion to the period of formal adoption and implementation, the planning process for a large-scale redevelopment project such as the Atlanta Beltline can extend for several, if not many, years. Moreover, such large-scale projects may be expected by the typical real estate investor to have much greater impact on long-term property value trajectories than smaller, incremental public interventions. Therefore, any model that is designed to ascertain the effects of "a project," should actually be designed to measure the impact of a somewhat drawn out planning process. This raises two issues from a methodological perspective. First, any effect on property values in or near the target redevelopment area may be spurred more by the announcement of the intended project rather than its formal adoption or its implementation. For this reason, a good deal of research on the impacts of large-scale development projects has focused on changes before and after the announcement of the project.

Second, in some cases, there is no clear, singular "announcement" point. Rather, projects often begin with various broad conceptual ideas, often with quite limited likelihood of materializing. As the planning process becomes more serious, public discussion and media attention are likely to begin and grow. By this point, and perhaps earlier, we would expect investors to become more interested in the potential revalorization of land in and near the proposed target area and perhaps begin investing accordingly in nearby properties. However, at these early stages there may be a substantial amount of uncertainty over the eventual implementation of the project, and thus investors, in turn, may have a good deal of uncertainty over the magnitude of the rent gap. Therefore, property values may not begin reflecting the large-scale initiation of speculation until more public discussion and planning occurs.

A good deal of research has addressed questions regarding the extent to which externalities, both positive and negative, of public sector investment or subsidy projects are capitalized into land and property values in surrounding or adjacent areas or neighborhoods. The empirical literature suggests that these externalities—either positive or negative—are at least partially capitalized into land and property values, and that this capitalization can begin to occur well before the project is physically initiated or completed.

For example, Knaap, Ding and Hopkins (2001) specifically seek to estimate whether the information contained in transportation plans is capitalized into land values near prospective transit stations. They find that the impact of light rail investments on land values in Washington County, Oregon closely followed the announcement of the new stations' locations. Dehring, Depken and Ward (2006) test the impact of the announcement of a major sports stadium on local housing prices. Colwell, Dehring and Lash (2000) examine the announcement effects of group homes on housing prices. Jud and Winkler (2006) estimate the announcement effect of an airport

expansion on housing prices in the Winston Salem area, and Gatzlaff and Smith (1993) measure the impact of the announcement of a new rail system on prices in Miami.

In general, however, this literature utilizes a before-announcement, after-announcement dichotomous variable to classify the timing of property sales and so constrains the pricing effect to occur at a particular point in time. As will be described later in the description of the methodology, in this analysis I track changes in the trajectories of regression-adjusted property values over time and compare these changes to public discussion of the Beltline as measured by coverage in the local media. This allows for a more detailed comparison of property value trajectories for various distances from the Beltline to the timeline of early and later media coverage of the project.

The Beltline TIF and Housing Price Trends in the City of Atlanta

The Atlanta Development Authority, the quasipublic development agency that planned and designated the Beltline TIF, has projected that the TIF will eventually generate sufficient incremental tax revenue to fund approximately $1.3 to $1.7 billion in tax exempt bonds over 25 years and that these bonds will provide from 50 to 70 percent of the development costs of the Beltline project (Atlanta Development Authority, 2005). The remaining funds will come from traditional bank financing of developer projects, other public monies for parks and infrastructure, and potentially some private investment funds. TIF bonds will be used to pay for capital costs for transit, trails and parks, but some funds are slated to be made available for "workforce housing, quality development in underserved communities, environmental clean-up and transportation connectivity (including street, sidewalk and streetscape improvements) in neighborhoods close to the Beltline."

Atlanta has typically employed its TIFs to stimulate private development – both commercial and residential – by using proceeds from TIF bonds as direct subsidies in private economic and real estate development projects. However, the proposal for the Beltline TIF is somewhat different in that the bulk of funds are intended to go towards uses such as public transit, infrastructure, parks and related site preparation, and open space, with some set-aside of funds for affordable "workforce" housing as well as for streetscape improvements and local economic development projects in lower-income neighborhoods. Although the majority of the dollars coming from this TIF are to be ostensibly used for more public purposes, such as parks and transit, if these amenities have value to local residents and businesses, then we should expect that a good deal of the added value of these services will spillover to the values of nearby residential properties, as people will be willing to pay rents and land prices to locate near these improved amenities.

Figure 1 provides two maps that describe the basic housing demography of the City of Atlanta vis-à-vis the Beltline TIF district. The TIF district encircles the central business district and is approximately 4 miles west to east and six miles north to south. The left side map shows that tracts on the north and northeast sides of the city generally had 1999 median family incomes roughly at or above the metropolitan median ($59,313 in 1999), with many tracts quite a bit higher than this, especially on the far north part of the city generally known as Buckhead. The northeast neighborhoods of Ansley Park and Morningside are also relatively affluent. At the other end of the socioeconomic spectrum are neighborhoods on the south and west sides of the city, including such areas as Pittsburgh, Peoplestown, the West End, Oakland City. Most of these tracts had median family incomes below $40,000 in 1999, with many having medians below

$25,000. Many tracts in the hub of the somewhat circular TIF district also have quite low median incomes.

[FIGURE 1 ABOUT HERE]

Figure 1 also shows the housing unit density of the city vis-à-vis the TIF district. It illustrates that most neighborhoods near the TIF have comparatively intensive residential use, although the actual parcels in the TIF itself are predominantly nonresidential. The northwest portion of the TIF is substantially less residentially intensive, with a good deal of industrial and low-intensity commercial land use. Thus, the "northern arc" of the TIF, as it is sometimes called, is predominantly adjacent to either higher-income neighborhoods or ones that are mostly industrial or commercial. Conversely, the southern arc of the Beltline predominantly touches on lower-income residential neighborhoods, many of which are predominantly minority. The poverty rates in these southern tracts are typically very high, frequently exceeding twenty to thirty percent of residents or more below the poverty level.

Figure 2 illustrates a series of buffers that lie at different distances from the TIF, including an eighth of a mile, a quarter of a mile, a half of a mile, one mile, and two miles. These buffers will be used to identify price trends and premiums for single-family homes located at different distances from the Beltline TIF. If the TIF affects surrounding property values, we should expect this impact to be stronger for properties that are very close (e.g. less than a quarter of a mile, for example) to the TIF than for those farther from it. This figure also illustrates parts of the buffers that are north or south of the CBD ("northside" vs. "southside"). This will be

important because we may expect different sorts of impacts in southside parts of the buffers vs. those on the northside, given the initially lower residential property values on the southside.

[FIGURE 2 ABOUT HERE]

Since 2000, the city of Atlanta has generally seen substantial increases in single-family property values, with median price increasing by 12.4 percent annually from 2000 through 2006. Figure 3 illustrates the average annual increase in median sales prices of single-family homes by neighborhood planning unit (NPU) in the city of Atlanta for the 2000 to 2006 period. These data represent all sales of single-family, detached properties with a sale price of at least $5,000, with some types of sales excluded in which the nature of the transaction would be expected to have very large impacts on price were excluded.[3] Median prices generally increased the most in NPUs on the south and west sides of the city. As shown in the figure, the Beltline TIF runs through or near many of these neighborhoods.

[FIGURE 3 ABOUT HERE]

Table 1 shows that median sales price in the Beltline and within one-eighth of a mile of the Beltline increased by more than 130 percent (or about 15 percent annually) over the six year period. The median sale price of properties in the buffer from one-quarter to one-half of a mile also increased at about 15 percent (14.7 percent) annually. The median price for properties in the eighth-to-quarter-mile buffer increased at almost 11 percent (10.5 percent) annually, while the median for homes in the 1 to 1.5 miles buffer rose by 9.8 percent annually, and the median for

the 1.5 to 2 mile buffer rose at an 8.6 percent annual rate. The median for homes outside of the 2 mile buffer, but still in the city, rose at only a 4.7 percent annual rate.

[TABLE 1 ABOUT HERE]

Data and Methods for Measuring the Announcement Effects of the Beltline Project

The announcement and planning of a large project such as the Beltline may be as much a process as an event. That is, the precise date at which one might call the project "announced" is unclear. Initial concepts for the Beltline, for example, have been attributed to a masters student in city and regional planning at Georgia Tech doing his major paper on the concept in late 1999. However, there was no public discussion of the Beltline plan or a significant proposal by a public official for approximately three years after this. Even when discussion of the project began in the media, its scale and scope were not completely defined.

