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Generosity in Ohio
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Racing to the Bottom?: The Impact of Intrastate Competition on Tax Abatement Generosity in Ohio

Mark K. Cassell¹ and Robert C. Turner²

Abstract
Does intrajurisdictional tax competition lead local governments to offer larger tax abatements to firms? The authors build upon the traditional literature that models tax abatements as a negotiation between individual governments and firms by including systemic political and economic trends affecting the bargaining power of local governments and businesses. The authors use a longitudinal data set from 1983 to 2004 with detailed information on the 4,408 individual tax abatements negotiated between local governments and firms to examine how tax abatement generosity varies in response to the relative bargaining position of governments and firms. They find that as Ohio has increased the number of local governments able to offer tax abatements, local governments have offered larger abatements to firms.

Keywords
economic development, economic development competition, tax abatement, enterprise zone, federalism, Ohio

What happens when governments compete for firms? One answer is that competition creates incentives for governments to improve, forcing the public sector to become more efficient and to offer a more attractive basket of goods with which to lure companies (Tiebout 1956; Peterson 1981). An alternative view is that competition between governments is harmful because it allows companies to play governments off of one another, thereby increasing firms’ power to shift costs and risks from the private sector to the public (Eisinger 1988; Donahue 1989; Hacker 2008). In this article, we address the question of what happens when governments compete for firms by offering tax abatements.

Tax abatements are one of the most widely used economic development policies at the state and local levels (Dalehite, Mikesell, and Zorn 2005). Tax abatements provide temporary relief from property taxes to firms in return for investing in selected manufacturing, commercial, and/or retail parcels. Unlike other strategies to attract businesses, such as investing in education or infrastructure, tax abatements do not require additional public revenues up front. Proponents of tax abatements argue that the foregone tax revenue is not a real cost since the investment would have gone elsewhere without

¹Kent State University, Kent, OH, USA
²Skidmore College, Saratoga Springs, NY, USA

Corresponding Author:
Mark K. Cassell, 302 Bowman Hall, Kent State University, Kent, OH, 44242, USA
Email: mcassell@kent.edu
the abatement and that the economic benefits of
the new development will outweigh the costs of
the foregone revenue (Black 1991; Wolkoff 1983).

Implicit to this view is the idea that tax
abatements are more likely to prove beneficial
if local governments can attract firms without
compromising their ability to provide public
goods in the future (Weber 2007). While con-
siderable theoretical and empirical research has
been conducted on the usage of tax abatements
(Wolkoff 1983; Wolman and Spitzley 1996;
Anderson and Wassmer 2000; Reese 2006), rel-
atively little research has been conducted on the
factors affecting the size or generosity of tax
abatements (although see Byrnes, Marvel, and
Sridhar 1999).

Traditional explanations of tax abatement
generosity describe it as a negotiation between
local governments and private firms whereby
the outcome is determined by the relative
power of each side (Byrnes, Marvel, and
Sridhar 1999; Lynch 1995). Scholars conceptual-
ize the negotiation process using different mod-
els with competing emphases. Market-centered
models focus on capital mobility, competition
of localities, and asymmetry of information
(Peterson 1981; Bingham and Mier 1997). State-centered
models focus on political structures that enhance the bargaining power of gov-
ernments (Kantor and Savitch 1993). Still other
scholars use a societal-centered model focused
on growth coalitions and citizen involvement
to understand negotiations over economic develop-
ment policies such as tax abatements (Stone
1989; Clingermayer and Feiock 1990).

Although the work presented here uses a
market-centered approach, the analysis compli-
ments other theoretical approaches by explicitly taking into account how systemic factors
affect each side’s relative bargaining power.
Scholars and reformers have long theorized that
as the number of local governments with tax
abatement authority increases, the resulting
competition will increase the size of tax
abatements. The resulting intrastate or interjur-
isdictional tax incentive competition forces
local governments to increase the amount of
subsidy to the firm in excess of what would
have been sufficient to make them invest, thus
creating a race to the bottom (Burstein and Rolnick 1995; Glickman and Woodward
1989; Goetz and Kayser 1993; Hovey 1986;
Lynch et al. 1996). However, it has not been
empirically demonstrated that individual abate-
ments become more generous as competition
increases.

This article proceeds as follows. First, we
review the scholarship on tax abatements. Sec-
ond, we develop a model of tax abatement gen-
erosity that takes into account the bargaining
power of local governments and firms. Third,
we test our model using the Ohio Department
of Development data set of 4,408 agreements.