As a result, rather than attempting to identify clearly delineated pre- and post-announcement periods by which to classify home sales, I do not constrain the appreciation trends but rather compare these trends and their spatial variations to the timing of public discussion of the Beltline project, as measured by coverage in the major daily print media in Atlanta, the *Atlanta Journal Constitution (AJC).*

I begin with a fairly standard pricing model:

$$\ln(p_i) = \alpha + \beta \ln F_i + \chi \ln L_i + \boldsymbol{\psi Q_i} + \zeta G_i + \phi G_i^2 + \boldsymbol{\delta S_i} + \boldsymbol{\rho T_i} + \boldsymbol{\gamma R_i} + \boldsymbol{\eta E_i} + \varphi D_i + \kappa N_i + \varepsilon_i \qquad (1)$$

where p_i is the price of home i, F_i is the square footage of the home i; L_i is the square footage of land area for the lot for home i; $\mathbf{Q_i}$ is a set of dummy variables indicating the quality/condition of the property (ranging from "excellent" to "unsound"); G_i is the age of the property in years at the time of sale; $\mathbf{S_i}$ is a set of transaction dummies that describe special conditions of the sale (e.g., involves a nonprofit, etc.); $\mathbf{T_i}$ is a time variable implemented by a set of quarterly dummy variables; $\mathbf{R_i}$ is a vector of variables describing physical attributes of the property such as the number of bathrooms, bedrooms and stories, as well as exterior construction type and foundation type; $\mathbf{E_i}$ is a vector of variables describing the socioeconomic characteristics of the census block group in which the property is located; D_i indicates the distance of the property from the central business district; and N_i indicates how far north of the CBD the property lies (N is negative if the property lies south of the CBD).

In order to expand the model to identify the effect of proximity to the Beltline TIF on price over time, the specification in equation (1) is expanded to incorporate additional spatial variables that indicate the location of the property relative the Beltline TIF. These variables are then interacted with the year of the sale. This approach, sometimes referred to as a switching regression, effectively allows the relationship between the spatial phenomenon (including proximity to the north- or south-sides of the TIF) and housing prices to change over time, providing a fine-grained analysis of spatial variations in appreciation (McDonald and McMillan, 2004). The new model is as follows:

$$\ln(p_i) = \alpha + \beta \ln F_i + \chi \ln L_i + \boldsymbol{\psi Q_i} + \zeta G_i + \phi G_i^2 + \boldsymbol{\delta S_i} + \boldsymbol{\rho T_i} + \boldsymbol{\gamma R_i} + \boldsymbol{\eta E_i} + \varphi D_i + \kappa N_i + \\ + \boldsymbol{\zeta B_i} + \boldsymbol{\Phi} D_{i*} \mathbf{A_i} + \boldsymbol{\Psi} N_i * \mathbf{A_i} + \boldsymbol{\lambda B_i * A_i} + \varepsilon_i \qquad (2)$$

where $\mathbf{B_i}$ is a set of dummy variables indicating the buffer segment that property i lies within; and $\mathbf{A_i}$ is year of sale, operationalized by dummy variables for years 2001 through 2006 (2000 is the omitted year). In addition to interacting the buffer location dummies with the year of sale, the distance from the CBD and distance north of the CBD are interacted with a year of sale.

To operationalize $\mathbf{B_i}$, each sale is allocated to one of the 15 buffer categories listed in Table 2, including: the northside of the TIF, the southside of the TIF, one of the six northside TIF buffers, one of the six southside TIF buffers, or the part of the city that is more than 2 miles from the TIF. Therefore, $\mathbf{B_i}$ is a set of 14 dummy variables, with the area more than two miles from the TIF being the omitted, fifteenth category.

[TABLE 2 ABOUT HERE]

Estimating equation (2) enables us to identify the change in prices each year in each buffer segment. By examining the coefficients of the interaction terms, we can identify whether properties close to the Beltline experienced a boost in sales more or less than farther properties and compare these patterns to the timing of the press and discussion of the Beltline.

The data used to estimate equation (2) come primarily from two principal Fulton County data sets, as well as decennial census data. First is a parcel-level data set that includes building attributes for every parcel in the county. Second is a series of records describing real estate sales in Fulton County from 2000 to 2006 provided by the Fulton County Tax Assessor. These two data sets were merged by parcel identification number and checked for accuracy. Parcels with detached single-family buildings were used in the analysis. After this, a variety of sales were excluded from the data used in the estimation, including those with prices of less than $5,000 or transactions or properties considered fundamentally distinct from conventional individual-to-

individual property transactions. These include transactions involving one or more of the following: relatives, divorce, or related companies; legal difficulties or foreclosure; a bank as seller/buyer; land contracts or a quit claim deed or that did not include clear title; a person with adjoining property; property that was burned or razed after the sale; a deed of gift; persons having adjoining property; burned or razed property after sale; trades of property; portfolio sales; partial interests; life estates; or multiple parcels that were sold together for an overall price (so that a per-unit price was unavailable). These operations resulted in a data set of more than 25,000 sales for 2000 to 2006.

To determine whether the public discussion and planning surrounding the Beltline affected prices of homes near the Beltline compared to prices of similar homes farther from the Beltline, I examine the coverage of the Beltline project in the local press in Atlanta, and then compare the growth of this coverage to changes in sales price premiums for properties close to the Beltline. Even modest amounts of press coverage could initiate speculation or anticipation around potential valuation shifts in areas near the Beltline, especially when the plans involve a very large project.

Figure 4 indicates the number of articles in the *Atlanta Journal Constitution (AJC)*, the major Atlanta daily paper, mentioning the Beltline proposal or project from 2001 through 2005. (The Beltline TIF was formerly adopted in November 2005). There were no articles on the Beltline concept or project in the *AJC* until December 2002. In early 2003, a few more articles appeared, and by mid-to-late 2004, coverage became more frequent. Thus, in examining changes in price trends for different buffer segments in the results of estimating equation (2), we will be looking particularly at the period from 2003 to 2005.

[FIGURE 4 ABOUT HERE]

Estimation Results

Table 3 provides summary statistics for the variables used in the estimation of equation (2) and Table 4 provides the regression results. Due to the geographic structure of the data, the OLS results exhibit some heteroskedasticity, so a heteroskedastic-robust standard error is measured and used to determine significance.[4] In addition to standard error and t-statistics, Table 4 provides an adjusted exponentiated transform of the coefficient, following Kennedy (1981). This transform allows for easier interpretation of the proportional impact on the dependent variable that is expected from a one unit change in the independent variable. The model achieves a relatively good overall fit (R-square = 0.78) and the coefficients for most impendent variables for structural and neighborhood characteristics come in significant and with the expected sign.

[TABLE 3 ABOUT HERE]

[TABLE 4 ABOUT HERE]

The variables of interest here are those involving the buffer dummies and the interaction terms, in which the buffer dummies are interacted with the year of sale (2000 is the omitted year). Figures 5 and 6 illustrate the key results for these variables for the expanded pricing model in Table 4. These figures indicate the impact of being in different buffer segments – for both the north and south sides – on cumulative appreciation relative to 2000. Thus, these graphs

represent the change in appreciation due to location vis-à-vis the Beltline TIF, with other property characteristics held constant.

[FIGURE 5 ABOUT HERE]

[FIGURE 6 ABOUT HERE]

Northside TIF buffer segments, while appreciating significantly, roughly followed the trajectory of properties located outside of the two-mile TIF buffer (both on the north and south sides). On the northside, most of the statistically significant differences in appreciation were actually ones in which areas near the TIF appreciated *more slowly* than the outer area. Of the TIF buffers on the northside that were within a mile of the TIF, only the quarter-to-half mile buffer saw an significantly higher levels of appreciation over the 2000 to 2006 period, and this was just in 2006. These findings suggest that the impacts of the TIF on nearby property values occurred primarily in lower-value and lower-income buffer areas, which are located primarily on the city's southside. This is consistent with a notion of the Beltline project spurring speculation and gentrification in lower-income areas very close to the TIF district.

To focus more on southside pricing effects, Figure 7 illustrates the sales price premiums for 2000 through 2006 due to being located in each of the southside TIF buffers compared to being located more than two miles from the TIF. Those premiums whose magnitudes are labeled are statistically significant at less than p=0.10. (Precise levels of significance can be found in Table 4.) It shows that properties sold in or within a quarter mile of the TIF on the south side generally sold for considerably higher prices than properties farther away in 2004, 2005, and 2006. (The price premium for properties in the eighth-mile buffer was also significant in 2003.)

These premiums were substantial, with properties in 2004 within a quarter mile of the TIF selling for 29-31 percent higher than otherwise-similar outer-area properties. Importantly, such differences were much smaller, and not statistically significant, for 2001 and 2002 and only partly significant for 2003.

[FIGURE 7 ABOUT HERE]

Price premiums for proximity to the Beltline on the southside fall off after one-half mile. Moreover, premiums for the quarter-to-half mile buffer are not substantially higher after public discussion of the Beltline than before such discussion. However, within one-quarter of a mile of the TIF – an area with very high single-family density – the differences in premiums from before to after Beltline proposals were made public are very large, and on the order of 10 to 20 percentage point increase within a year. Moreover, the premiums generally continued to increase in 2005. In 2006, the premiums generally flattened off, except in the case of properties within an eighth of a mile of the TIF, whose premium continued to grow.

Conclusions

The results here that the planning and public discussion of the Beltline TIF had positive effects on housing prices very close to the TIF on the city's south side, with impacts falling off sharply after approximately a quarter mile. The timing of these increases matches the timing of the initial public discussion of the Beltline. More specifically, the analysis suggests that, beginning as early as 2003, homes located very close to the southern part of the Beltline TIF experienced substantial increases in locational price premiums. The increases in price premiums

for being located within a quarter-mile of the TIF on the southside generally increased on the order of 15 to 30 percentage points over the 2002-2005 period.

These findings have a implications for planning and policy concerning large-scale TIFs and other large, spatially targeted development projects in lower-income areas. First, the findings suggest that projects of this scale and nature have positive spillovers on residential property values. While this may please the designers of such initiatives, these sorts of effects may not always please lower-income residents of affected communities. While some – especially those who own property and can afford higher taxes – may welcome higher property values, others – including some lower-income owners – may not, particularly if they desire to remain in the area and will have difficulty affording higher taxes. Lower-income renters, whose new leases are likely to reflect higher tax assessments and higher property values, will almost certainly experience some pressure toward displacement.

The impacts here have been significant in magnitude for lower-income owner-occupiers as well as renters. Many lower-income homeowners, for example, near the TIF have seen their taxes increase substantially in recent years. Given current residential tax rates and homestead exemption levels in Atlanta, a somewhat typical homeowner with a house worth $100,000 in 2001 and located within an eighth of a mile of the TIF would see her property taxes increase from approximately $540 in 2001 to over $1,400 by 2006. A property owner with a similar $100,000 house but located just a little farther away from the TIF – 1 mile – would see her taxes go up as well, but only to approximately $950. This is an increase in property taxes of 160 percent over five years instead of an increase of 74 percent. Given the very large population of low-income homeowners, this is a sizeable increase in housing costs, one that is very likely to result in significant displacement of incumbent residents.

This analysis suggests that the impacts on residential land values from large, state-led development or redevelopment projects may be substantial, particularly in lower-income neighborhoods. Moreover, these impacts may occur well before formal policies are adopted or ground is broken. If such initiatives are intended to help the incumbent residents of the surrounding areas and/or there is a desire to maintain a supply of affordable housing in these areas, then substantial planning and policy attention is warranted early in the process to mitigate potential gentrification and displacement.

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Table 1. Median Prices and Counts for Single Family Home Sales, 2000 – 2006 by proximity to the Beltline TIF, City of Atlanta, Fulton County Sales Only

	2000	2001	2002	2003	2004	2005	2006	Increase in Median Price 2000-2006	Average Annual Increase
In the Beltline	103,000	135,000	152,500	155,000	180,000	230,000	240,000	133.0%	15.1%
# Sales	203	184	166	201	270	284	264		
Within 1/8 mile	95,000	120,000	150,000	167,000	176,000	215,000	220,000	131.6%	15.0%
# Sales	1,946	1,797	1,809	1,613	2,353	2,513	2,134		
1/8 to 1/4 mile	123,500	137,000	149,900	173,304	186,000	220,000	225,250	82.4%	10.5%
# Sales	699	679	706	635	841	982	869		
1/4 to 1/2 mile	95,500	134,000	130,000	159,900	175,500	205,000	218,000	128.3%	14.7%
# Sales	730	681	690	679	834	945	848		
1/2 to 1 mile	80,000	85,000	103,400	131,000	136,949	150,000	155,000	93.8%	11.7%
# Sales	549	570	604	560	713	772	773		
1 to 1.5 miles	88,500	98,950	107,000	140,000	141,000	142,000	155,000	75.1%	9.8%
# Sales	396	366	477	445	554	600	636		
1.5 to 2 miles	88,314	120,000	133,620	130,000	132,500	142,000	145,000	64.2%	8.6%
# Sales	400	409	425	457	532	575	578		
2 or more miles	110,000	119,000	116,955	123,600	139,000	146,900	145,000	31.8%	4.7%
# Sales	934	815	788	901	1,147	1,313	1,332		
City Total	**96,000**	**116,500**	**134,000**	**150,000**	**160,000**	**181,584**	**194,014**	**102.1%**	**12.4%**
# Sales	**5,857**	**5,501**	**5,665**	**5,491**	**7,244**	**7,984**	**7,434**		

Table 2. Buffer Segments Used to Categorize Single Family Home Sales

Northside – in the TIF	Southside – in the TIF
Northside – from TIF to 1/8 mile from TIF	Southside – from TIF to 1/8 mile from TIF
Northside – from 1/8 to ¼ mile from TIF	Southside – from 1/8 to ¼ mile from TIF
Northside – from ¼ to ½ mile from TIF	Southside – from ¼ to ½ mile from TIF
Northside – from ½ to 1 mile from TIF	Southside – from ½ to 1 mile from TIF
Northside – from 1 to 1.5 miles from TIF	Southside – from 1 to 1.5 miles from TIF
Northside – from 1.5 to 2 miles from TIF	Southside – from 1.5 to 2 miles from TIF
More than 2 miles from TIF	

Table 3. Descriptive Statistics

Variable	Mean	Std. Deviation
log of price	12.253	0.874
log of building square feet	7.374	0.503
log of square feet of land	9.285	0.668
number of bedrooms	2.923	0.900
number of bathrooms	1.864	1.044
quality=excellent	0.184	0.388
quality=very good	0.276	0.447
quality=good	0.203	0.402
quality=average/fair	0.323	0.468
quality=poor	0.011	0.102
quality=very poor	0.002	0.043
quality=unsound	0.002	0.040
age of house	52.5	25.0
more than 1 story	0.157	0.364
brick exterior	0.369	0.483
full basement	0.225	0.418
trans=public/nonprofit involved	0.019	0.136
trans=remodeled	0.023	0.149
trans=additional property	0.001	0.033
trans=not typical of local	0.155	0.362
trans=incomplete	0.004	0.067
trans=split parcel	0.000	0.009
block group, proportion black	0.579	0.413
block group, proportion Hispanic	0.037	0.059
block group, proportion poor	0.204	0.154
block group, proportion owner-occupied	0.548	0.230
block group, median household income	48,316	37,583
distance to CBD in miles	4.310	2.043
distance north (south <0) of CBD in miles	0.598	3.659
Northside – in the TIF	0.013	0.111
Northside – from TIF to 1/8 mile from TIF	0.109	0.312
Northside – from 1/8 to ¼ mile from TIF	0.061	0.239
Northside – from ¼ to ½ mile from TIF	0.068	0.252
Northside – from ½ to 1 mile from TIF	0.058	0.233
Northside – from 1 to 1.5 miles from TIF	0.049	0.217
Northside – from 1.5 to 2 miles from TIF	0.049	0.216
Southside – in the TIF	0.020	0.139
Southside – from TIF to 1/8 mile from TIF	0.182	0.386
Southside – from 1/8 to ¼ mile from TIF	0.059	0.236
Southside – from ¼ to ½ mile from TIF	0.053	0.224
Southside – from ½ to 1 mile from TIF	0.043	0.203
Southside – from 1 to 1.5 miles from TIF	0.027	0.163
Southside – from 1.5 to 2 miles from TIF	0.028	0.166

N = 25,999

Table 4. Heteroskedastic-Robust OLS Results of Expanded Model, Including Beltline Proximity Variables, Pre-Post Beltline Announcement, and Interactions[a]