Scholarship on Tax Abatements

Tax abatements reduce the property tax liability
for selected economic activities for a fixed time
period. The intent of tax abatements is to
induce investment and generate jobs within a
particular jurisdiction, as opposed to reduce
taxes. Wolkoff (1983) suggests that tax abate-
ments are popular among local governments for
a combination of internal and external factors.
Internally, tax abatements are administratively
simple to implement and are one of the few
tools available to local governments that can
alter firms’ cost functions. Externally, the use
of tax abatements by neighboring jurisdictions
increases pressure on local governments to also
make use of the tax policy tool. Property tax
abatement programs are used by 35 states
(Dalehite, Mikesell, and Zorn 2005) and 54 per-
cent of all cities (Reese and Rosenfeld 2004).

The widespread usage of tax abatements is
surprising giving the paucity of evidence as to
their effectiveness. Peters and Fisher’s (2004,
32) meta-analysis of the past 40 years of
research on the effectiveness of tax incentives
concludes that “the best case is that incentives
work about 10 percent of the time, and are sim-
ply a waste of money the other 90 percent.”
While there have been numerous calls for states
to end tax incentive competition (Burstein and
Rolnick 1995; Heartland Institute 1995), it is
not likely that any individual state would uni-
laterally disarm or that a national ban could
pass constitutional muster (Fisher and Peters 1998).

Moreover, recent scholarship has argued that tax abatements, if properly implemented, might prove a useful economic tool. Bartik (1991, 2007) has argued that the economic benefits of tax abatements could outweigh the costs if the abatements are offered in economically distressed areas (see also Gramlich 1997; Fisher and Peters 1998; Anderson and Wassmer 2000). Given the seeming inevitability of tax abatements, Weber (2007) argues that states and localities need to negotiate good deals in order to ensure that communities benefit from granting tax abatements.

However, the “negotiate better deals” perspective overlooks how communities vary in their bargaining position vis-à-vis business. State economic development programs that began targeted at economically distressed areas have systematically expanded over time to include less- or noneconomically distressed areas either to build political support with the state legislature (Copeland and Meier 1984) or as a shift in economic development strategy from poverty reduction to growth promotion (Talanker, Davis, and LeRoy 2003). As the number of local governments with tax abatement authority increases in a state, so does the potential for local governments to compete with one another for firms.

Among the majority of economists, it is accepted that taxes have a larger impact on intrametropolitan than interstate business location decisions (Bartik 2007). Anderson and Wassmer’s (2000) study of metropolitan Detroit found that when firms were offered tax abatements by the downtown area, they would subsequently ask a neighboring suburb to match the offer. Once a jurisdiction offers tax abatements, other neighboring jurisdictions engage in copycat behavior. Goetz and Kayser (1993) theorize that competition among local governments should increase the size of tax abatements, in excess of what would have been sufficient to make them invest. The resulting intrastate or interjurisdictional incentive competition creates a race to the bottom, negatively affecting all communities (Burstein and Rolnick 1995; Glickman and Woodward 1989; Hovey 1986). However, no study has empirically documented the impact of intrastate incentive competition on tax abatement generosity.

**Tax Abatements in Ohio**

The evolution of tax abatements in Ohio is very similar in other states. In 1981, Cleveland Mayor George Voinovich and East Cleveland Representative Ike Thompson drafted enterprise zone legislation to allow local governments in urban areas of high unemployment to offer tax abatements to employers who opened or expanded operations and hired at least 50 percent of workers who were on unemployment or welfare. Over time, the underlying rationale of Ohio’s enterprise zone program shifted from helping distressed urban communities to reducing the costs of Ohio’s tangible personal property tax and improving the competitiveness of the state overall (Bahl 1996). As a result, the number of enterprise zones in Ohio increased from 14 in 1983 to 359 in 2004. An editorial in the *Dayton Daily News*, September 24, 2006, opined, “When [enterprise zones] were first proposed a couple of decades ago, they were supposed to be only in the most blighted areas of the biggest cities. Now they are all over the state, by the hundreds. In some cities, finding spots that are not enterprise zones is more difficult than finding spots that are.”

The expansion of enterprise zones produced intense interjurisdictional tax competition for employers (Hill 1994). While the justification to expand the enterprise zone program was to increase Ohio’s competitiveness, its primary impact has been to affect the internal distribution of firms within the state. According to the Ohio Department of Development’s (1997) own analysis, from 1982 to 1996, 446 enterprises with 23,963 employees proposed either closing or reducing Ohio facilities to relocate to sites in an enterprise zone elsewhere in the state, compared to only 97 enterprises that closed facilities outside of Ohio to locate to an enterprise zone site in Ohio.
The autonomy of local governments, the increase in the number of governments with tax abatement authority, and the longitudinal data set make Ohio the ideal case for examining how tax abatement generosity varies in response to the individual characteristics of local governments and firms, as well as the systematic political and economic changes, most notably competition. In Ohio, the authority to issue tax abatements and set the cost of incentives resides with local government. Local governments apply to the state to receive enterprise zone certification. Once certified as an enterprise zone, local governments can exempt up to 100 percent of a firm’s investment in land and construction (real property) and machinery and inventory (personal property) from property taxes for a period of up to 10 years. Local governments negotiate the size and duration of tax abatements based on their evaluations of the benefits and costs of each individual project. Each local government must decide how generous an offer to make in order to win the firm, knowing that its generosity comes at the cost of less revenue for schools and increased taxes on citizens and nonexempted firms. For firms, the local property tax abatements are five times larger than the state tax credits and are thus the primary benefit of the state’s enterprise zone program (Peters and Fisher 2002).

In terms of program design, Ohio is very similar to the other 34 states with tax abatement programs. In Ohio, the local government awards the incentives, as in 28 other states (Dalehite, Mikesell, and Zorn 2005). The cost of revenues foregone is paid for by local governments, as in 28 other states. Local governments determine the amount of the tax abatement, as in 23 other states. Until 2004, the maximum duration of the abatement was 10 years, as in 21 other states. Ohio, like the majority of other states, abates both personal (machinery) and real (land) property investment. The similarity between Ohio’s and other states’ tax abatement programs makes Ohio a good case to study how interjurisdictional tax competition affects local decision making.

Unlike the majority of other states, the Ohio Department of Development has a 21-year longitudinal data set from 1983 to 2004 with detailed information on the 4,408 tax abatement agreements negotiated between local governments and firms. Each agreement details both what local governments are “paying”—the percentage and duration of the tax abatement from the local government—and what they are “getting”—the amount of new and retained jobs and real and personal capital investment promised by the firm.

**Modeling the Impact of Government and Business Bargaining Power**

Traditional explanations of tax abatement generosity describe it as a negotiation between local governments and private firms whereby the outcome is determined by the relative power of each side (Weber 2007). However, theorizing tax abatements as a negotiation between individual governments and firms is incomplete because it overlooks how their power is affected by systemic political and economic trends that affect all governments and firms. For example, if the state increases the number of local governments with tax abatement authority, it diminishes the negotiating power of a single local government as firms can play local governments off of one another. Conversely, when the economy grows rapidly, it diminishes the negotiating power of a single firm.

**The Bargaining Power of Local Governments**

Local governments seek to offer the smallest possible tax abatement necessary to attract a potential firm. A local government’s bargaining power is determined by the individual characteristics of the local government and systemic factors affecting all local governments.

The two most important characteristics affecting the bargaining power of individual local governments are their socioeconomic and fiscal conditions. Economically distressed communities must offer larger tax abatements to offset perceptions of negative business climate
or compensate for locational disadvantages (Byrnes, Marvel, and Sridhar 1999; Rubin and Rubin 1987). We measure economic distress using per capita income and the percentage urban from the National Center for Education Statistics (2005), which utilizes U.S. Census data.  

Fiscal factors also affect a local government’s bargaining position vis-à-vis business. Although firm location decisions are driven by many factors, higher tax rates can place communities at a competitive disadvantage in attracting firms (Bartik 2007). Determining a government’s effective tax rate is difficult since it is the product of statutory tax rates, assessment practices, and abatements. There is no uniform measure of effective tax rates across local governments in Ohio, so we measure tax rates using each government’s statutory property millage rates. Byrnes, Marvel, and Sridhar (1999) found that communities with higher millage rates offered larger abatements to overcome the perceived negative impact of higher rates on their business climates. Second, a local government’s negotiation position is affected by the size of the existing tax base. Communities with larger tax bases have more flexibility or leverage in negotiating abatements with businesses than do communities with smaller tax bases, which are mostly in rural and poor urban areas. We measure the size of municipalities’ tax bases, henceforth referred to as tax capacity, by dividing their total property values by their populations. The annual personnel property millage rates and tax bases are from the Ohio Department of Taxation (2005).