Dependent Variable = Natural log of Price **Explanatory Variable**	**Coefficient**	**Robust Std. Error**	**Beta**	**Effect of Unit Change in IV on Price[b]**	**t-stat**	**Significance**	
Constant	8.417	0.107			78.43	0.000	***
log of building square feet	0.360	0.014	0.207		25.50	0.000	***
log of square feet of land	0.140	0.008	0.107		17.96	0.000	***
number of bedrooms	-0.008	0.004	-0.008		-1.85	0.065	*
number of bathrooms	0.085	0.005	0.102	0.089	15.96	0.000	***
quality=very good	-0.139	0.008	-0.071	-0.130	-17.19	0.000	***
quality=good	-0.258	0.011	-0.119	-0.227	-24.24	0.000	***
quality=average/fair	-0.408	0.011	-0.218	-0.335	-36.26	0.000	***
quality=poor	-0.586	0.041	-0.068	-0.444	-14.41	0.000	***
quality=very poor	-0.689	0.112	-0.034	-0.499	-6.15	0.000	***
quality=unsound	-0.626	0.164	-0.029	-0.466	-3.81	0.000	***
age of house	-5.42E-03	0.001	-0.155	-5.41E-03	-8.31	0.000	***
age of house squared	5.26E-05	0.000	0.141	5.26E-05	7.69	0.000	***
more than 1 story	0.087	0.010	0.036	0.091	8.88	0.000	***
brick exterior	0.053	0.006	0.029	0.055	8.91	0.000	***
full basement	0.021	0.007	0.010	0.021	2.99	0.003	***
trans=public/nonprofit involved	-0.412	0.032	-0.064	-0.338	-12.99	0.000	***
trans=remodeled	-0.201	0.024	-0.034	-0.182	-8.40	0.000	***
trans=additional property	0.389	0.094	0.015	0.471	4.16	0.000	***
trans=not typical of local	-0.111	0.011	-0.046	-0.105	-9.85	0.000	***
trans=incomplete	0.221	0.041	0.017	0.246	5.43	0.000	***
trans=split parcel	1.626	3.168	0.016	3.867	0.51	0.608	
block group, proportion Black	-0.608	0.017	-0.287	-0.456	-35.27	0.000	***
block group, proportion Hispanic	-1.008	0.055	-0.068	-0.636	-18.45	0.000	***
block group, proportion poor	-0.261	0.033	-0.046	-0.230	-7.95	0.000	***
block group, prop. owner-occupied	-0.180	0.019	-0.047	-0.165	-9.66	0.000	***
block group, median household income	1.85E-06	0.000	0.079	1.85E-06	10.91	0.000	***
distance to CBD in miles	0.016	0.007	0.037	0.016	2.41	0.016	***
distance north (south <0) of CBD in miles	0.032	0.003	0.134	0.032	10.41	0.000	***
quarter 2	0.009	0.024	0.002	0.009	0.38	0.706	
quarter 3	0.016	0.026	0.003	0.016	0.61	0.543	
quarter 4	0.042	0.030	0.007	0.042	1.42	0.157	
quarter 5	0.104	0.050	0.017	0.109	2.07	0.039	*
quarter 6	0.201	0.049	0.035	0.222	4.07	0.000	***
quarter 7	0.188	0.049	0.031	0.205	3.82	0.000	***
quarter 8	0.223	0.049	0.034	0.248	4.54	0.000	***
quarter 9	0.271	0.054	0.050	0.310	5.00	0.000	***
quarter 10	0.310	0.055	0.056	0.362	5.63	0.000	***
quarter 11	0.323	0.055	0.056	0.379	5.87	0.000	***
quarter 12	0.307	0.055	0.052	0.358	5.59	0.000	***
quarter 13	0.311	0.057	0.056	0.363	5.42	0.000	***
quarter 14	0.316	0.058	0.063	0.370	5.48	0.000	***
quarter 15	0.353	0.058	0.069	0.422	6.11	0.000	***
quarter 16	0.338	0.057	0.064	0.401	5.95	0.000	***
quarter 17	0.415	0.058	0.091	0.512	7.17	0.000	***
quarter 18	0.441	0.057	0.103	0.552	7.73	0.000	***
quarter 19	0.468	0.057	0.104	0.595	8.17	0.000	***
quarter 20	0.540	0.057	0.125	0.714	9.55	0.000	***
quarter 21	0.561	0.057	0.140	0.751	9.88	0.000	***
quarter 22	0.579	0.057	0.154	0.781	10.12	0.000	***
quarter 23	0.577	0.057	0.154	0.779	10.19	0.000	***
quarter 24	0.611	0.056	0.159	0.839	10.87	0.000	***
quarter 25	0.593	0.058	0.161	0.807	10.22	0.000	***
quarter 26	0.587	0.058	0.170	0.796	10.06	0.000	***
quarter 27	0.563	0.058	0.159	0.752	9.66	0.000	***
quarter 28	0.501	0.059	0.110	0.647	8.45	0.000	***
Northside – in the TIF	0.129	0.087	0.016	0.133	1.47	0.141	
Northside – from TIF to 1/8 mile from TIF	0.193	0.044	0.069	0.212	4.43	0.000	***
Northside – from 1/8 to ¼ mile from TIF	0.276	0.047	0.075	0.316	5.92	0.000	***
Northside – from ¼ to ½ mile from TIF	0.123	0.047	0.035	0.130	2.62	0.009	***
Northside – from ½ to 1 mile from TIF	0.170	0.049	0.045	0.184	3.44	0.001	***
Northside – from 1 to 1.5 miles from TIF	0.062	0.060	0.015	0.063	1.04	0.298	
Northside – from 1.5 to 2 miles from TIF	-0.116	0.060	-0.029	-0.111	-1.95	0.052	*
Southside – in the TIF	0.118	0.079	0.019	0.123	1.50	0.133	
Southside – from TIF to 1/8 mile from TIF	0.087	0.042	0.038	0.090	2.06	0.039	**
Southside – from 1/8 to ¼ mile from TIF	0.075	0.055	0.020	0.077	1.37	0.172	
Southside – from ¼ to ½ mile from TIF	0.000	0.058	0.000	-0.001	0.00	0.999	
Southside – from ½ to 1 mile from TIF	-0.026	0.044	-0.006	-0.027	-0.60	0.549	
Southside – from 1 to 1.5 miles from TIF	0.016	0.052	0.003	0.014	0.31	0.756	
Southside – from 1.5 to 2 miles from TIF	0.082	0.034	0.015	0.083	2.41	0.016	**