However, the bargaining power of a local government is affected by the extent of interjurisdictional tax incentive competition at the state level. As the number of governments with tax abatement authority increases, a firm’s threat to shift its operations to another community that is offering a larger abatement becomes more credible (Anderson and Wassmer 1995; Goetz and Kayser 1993; Gordon 2007; Wolkoff 1983). We measure competition as the cumulative number of municipalities in Ohio that have offered tax abatements under the enterprise zone program. The measure captures the number of communities with both the legal authority to offer abatements and the political willingness to offer incentives to firms. Once a local government offers a tax abatement, it is increasingly likely to offer an abatement again (Reese 2006; Byrnes, Marvel, and Sridhar 1999). The competition variable equals the cumulative number of local governments in the entire state that have offered tax abatements to date. The annual state competition variables were calculated using the Ohio Department of Development (2005) Enterprise Zone Agreements Database.

The Bargaining Power of Business

Businesses seek to obtain the largest possible tax abatements from local governments. Firm bargaining power is shaped by the individual characteristics of the firm seeking the tax abatement and by systemic factors affecting all businesses.

At the individual level, firms that offer a larger economic impact have more bargaining power to negotiate large tax abatements from local governments (Byrnes, Marvel, and Sridhar 1999). When a firm signs an abatement agreement with a local government, it states the number of new jobs it promises to create, the number of retained jobs, the dollar value of personal property capital investment, and a dummy variable coded 1 if a school agreement was signed, to measure the economic impact of an individual firm. The data on each individual firm are taken from the Ohio Department of Development (2005) Enterprise Zone Agreements Database.

Just as the number of municipalities with tax abatement authority affects the relative power of local governments, state economic conditions affect the relative power of an individual firm. Our conversations with local
development officials suggest that when the economy is expanding, firms’ ability to extract concessions from local governments is diminished. In contrast, when economic times are tough and fewer firms are expanding, those firms can demand larger abatements. We measure state economic conditions using the annual percentage change in Ohio’s gross state product (GSP) from the previous year, from the U.S. Census.

Table 1 summarizes the individual and systemic forces affecting the bargaining power of local governments and businesses. Our model is consistent with theoretical accounts of incentive competition (Feiock 2002; Markusen and Nesse 2007). Implicit to our analysis is that local governments and businesses are rational—that is, they attempt to maximize the economic benefits they receive—and that they respond in predictable ways to changes in political and economic conditions.

**Dependent Variable: Tax Abatement Generosity in Ohio**

To date, the majority of research on tax abatements has focused on their usage rather than on the terms or generosity of the abatements. The one exception, Byrnes, Marvel, and Sridhar’s (1999) study of abatements in Ohio, only examined abatements granted in 1993–1994 and thus could not consider the systematic influences of competition and state economic conditions. The exclusive study of usage is an oversight since it is not the usage of tax abatements per se that undermines a local government’s ability to provide public services but rather the generosity of the abatement. Generosity of tax abatements can be measured in several ways. One option is to use the dollar amount of investment abated from the property tax rolls. Thus, the generosity of a firm receiving an 80 percent abatement on a $1 million investment would be recorded as the $800,000 removed from the town’s property tax rolls. However, the problem with using the dollar value is that the level of generosity is determined more by the size of the firm’s investment than by the percentage of the investment abated by the local government. A second approach to generosity is to use the percentage of a firm’s investment that a local government exempted from local property taxes, as Byrnes, Marvel, and Sridhar did in their study of tax abatements in Ohio. While the percentage abated is an improvement on the dollar value, it omits a crucial piece of information affecting the generosity of local governments, the duration of the abatement. In Ohio, local governments can exempt up to 100 percent of a firm’s investment for a period of up to 10 years. Thus, we measure generosity by combining the percentage and duration of the abatement. By not including the value of the firm’s investment in our measure of generosity, a local government that abated 100 percent of a firm’s $1 million investment would be considered more generous than a local government that abated 60 percent of a firm’s $100 million investment even though the latter would have a more profound impact on the tax rolls. Notwithstanding these limitations, we believe our measure offers the best estimate of the abatement generosity of local governments.
We measure tax abatement generosity in two steps. First, we multiply the percentage of a firm’s investment that is abated times the length of the abatement in years. In the Ohio Department of Development data set from 1983 to 2004, tax abatements vary from a low of 10 percent to a high of 100 percent, with a mean of 72 percent. The duration of the abatements varies from 1 to 10 years, with a mean of 7.8 years. Our measure would consider a local government that abated 80 percent of a firm’s investment for 10 years as the equivalent of another local government that abated 100 percent of a firm’s investment for 8 years. Second, we standardize this measure on a 100-point scale, where 0 is the least generous and 100 is the most generous, to facilitate comparison. The linear transformation of our dependent variable has no effect on the estimates except to make them interpretable in a percentage metric. An agreement scored 60 means the agreement was 60 percent as generous as the most generous agreement observed.

Thus, we model tax abatement generosity as a function of the local government bargaining power and the bargaining power of firms. Table 3 describes the definitions, means, and sources for the independent variables. We model tax abatement generosity formally as

\[
O = \beta_1 PCI + \beta_2 U + \beta_3 T + \beta_4 TP + \beta_5 NJ \\
+ \beta_6 RJ + \beta_7 I + \beta_8 S + \beta_9 GDP \\
+ \beta_{10} COMP + \varepsilon,
\]

where

- \(O\) is a 100-point scale measuring abatement generosity,
- \(PCI\) is per capita income,
- \(U\) is the percentage urban,
- \(T\) is the millage rate for personal property,
- \(TP\) is the per capita taxable property in the community,
- \(NJ\) is the number of new jobs,
- \(RJ\) is the number of jobs retained,
- \(I\) is the dollar value of capital investment promised,
- \(S\) is a dummy variable that measures whether a school agreement exists or not,
- \(GDP\) is the annual percentage change in Ohio’s domestic product from the previous year,
- \(COMP\) is the cumulative number of local governments that have offered tax abatements,
- \(\varepsilon\) is a random error term, and
- \(\beta\)s are estimatable parameters.

---

**Table 2. Model of Tax Abatement Generosity in Ohio**

| Variable                        | Coefficient (robust SE) | \(p > |t|\) |
|---------------------------------|-------------------------|-----------|
| Per capita income               | -0.51* (0.287)          | .07       |
| Urban                           | -0.15 (2.75)            | .95       |
| Personal millage rates          | -0.0001 (0.083)         | .99       |
| Total property value per capita | -0.159*** (0.074)       | .03       |
| New jobs committed              | 0.016*** (0.005)        | .01       |
| Retained jobs committed         | 0.003*** (0.0008)       | .00       |
| Capital investment              | 0.439*** (0.11)         | .00       |
| School agreement                | 19.099*** (1.45)        | .00       |
| State competition               | 0.01*** (0.004)         | .034      |
| Percent gross state product change | -0.059*** (0.019)    | .03       |
| Constant                        | 71.72*** 4.93           | .00       |
| \(R^2\)                         | .141                    |           |
| Observations                    | 4,408                   |           |
| Clusters                        | 624                     |           |

The method used is ordinary least squares regression, with robust standard errors clustered on local governments.\n
* \(p < .10\).

** \(p < .05\).

*** \(p < .01\).
<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>SD</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tax abatement generosity (% abated × duration in years, scaled to 100)</td>
<td>64</td>
<td>24.18</td>
<td>5</td>
<td>100</td>
<td>Authors’ calculations from Ohio Department of Development data</td>
</tr>
<tr>
<td>Per capita income in $1,000s</td>
<td>20.23</td>
<td>4.78</td>
<td>12.24</td>
<td>64.20</td>
<td>National Center for Education Statistics (2005)</td>
</tr>
<tr>
<td>Urban: percent classified as urban</td>
<td>0.76</td>
<td>0.30</td>
<td>0</td>
<td>1</td>
<td>National Center for Education Statistics (2005)</td>
</tr>
<tr>
<td>Personal millage rates</td>
<td>46.8</td>
<td>14.31</td>
<td>19.5</td>
<td>143.89</td>
<td>Ohio Department of Taxation (2005) Tax Data Series: Property Tax</td>
</tr>
<tr>
<td>Total property value per capita in $1,000s</td>
<td>15.87</td>
<td>10.534</td>
<td>1.49</td>
<td>166.68</td>
<td>Ohio Department of Taxation (2005) Tax Data Series: Property Tax</td>
</tr>
<tr>
<td>Number of new full-time jobs created</td>
<td>40</td>
<td>79</td>
<td>0</td>
<td>1,300</td>
<td>Ohio Department of Development (2005) Enterprise Zone Agreements Database</td>
</tr>
<tr>
<td>Number of jobs retained by the company</td>
<td>88</td>
<td>353</td>
<td>0</td>
<td>11,000</td>
<td>Ohio Department of Development (2005) Enterprise Zone Agreements Database</td>
</tr>
<tr>
<td>Capital investment: $10 million = 1</td>
<td>0.63</td>
<td>3.20</td>
<td>0</td>
<td>65.7</td>
<td>Ohio Department of Development (2005) Enterprise Zone Agreements Database</td>
</tr>
<tr>
<td>School agreement</td>
<td>0.14</td>
<td>0.355</td>
<td>0</td>
<td>1</td>
<td>Ohio Department of Development (2005) Enterprise Zone Agreements Database</td>
</tr>
<tr>
<td>Cumulative number of cities participating in the enterprise zone program</td>
<td>400</td>
<td>172</td>
<td>3</td>
<td>677</td>
<td>Authors’ calculations based on Ohio Department of Development (2005) data</td>
</tr>
<tr>
<td>Percentage change in Ohio state domestic product: 0.01 = 1</td>
<td>47.19</td>
<td>19.36</td>
<td>6.86</td>
<td>132.32</td>
<td>U.S. Census</td>
</tr>
</tbody>
</table>
**Method**