Continued on next page

Table 4. Continued from previous page

Explanatory Variable	Coefficient	Robust Std. Error	Beta	Effect of Unit Change in IV on Price[b]	t-stat	significance	
SWITCHING – LOCATION*TIME INTERACTIONS							
distance to CBD in miles * 2001	-0.015	0.007	-0.023	-0.015	-2.24	0.025	**
distance to CBD in miles * 2002	-0.022	0.007	-0.036	-0.022	-3.22	0.001	***
distance to CBD in miles * 2003	-0.024	0.007	-0.042	-0.023	-3.29	0.001	***
distance to CBD in miles * 2004	-0.027	0.007	-0.056	-0.027	-3.69	0.000	***
distance to CBD in miles * 2005	-0.034	0.007	-0.076	-0.034	-4.79	0.000	***
distance to CBD in miles * 2006	-0.032	0.007	-0.077	-0.032	-4.42	0.000	***
distance north (south <0) of CBD in miles * 2001	0.000	0.005	-0.001	0.000	-0.10	0.921	
distance north (south <0) of CBD in miles * 2002	-0.007	0.004	-0.010	-0.007	-1.77	0.076	*
distance north (south <0) of CBD in miles * 2003	-0.003	0.004	-0.004	-0.003	-0.68	0.499	
distance north (south <0) of CBD in miles * 2004	-0.008	0.004	-0.013	-0.008	-2.04	0.042	**
distance north (south <0) of CBD in miles * 2005	-0.004	0.004	-0.008	-0.004	-1.17	0.241	
distance north (south <0) of CBD in miles * 2006	-0.008	0.004	-0.016	-0.008	-2.13	0.033	**
NORTHSIDE BUFFER * TIME INTERACTIONS							
Northside – in the TIF * 2001	0.008	0.121	0.000	0.002	0.07	0.944	
Northside – in the TIF * 2002	0.083	0.127	0.003	0.079	0.66	0.512	
Northside – in the TIF * 2003	-0.100	0.105	-0.005	-0.101	-0.95	0.342	
Northside – in the TIF * 2004	-0.063	0.102	-0.003	-0.066	-0.62	0.538	
Northside – in the TIF * 2005	-0.131	0.096	-0.008	-0.127	-1.36	0.173	
Northside – in the TIF * 2006	0.080	0.113	0.005	0.077	0.71	0.480	
Northside – from TIF to 1/8 mile from TIF * 2001	-0.017	0.049	-0.002	-0.018	-0.35	0.728	
Northside – from TIF to 1/8 mile from TIF * 2002	-0.011	0.050	-0.001	-0.013	-0.23	0.821	
Northside – from TIF to 1/8 mile from TIF * 2003	-0.054	0.051	-0.008	-0.054	-1.07	0.285	
Northside – from TIF to 1/8 mile from TIF * 2004	-0.060	0.049	-0.009	-0.060	-1.24	0.215	
Northside – from TIF to 1/8 mile from TIF * 2005	-0.057	0.048	-0.010	-0.057	-1.19	0.235	
Northside – from TIF to 1/8 mile from TIF * 2006	0.019	0.049	0.003	0.018	0.40	0.692	
Northside – from 1/8 to ¼ mile from TIF * 2001	-0.084	0.057	-0.007	-0.082	-1.47	0.141	
Northside – from 1/8 to ¼ mile from TIF * 2002	-0.149	0.057	-0.014	-0.140	-2.61	0.009	***
Northside – from 1/8 to ¼ mile from TIF * 2003	-0.115	0.059	-0.011	-0.110	-1.96	0.050	*
Northside – from 1/8 to ¼ mile from TIF * 2004	-0.121	0.052	-0.014	-0.116	-2.32	0.020	**
Northside – from 1/8 to ¼ mile from TIF * 2005	-0.165	0.052	-0.022	-0.153	-3.18	0.001	***
Northside – from 1/8 to ¼ mile from TIF * 2006	-0.010	0.053	-0.001	-0.011	-0.19	0.849	
Northside – from ¼ to ½ mile from TIF * 2001	-0.032	0.061	-0.003	-0.032	-0.52	0.604	
Northside – from ¼ to ½ mile from TIF * 2002	-0.005	0.059	0.000	-0.006	-0.08	0.938	
Northside – from ¼ to ½ mile from TIF * 2003	0.062	0.059	0.007	0.063	1.05	0.292	
Northside – from ¼ to ½ mile from TIF * 2004	-0.016	0.057	-0.002	-0.017	-0.28	0.782	
Northside – from ¼ to ½ mile from TIF * 2005	-0.008	0.053	-0.001	-0.009	-0.15	0.878	
Northside – from ¼ to ½ mile from TIF * 2006	0.099	0.055	0.013	0.102	1.80	0.071	*
Northside – from ½ to 1 mile from TIF * 2001	-0.113	0.066	-0.009	-0.108	-1.71	0.087	*
Northside – from ½ to 1 mile from TIF * 2002	-0.102	0.064	-0.010	-0.099	-1.60	0.110	
Northside – from ½ to 1 mile from TIF * 2003	-0.098	0.062	-0.010	-0.095	-1.58	0.114	
Northside – from ½ to 1 mile from TIF * 2004	-0.115	0.060	-0.012	-0.110	-1.93	0.054	*
Northside – from ½ to 1 mile from TIF * 2005	-0.128	0.056	-0.016	-0.121	-2.27	0.023	*
Northside – from ½ to 1 mile from TIF * 2006	0.015	0.056	0.002	0.013	0.26	0.793	
Northside – from 1 to 1.5 miles from TIF * 2001	-0.043	0.074	-0.003	-0.044	-0.58	0.561	
Northside – from 1 to 1.5 miles from TIF * 2002	-0.065	0.072	-0.006	-0.065	-0.91	0.365	
Northside – from 1 to 1.5 miles from TIF * 2003	0.009	0.076	0.001	0.007	0.12	0.908	
Northside – from 1 to 1.5 miles from TIF * 2004	-0.015	0.068	-0.001	-0.017	-0.22	0.823	
Northside – from 1 to 1.5 miles from TIF * 2005	-0.033	0.070	-0.004	-0.034	-0.48	0.633	
Northside – from 1 to 1.5 miles from TIF * 2006	0.028	0.067	0.003	0.026	0.41	0.679	
Northside – from 1.5 to 2 miles from TIF * 2001	0.171	0.071	0.014	0.184	2.42	0.016	**
Northside – from 1.5 to 2 miles from TIF * 2002	0.117	0.073	0.009	0.122	1.61	0.107	
Northside – from 1.5 to 2 miles from TIF * 2003	0.131	0.075	0.012	0.138	1.75	0.080	*
Northside – from 1.5 to 2 miles from TIF * 2004	0.091	0.067	0.009	0.093	1.36	0.174	
Northside – from 1.5 to 2 miles from TIF * 2005	0.152	0.064	0.017	0.162	2.36	0.018	**
Northside – from 1.5 to 2 miles from TIF * 2006	0.109	0.069	0.013	0.113	1.58	0.113	

Continued on next page

Table 4. Continued from previous page

Explanatory Variable	Coefficient	Robust Std. Error	Beta	Effect of Unit Change in IV on Price[b]	t-stat	significance	
SOUTHSIDE BUFFER * TIME INTERACTIONS							
Southside – in the TIF * 2001	0.002	0.137	0.000	-0.003	0.02	0.987	
Southside – in the TIF * 2002	0.090	0.103	0.004	0.089	0.88	0.380	
Southside – in the TIF * 2003	-0.004	0.105	0.000	-0.008	-0.04	0.972	
Southside – in the TIF * 2004	0.146	0.097	0.009	0.153	1.50	0.133	
Southside – in the TIF * 2005	0.228	0.088	0.018	0.252	2.59	0.010	**
Southside – in the TIF * 2006	0.167	0.090	0.014	0.178	1.86	0.063	*
Southside – from TIF to 1/8 mile from TIF * 2001	0.066	0.046	0.009	0.067	1.44	0.149	
Southside – from TIF to 1/8 mile from TIF * 2002	0.063	0.049	0.009	0.064	1.29	0.198	
Southside – from TIF to 1/8 mile from TIF * 2003	0.125	0.048	0.018	0.132	2.60	0.009	***
Southside – from TIF to 1/8 mile from TIF * 2004	0.181	0.048	0.035	0.198	3.81	0.000	***
Southside – from TIF to 1/8 mile from TIF * 2005	0.239	0.047	0.056	0.269	5.12	0.000	***
Southside – from TIF to 1/8 mile from TIF * 2006	0.292	0.047	0.074	0.338	6.16	0.000	***
Southside – from 1/8 to ¼ mile from TIF * 2001	0.078	0.067	0.006	0.079	1.16	0.244	
Southside – from 1/8 to ¼ mile from TIF * 2002	0.071	0.069	0.006	0.071	1.03	0.304	
Southside – from 1/8 to ¼ mile from TIF * 2003	0.105	0.066	0.009	0.108	1.59	0.112	
Southside – from 1/8 to ¼ mile from TIF * 2004	0.196	0.064	0.021	0.214	3.07	0.002	***
Southside – from 1/8 to ¼ mile from TIF * 2005	0.236	0.061	0.031	0.264	3.84	0.000	***
Southside – from 1/8 to ¼ mile from TIF * 2006	0.236	0.062	0.036	0.265	3.81	0.000	***
Southside – from ¼ to ½ mile from TIF * 2001	0.221	0.072	0.016	0.245	3.07	0.002	***
Southside – from ¼ to ½ mile from TIF * 2002	0.162	0.073	0.012	0.174	2.22	0.026	**
Southside – from ¼ to ½ mile from TIF * 2003	0.198	0.069	0.017	0.217	2.89	0.004	***
Southside – from ¼ to ½ mile from TIF * 2004	0.224	0.067	0.022	0.249	3.35	0.001	***
Southside – from ¼ to ½ mile from TIF * 2005	0.200	0.067	0.025	0.220	3.00	0.003	***
Southside – from ¼ to ½ mile from TIF * 2006	0.278	0.066	0.039	0.318	4.21	0.000	***
Southside – from ½ to 1 mile from TIF * 2001	-0.044	0.059	-0.003	-0.045	-0.75	0.453	
Southside – from ½ to 1 mile from TIF * 2002	0.043	0.058	0.003	0.042	0.74	0.459	
Southside – from ½ to 1 mile from TIF * 2003	0.093	0.060	0.007	0.095	1.56	0.119	
Southside – from ½ to 1 mile from TIF * 2004	0.030	0.059	0.003	0.029	0.51	0.609	
Southside – from ½ to 1 mile from TIF * 2005	0.065	0.054	0.007	0.065	1.19	0.232	
Southside – from ½ to 1 mile from TIF * 2006	0.127	0.053	0.016	0.133	2.38	0.017	**
Southside – from 1 to 1.5 miles from TIF * 2001	0.114	0.083	0.006	0.117	1.38	0.167	
Southside – from 1 to 1.5 miles from TIF * 2002	0.005	0.065	0.000	0.001	0.07	0.943	
Southside – from 1 to 1.5 miles from TIF * 2003	0.088	0.067	0.005	0.088	1.31	0.189	
Southside – from 1 to 1.5 miles from TIF * 2004	0.108	0.063	0.009	0.111	1.72	0.085	*
Southside – from 1 to 1.5 miles from TIF * 2005	0.051	0.059	0.005	0.050	0.86	0.388	
Southside – from 1 to 1.5 miles from TIF * 2006	0.093	0.062	0.009	0.095	1.50	0.133	
Southside – from 1.5 to 2 miles from TIF * 2001	-0.055	0.054	-0.003	-0.056	-1.01	0.310	
Southside – from 1.5 to 2 miles from TIF * 2002	-0.055	0.049	-0.003	-0.056	-1.11	0.265	
Southside – from 1.5 to 2 miles from TIF * 2003	-0.042	0.066	-0.003	-0.044	-0.64	0.525	
Southside – from 1.5 to 2 miles from TIF * 2004	-0.005	0.046	0.000	-0.008	-0.11	0.909	
Southside – from 1.5 to 2 miles from TIF * 2005	-0.038	0.043	-0.003	-0.039	-0.87	0.387	
Southside – from 1.5 to 2 miles from TIF * 2006	0.005	0.048	0.000	0.003	0.11	0.916	

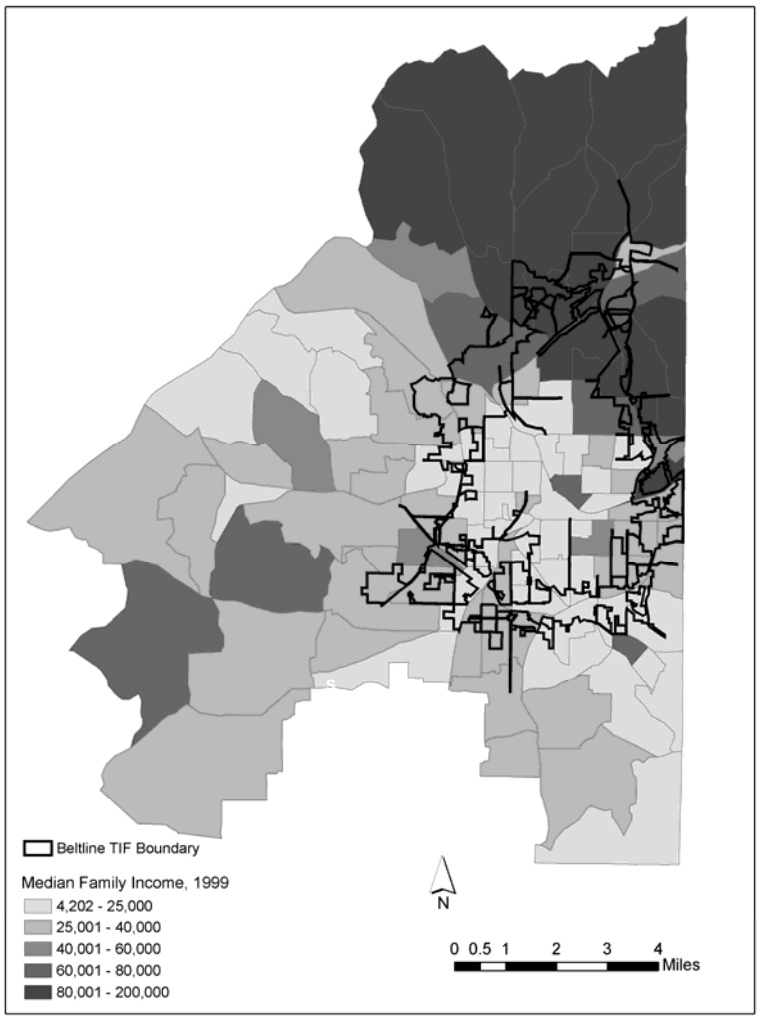
R-square 0.777
N = 25,599

*** significant at less than 0.01
** significant at less than 0.05
* significant at less than 0.10

[a.] Includes only most recent sale per parcel in the 2000-2006 period; also excludes sales under $5,000, those involving relatives, multiple parcels, etc. Full description of excluded sales in main text.
[b]This estimate is equal to $\exp(b-1/2*se_b^2)-1$. See Kennedy (1981) for more information.

Figure 1. The City of Atlanta and the Beltline Tax Increment Financing District

Median Family Income, 1999 and Housing Unit Density, 2000 by Census Tract



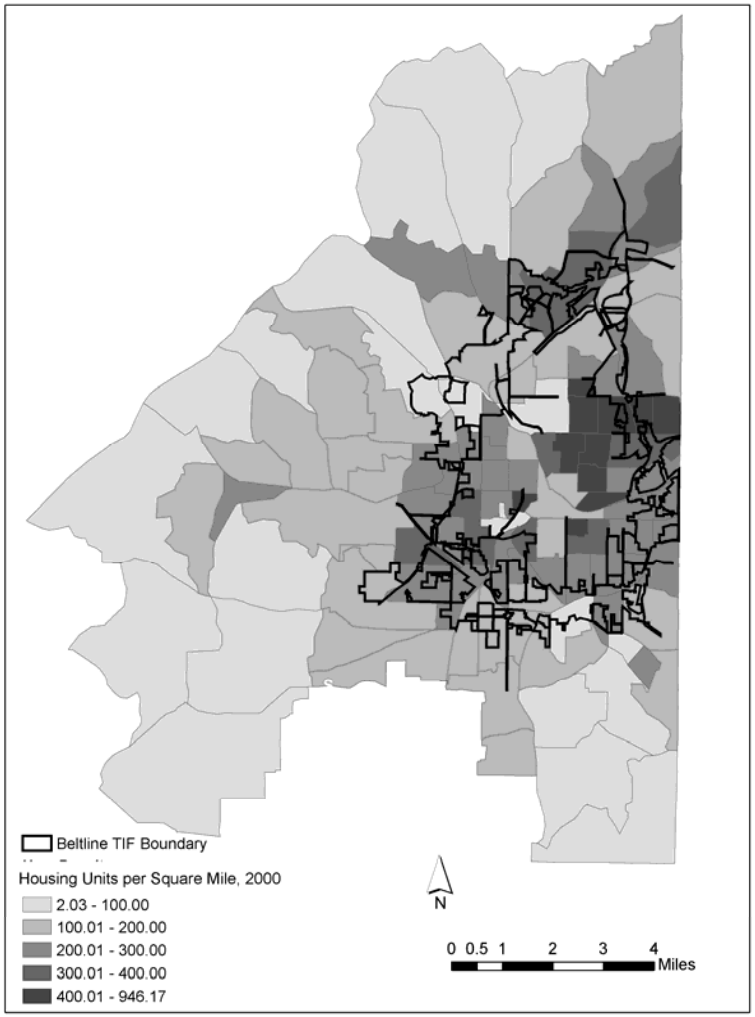


Figure 2. The Beltline TIF, with Buffers, Fulton County Only

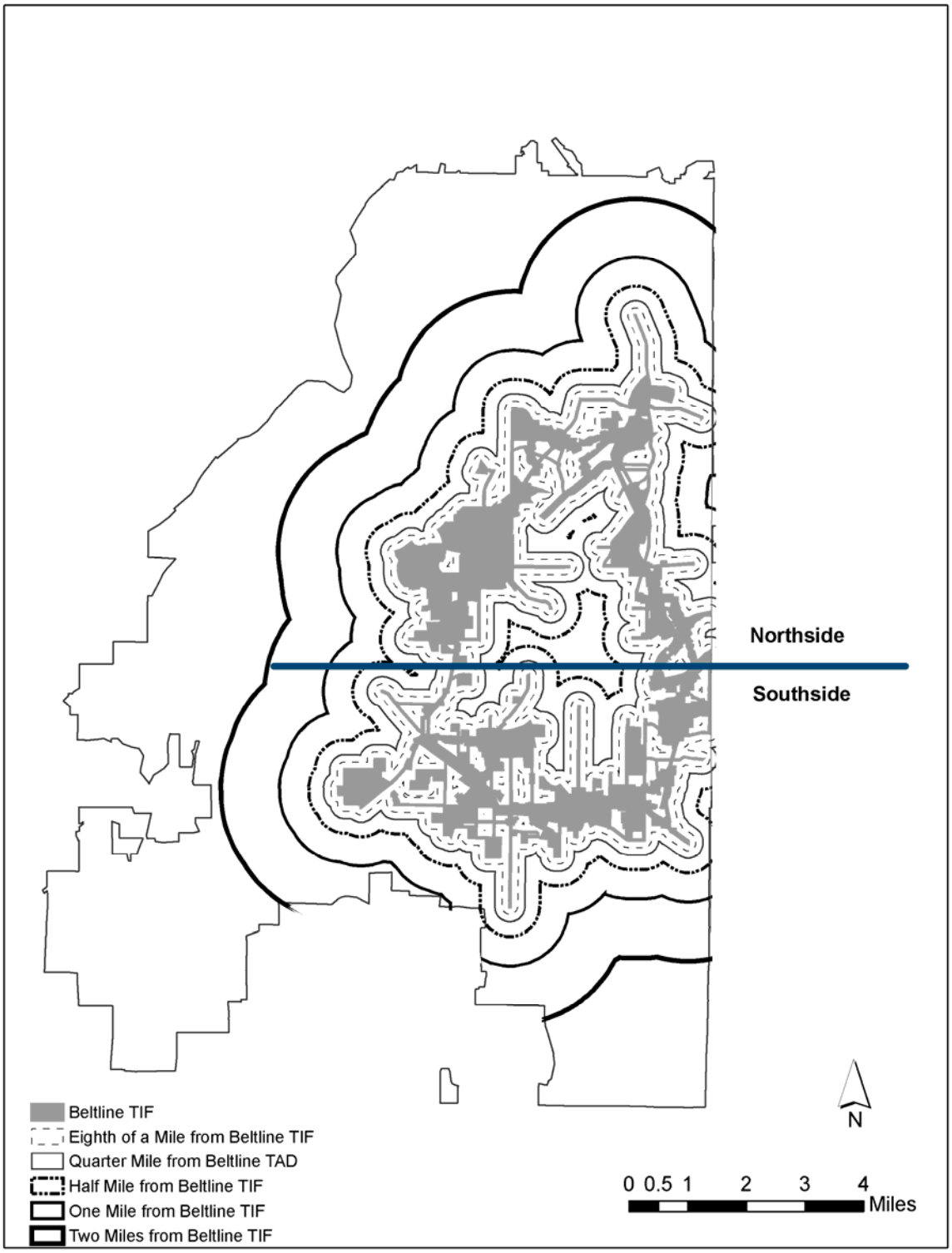


Figure 3. Average Annual Increase in Single Family Home Prices, 2000-2006, by Neighborhood Planning Unit, City of Atlanta, Fulton County Sales