We use ordinary least squares regression to conduct the analysis because our dependent variable, the generosity of the individual tax abatement negotiated between the local government and the firm, is normally distributed and continuous. Since the unit of analysis is the generosity of the individual tax abatement negotiated between a government and a firm and local governments can offer more than one abatement in a year, panel data are not appropriate. An important complication presented by our data set is that we are using mixed-level data consisting of multiple tax abatement agreements within local governments. With mixed-level data, the observations within the cluster, in our case each local government, are not independent of one another. The mixed-level data violate a standard assumption in regression analysis that errors are independently and identically distributed (Milyo, Primo, and Jacobsmeier 2007, 447; see also Moulton 1990). While the failure to account for clustering does not bias the coefficients, failing to cluster respondents by geographic area has the effect of artificially reducing the size of the standard errors of the contextual variables (local tax capacity or per capita income), which increases the chance of finding a statistically significant effect when none exists.

The error terms in our dependent variable are particularly likely to be subject to this problem for two reasons. First, a local government’s present tax abatement behavior is strongly correlated to its previous behavior (Reese 2006). Second, the 679 local governments in Ohio vary significantly in how often they use tax abatements. We follow Milyo, Primo, and Jacobsmeier’s (2007, 450) recommendation and use robust standard errors clustered by local government to correct for the nonconstant error variance in the data.

Three additional methodological issues are important to note. First, we only have data on abatement accepted by firms. Abatements deemed too small will not be accepted by firms, in part because the firm could receive a larger offer from another municipality. This truncation would understate the impact of competition on abatement generosity since less-generous offers will not win. A second methodological issue is one of simultaneity. We model that generosity is a function of a firm’s level of investment, commitment to create or retain jobs, and side payments to school districts. However, it is possible that a firm’s behavior is a function of abatement generosity. While theoretically a problem, the economic development literature suggests that a firm’s investment decision is typically not made based primarily on the generosity level of the property tax abatement since state property taxes constitute a relatively small part of a firm’s expenses compared to labor and capital costs (Peters and Fisher 2002, 2004). The literature underscores that tax abatements do affect where a firm invests but only after a firm has already decided on the amount of the investment and the general region of the country. At that point, it is common for firms to negotiate among cities for the best deal (Anderson and Wassmer 2000).

Finally, we acknowledge that there are a range of factors that affect the negotiating power of governments and firms, which are not included in this analysis. For instance, companies with long-term ties to a community or firms that have already invested in heavy machinery may be in a different bargaining position vis-à-vis government than a retail firm that only recently located to the area. Unfortunately, while our data set provides a view into nearly 5,000 individual agreements, the data set does not permit us to take into account all of the factors that shape the negotiation. We hope this work leads future researchers to build on these data to study other factors missing from this analysis.

**Analysis**

Local governments’ tax abatement decisions are the product of a political economic market shaped by individual and systemic forces.

**Local Governments**

First, local governments in poorer communities, as measured by per capita income, are
more generous in their tax abatements than are local governments in wealthier areas. The coefficient on per capita income (−0.51) is negative and statistically significant. In Ohio, the poor governments pay more. A community whose income is 1 standard deviation above the mean can be 2 percent less generous than the average community, controlling for all other factors including amount of investment and jobs. Urbanization has no statistically significant effect on abatement generosity.

Second, a local government’s fiscal status affects its generosity. Our measure of statutory property tax rates has no impact on abatement generosity. As noted earlier, this may reflect the gap between statutory and effective property tax rates. However, the coefficient for total property value per capita (−0.159) is negative and statistically significant. Local governments with larger tax bases are less generous than governments with smaller tax bases. Having a larger tax base gives local governments more flexibility in deciding how aggressively they want to pursue a firm using tax abatements.

Our findings suggest that local governments in economically disadvantaged communities, whether measured by per capita income or per capita tax base, offer larger tax abatements to business than other cities do. This finding is consistent with our hypothesis that the socioeconomic and fiscal characteristics of individual governments affect their bargaining position vis-à-vis business.

**Firms**

The coefficients for the number of new jobs (0.016), retained jobs (0.003), capital investment (0.439), and the signing of a school agreement (19.09) are positive and statistically significant. The more investment, new jobs, retained jobs, and payments to the local school district a firm promises, the larger the abatement it receives from the local government. Firms whose commitments to new jobs, retained jobs, and capital investment exceed the state average by 1 standard deviation can expect agreements more generous than the state average by 1.18, 1.059, and 1.4 percent, respectively. Comparing the size of the coefficients also enables one to assess the relative value local governments place on economic benefits. A firm that promises to create 30 new jobs would receive the same size abatement as a firm that promises to retain 150 jobs or invest $10.4 million in new capital. The significant discrepancy in local governments’ generosity between creating jobs and capital investment is consistent with other accounts of the centrality of job creation to governmental decision making (Markusen and Nesse 2007). Firms that sign a school agreement receive much larger abatements.

**Systematic Influences**

Our analysis looked at two systematic factors, intrastate jurisdictional tax incentive competition and state economic conditions, that affect all governments and firms. The competition variable has a positive and statistically significant impact on tax abatement generosity. As the number of local governments offering tax abatements increases, so does the size or generosity of the tax abatements. The local government coefficient of 0.01 indicates that for every 100 new governments that enter the abatement market, tax abatement offers become 1 percent (100 × 0.01 = 1%) more generous (on a tax abatement scale coded to range from 0 to 100). A 1 standard deviation increase in the number of local governments competing leads to a 1.72 percent increase in the generosity of the abatement, controlling for all other factors in the model.

To appreciate how this might affect local communities, consider the hypothetical case of a firm that invests $10 million in new equipment. The average unscaled generosity score in our data set is 640, which can be thought of as a 64 percent abatement for 10 years (although, as noted above, it could also mean 100 percent abatement for 6.4 years). We can calculate the annual cost to local governments by multiplying the size of the investment ($10 million) by the percentage of the abatement (64 percent) and the average millage rate (0.81 percent). The resulting number, $51,840, is the annual
loss of property tax revenue from granting the abatement. A 1 standard deviation increase in our competition variable, the number of governments offering abatements, increases the generosity score by 1.72 percent from 640 to 651. If we assume the score represents a 65 percent abatement over 10 years, the increased competition translates into a reduction in local revenues of $52,650 a year for 10 years.

While the impact of competition appears small, the effect is positive and statistically significant. Furthermore, we find this result even after controlling for the locational characteristics of the firm’s investment, job commitments, the size of the investment, the overall health of the economy, and side payments by the firm to local school districts. We also find the positive relationship between competition on generosity with a data set that aggregates enterprise zone agreements across all industries and all locations in the state. Our data set does not allow us to parse out certain industries, but it raises research questions for future research.

When the enterprise zone program began in 1983, there were only 3 local governments with authority to offer tax abatements. As a result of changes in the enterprise zone program and a dramatic increase in the number of enterprise zones in Ohio, by 2004 there were 677 local governments with the authority to offer tax abatements. These policy changes have shifted the balance of power away from local government and toward business. As the number of local governments with tax abatement authority has increased, business’s threats to shift their operations to other communities have become more credible.

Second, the coefficient for GSP change (–0.059) is negative and statistically significant. When the economy is growing more rapidly, local governments offer smaller abatements to firms. Whereas incentive competition decreases the bargaining power of local governments, economic good times decrease the bargaining power of businesses. A 1 standard deviation increase in the percentage change of Ohio’s domestic product reduces abatement generosity by 1.121 percent. Using the earlier example of the hypothetical firm investment of $10 million, the 1 standard deviation increase in GSP reduces the unscaled generosity score up from an average of 640 to 634. Again, while the effect appears small, it is statistically significant and negative even after controlling for investment and locational characteristics.