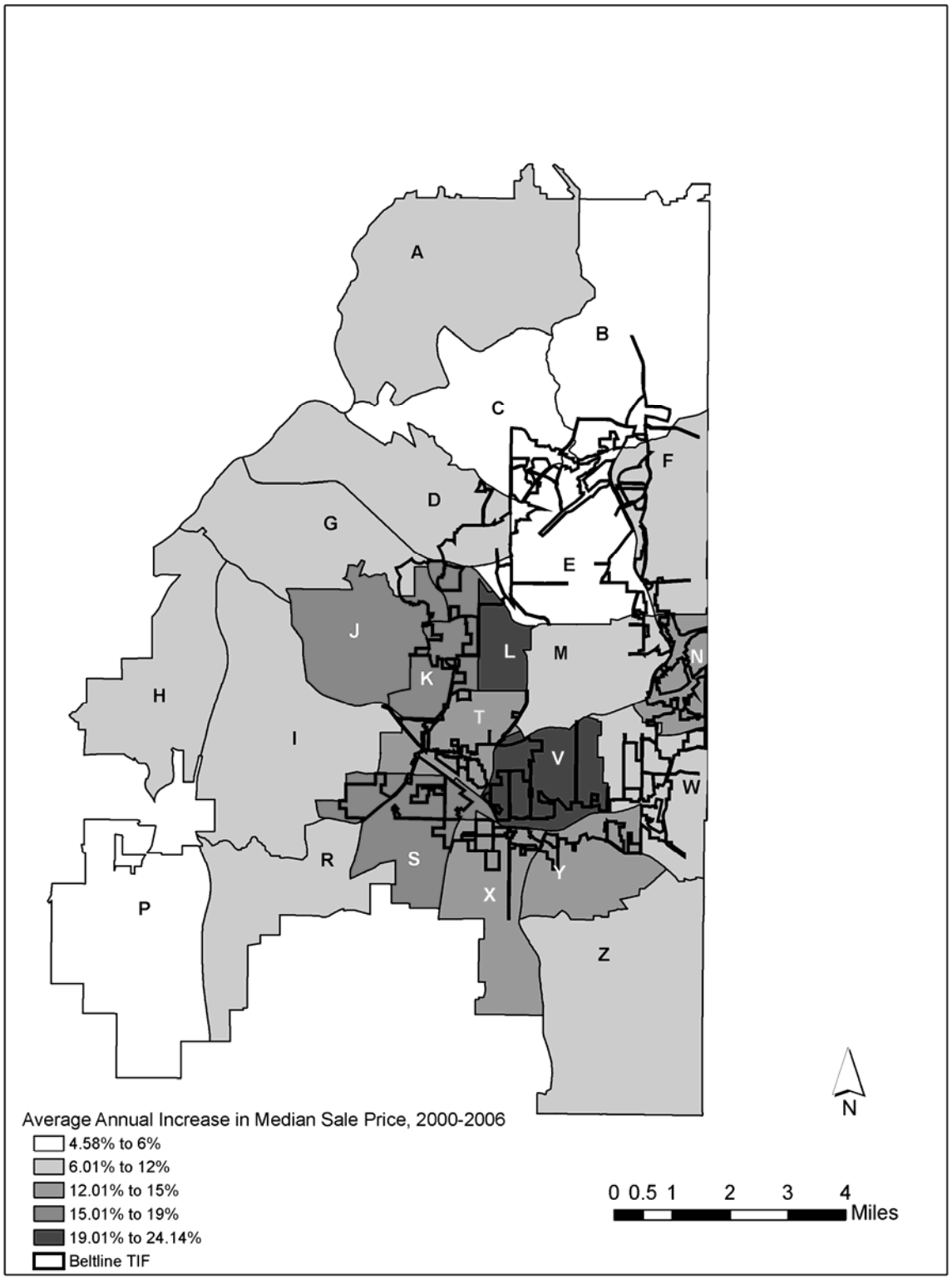
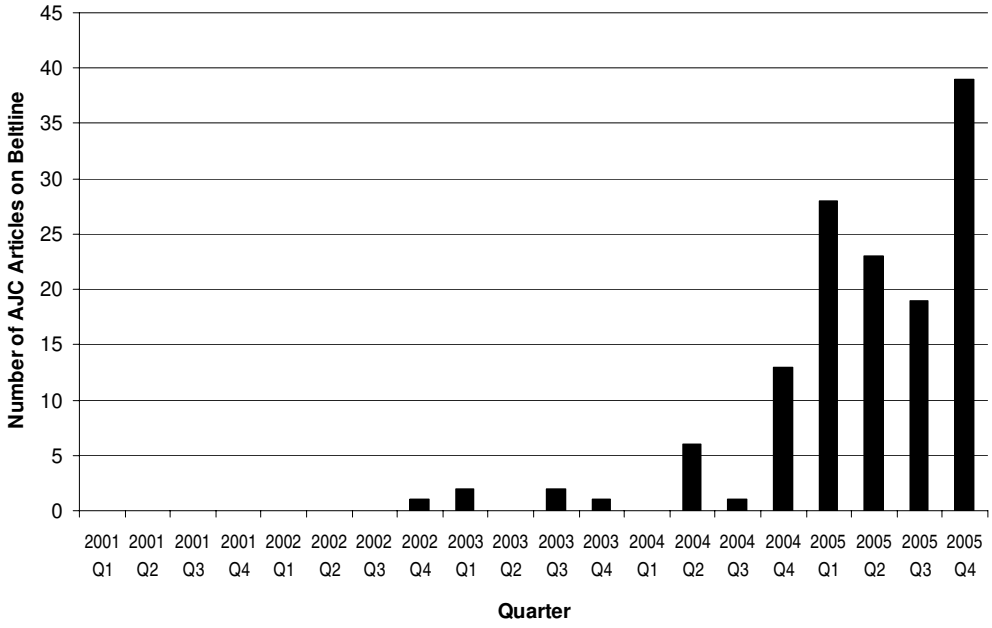


Figure 4. Coverage of the Beltline Proposal/Project in the Atlanta Journal-Constitution



Source: Lexis-Nexis

Figure 5. Property Value Trajectories for Beltline TIF Buffer Areas: Northside Buffers Compared to More than Two Miles from TIF District