**Conclusion**

Our examination finds strong evidence of a political–economic market whereby the size of a tax abatement is determined by the relative bargaining positions of governments and firms. Local governments from economically disadvantaged communities offer larger incentives than do those from more affluent communities. More economically desirable firms, as measured by the promised amounts of jobs and investment, receive larger abatements. As the number of local governments with tax abatement authority increases, local governments offer larger abatements. When the state economy is growing more rapidly, local governments offer smaller incentives.

By expanding the number of enterprise zones in Ohio, the state has fostered intrajurisdictional tax competition among local governments and altered the relative balance of power between local governments and firms. Competition increases firms’ capacity to seek rents from local governments, thus reducing the fiscal benefits from firms siting to local governmental jurisdictions and increasing the amount of “corporate surplus,” that is, the amount of subsidy to the firm in excess of what would have been sufficient to induce investment.

Hypothetically, incentive competition could harm the tax base of local governments but produce a net benefit to the state as a whole if the tax abatements were the tie-breaking factor that induced firms to invest in Ohio as opposed to another state or country. This would require that a significant portion of the firms receiving abatements were considering alternative sites outside of Ohio. Ohio’s Department of Development requires all firms receiving abatements to identify whether the project involves the relocation of employment or assets from a location in Ohio or outside of the state. According
to the department’s records, from 1983 to 2004, only 2 percent of abatements were granted to firms that relocated from outside of the state. The remaining abatements were granted to firms that relocated within the state or expanded existing facilities (Ohio Department of Development 1997). In other words, Ohio communities are overwhelmingly competing against other Ohio communities.

Our findings have two important policy implications. First, a growing body of research has identified a set of best practices for tax abatements such as reporting requirements and clawbacks (Reese and Sands 2006; Weber 2007). Our results suggest that many local governments will be substantially compromised in their ability to negotiate or enforce these best practices. Second, given the poor track record of states in keeping economic development programs targeted at economically distressed areas (Talanker, Davis, and LeRoy 2003; Turner and Cassell 2007), local jurisdictions need to place greater emphasis on engaging in collective action at the regional level to prevent interjurisdictional bidding wars among neighboring communities. There is some evidence that policy makers are working in that direction. Cleveland Mayor Frank Jackson has stressed the importance of cooperation between the city and suburbs “instead of the customary competition” (Perkins 2005). The local governments of Shaker Heights and Cleveland in Cuyahoga County have agreed not to engage in a bidding war to keep OfficeMax’s headquarters in Shaker Heights (Gomez 2005). While regional cooperation is difficult, our research suggests that without a reduction in tax abatement competition, communities will lose the fiscal benefits of economic development even when they may be successful in attracting investment.

Notes
2. The Ohio legislature expanded the program in 2004 to allow for tax exemptions for up to 15 years if the board of education of the city, local, or exempted village school district approves the number of years in excess of 10 (Ohio Revised Code Sections 5709.62 (C)).
3. Following Byrnes, Marvel, and Sridhar’s (1999) study of tax abatement generosity in Ohio in 1993–1994, we impute the socioeconomic and fiscal conditions of local governments using school district–level data. The advantage of using school districts is twofold. First, each abatement agreement includes which school district the firm is located in for tax purposes. Second, school districts more closely match the political and economic boundaries of local government than do data at either the county or zip code level.
4. While the side agreement affects the generosity of the tax abatement, the state database only indicates the presence or absence of a side agreement, not its value.
5. Although only 2 percent of firms receiving abatements through the enterprise zone program are relocations from other states, the data set fails to capture firms that would have moved to other states in the absence of the program, nor does the data set capture firms that leave Ohio. Thus, there may be greater interstate competition than is reflected in the data or our analysis.

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**Bios**

**Mark K. Cassell** is an associate professor of political science at Kent State University, where he teaches courses in public policy and administration, comparative public policy, and urban politics. His work includes *Mission Expansion in the Federal Home

Robert C. Turner is an associate professor in the Department of Government and Environmental Studies Program at Skidmore College. His research interests include economic development and state politics. He has published in journals such as State Politics and Policy Quarterly and Social Science Quarterly.