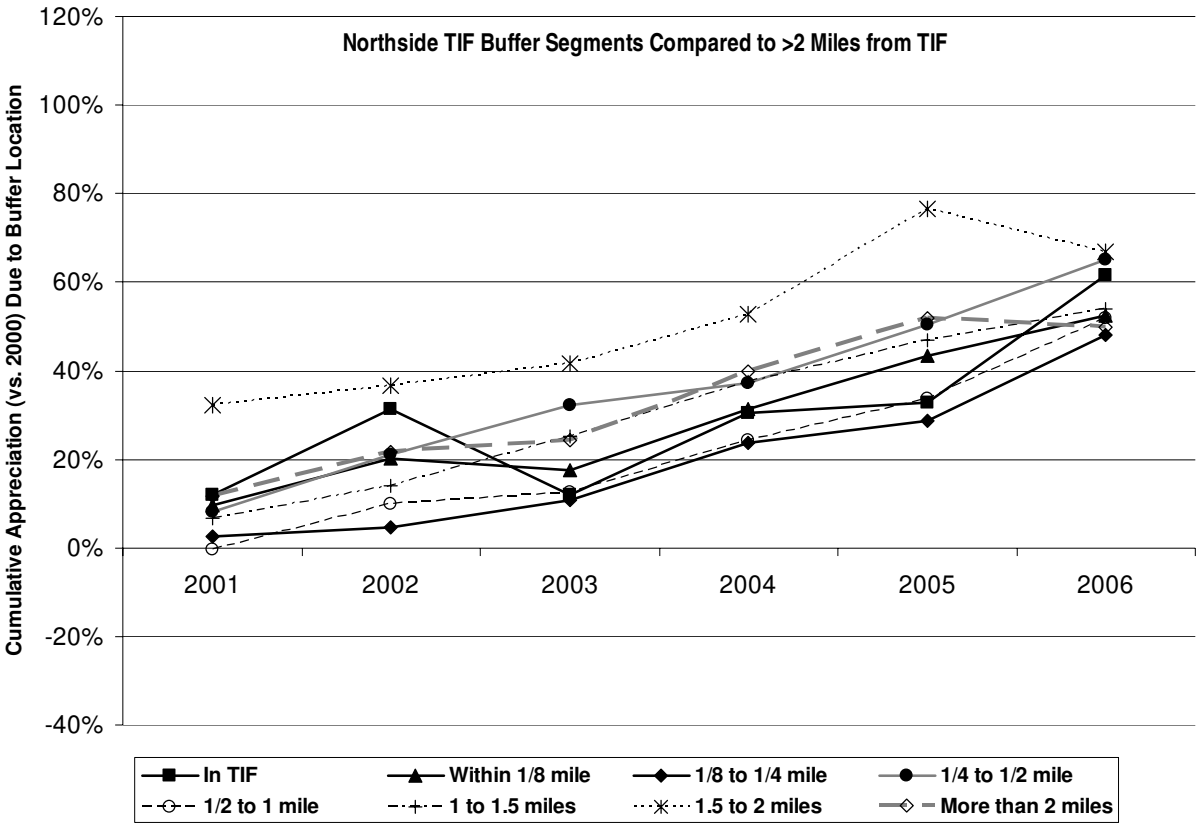


Figure 6. Property Value Trajectories for Beltline TIF Buffer Areas: Southside Buffers Compared to More than Two Miles from TIF District

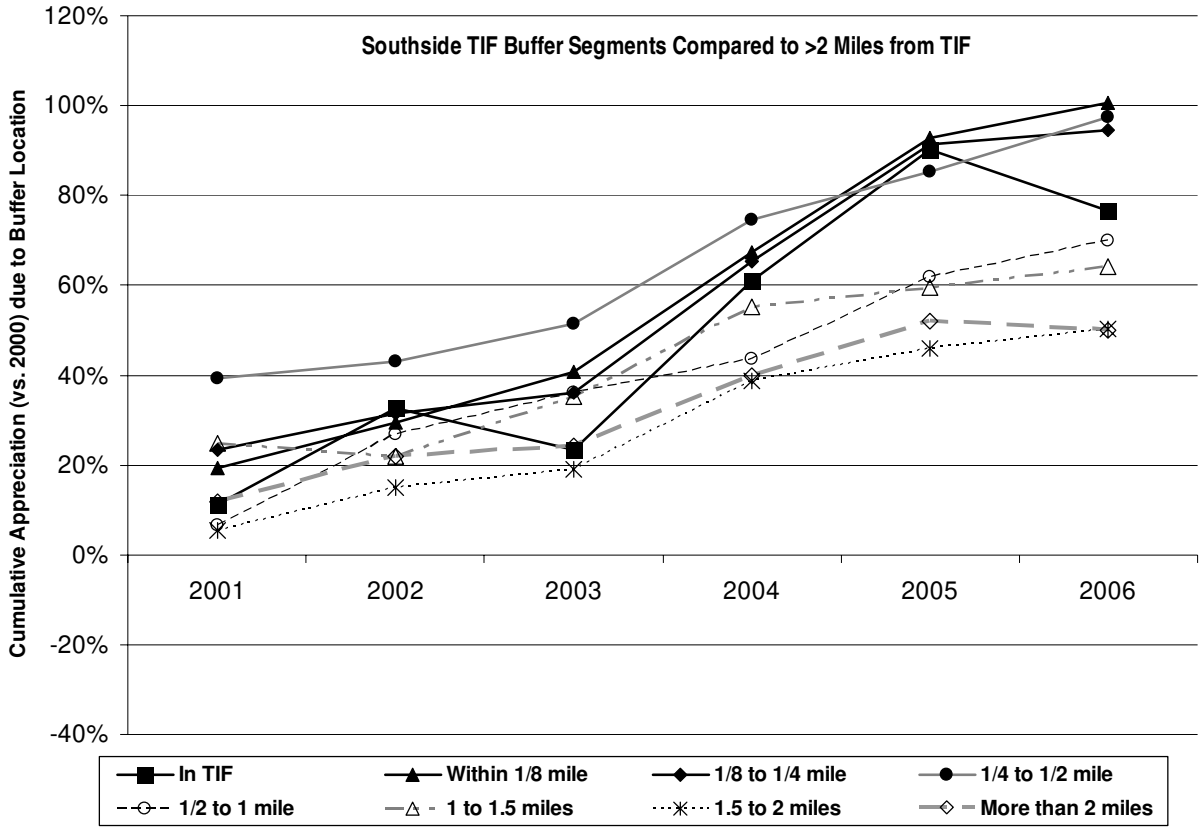
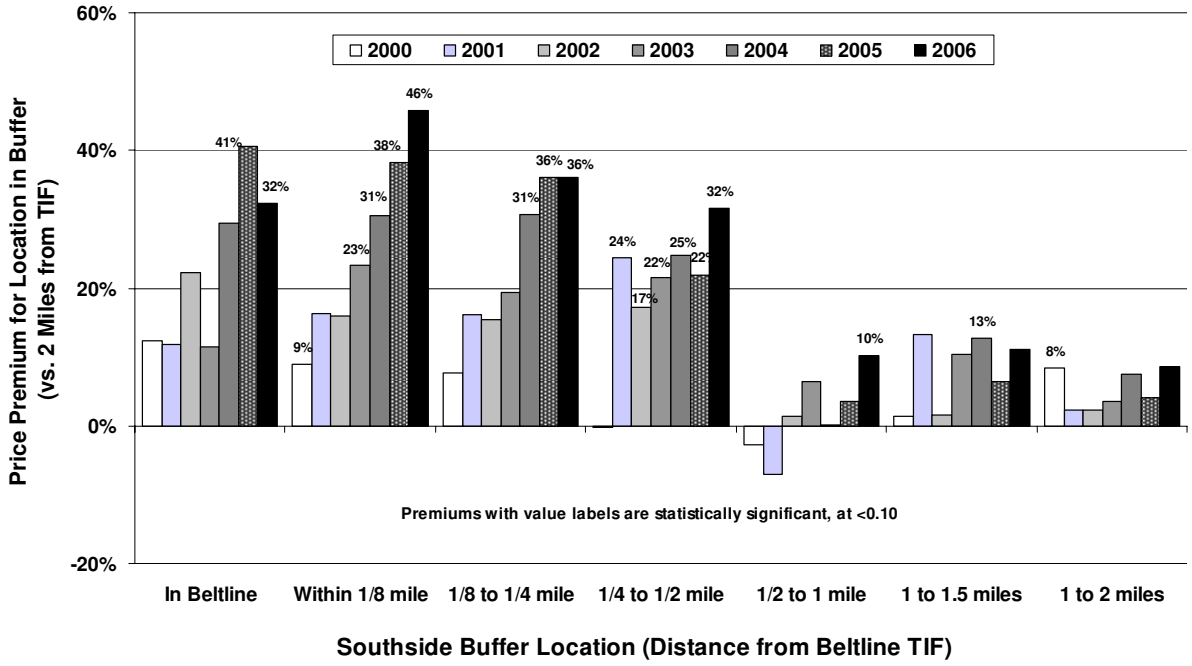


Figure 7. Southside Price Premiums for Being Located near the Beltline TIF Compared to Being More than 2 Miles from TIF, by Year, 2000-2006



[1] In Georgia, tax increment financing districts are called "tax allocation districts."

[2] Because Fulton County property records were used to conduct this analysis, the very small portion of the city lying in DeKalb County is not included in the price analysis.

[3]Excluded sales include those involving: relatives, divorce, or related companies; legal difficulties or foreclosure; a bank as seller/buyer; land contracts or a quit claim deed or that did not include clear title; a person with adjoining property; property that was burned or razed after the sale; a deed of gift; persons having adjoining property; burned or razed property after sale; trades of property; portfolio sales; partial interests; life estates; or multiple parcels that were sold together for an overall price (so that a per-unit price was unavailable).

[4] The OLS results without the robust estimator were very similar, with the standard errors affecting significance for only a few variables. Moreover, the effect on significance was generally quite modest.