ENTERPRISE ZONES AND PROPERTY VALUES: WHAT WE KNOW (OR MAYBE DON'T)

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ENTERPRISE ZONES HAVE PROVED TO BE AN ENduring and popular item in the state and local economic development toolbox. Since 1982, at least 38 states have established enterprise zone programs (NASDA, 1988).[1] In the 1990s, the federal government entered the arena with an array of federal tax incentives under the Federal Empowerment Zone/Enterprise Community Program.

Enterprise zones are geographic areas targeted for assistance from the state to create or retain jobs, generate tax revenue, secure the state's economic base, and promote the financial health of communities in the state (NASDA, 1983). In order to accomplish these policy goals, businesses are offered a variety of incentives to locate and/or expand existing activities in those areas designated as enterprise zones. Such incentives typically include relief from government regulations, financial and technical assistance to zone enterprises, and, perhaps most important, a range of tax incentives, such as tax credits for hiring and investment and favorable tax treatment of capital gains.

Qualifying criteria for designation as an enterprise zone vary from state to state, but generally focus on distress factors, such as unemployment rates, vacancy rates, abandonment of structures, and depopulation. It seems likely that since most states select enterprise zones through a competitive process, decisionmakers also consider potential for rehabilitation or political factors.

There continues to be a lively debate in the public finance literature about whether enterprise zones are effective instruments of state and local development policy. Much of this literature has focused on whether enterprise zones succeed in boosting economic activity in zone areas, as measured by positive changes in employment and investment spending. Some studies have found evidence that enterprise zones have been successful in increasing employment and capital investment in the targeted areas, but, on balance, properly-done econometric evaluations of the economic effects of enterprise zones raise questions about their effectiveness as policy tool.

The purpose of this short survey is to summarize what is known about the effect of enterprise zones on property values; not to revisit the controversy about whether enterprise zones do or do not increase employment and investment. Although this issue has been examined in a few studies, it typically has not received the same attention as other effects of enterprise zones.

The next section briefly discusses how one might expect designation as an enterprise zone to affect property values, as well as the rationale behind using changes in property values as an outcome measure for evaluating the effects of enterprise zones. We briefly summarize some of the major empirical issues that must be addressed in properly estimating the effect of enterprise zones on property values; and summarize the findings of empirical research on the effect of enterprise zones. We conclude with some observations about directions for future empirical research.

ENTERPRISE ZONES AND PROPERTY VALUES: A SIMPLE MODEL

At first blush, designation as an enterprise zone would seem to have a fairly predictable effect on property values. To the extent that zone incentives, such as tax abatements and job training, reduce input prices in a geographic area, demand for commercial and industrial property in that area would be expected to increase. New investment might have a spillover effect; upgrading some properties in an area might make nearby properties more attractive, or it could encourage nearby property owners to upgrade their own properties.

As shown in Figure 1A, if usable sites are relatively inelastically supplied, property values should increase as individual sites are rehabilitated, upgraded or expanded.

Yet, even the simple demand and supply model suggests that the link between changes in property

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values and designation as an enterprise zone may be a bit more complicated and subtle than suggested in Figure 1A. As noted by Greenbaum and Engberg (2000), economically depressed areas are also more likely to have relatively *inelastic demand* for property due to the presence of idle resources and capacity in those areas. For example, in such areas, the opportunity cost of retaining property and maintaining some idle capacity is likely to be relatively low. In addition, the "effective" *supply* of urban property in economically depressed areas may also be *relatively elastic*. The combined effect of inelastic demand and elastic supply is shown in Figure 1B, where the "vertical shift" in demand from d_0 to d_1 is of the same magnitude as the vertical shift from D_0 to D_1 in Figure 1A. The combined effect of inelastic demand and elastic supply is to cause the "same" program to increase property values less than it does in Figure 1A. It is possible that if an area is distressed enough prior to zone designation, the effect on property values could be "small enough" to be hard to detect given the normal level of resolution of data on property values. In very distressed areas, we might see that lowering of the effective price to do business is not enough to revive interest in an area. A high initial vacancy rate might mean that new activity will make use of idle capacity instead of trying to expand capacity. Land might be plentiful enough that a modest increase in demand will not have an effect on prices.

Additional complications may arise if the zone includes residential as well as commercial property. Although zone incentives are normally limited to businesses, and hence to commercial property, one would expect designation as a zone to affect residential property values as well, though some of the effects may be offsetting. For example, the value of residential property should increase if demand for nonresidential use rises sufficiently to encourage the conversion of residential properties to a "higher" use, such as industrial, and/or if local employment increases as a result of zone designation, boosting local incomes and increase demand for housing in the zone. On the other hand, the value of residential property may fall if increased nonresidential use makes residential use less desirable, and if zoning regulations or insufficient demand prevent the conversion of residential into commercial properties.[2] (Greenbaum and Engberg, 2000).

CHANGE IN PROPERTY VALUES AS A POLICY OUTCOME MEASURE

Studies that have examined the impact of enterprise zone designation on property values have done so on the grounds that raising property values is an appropriate objective of economic development policy. Although changes in property values are clearly one of several different measures of the economic *impact* of enterprise zones, the link between changes in property values and *policy outcomes* is less direct.

Changes in Total vs. Relative Property Values

Even if there is a measurable increase in property values that can reasonably be attributed to creation of an enterprise zone, the relevant policy question is whether such a change represents a net increase in property values in the community at large or a shift in relative property values, with those in the zone gaining at the expense of those not in the zone.[3] This issue is completely analogous to the question of whether estimated increases in employment and/or investment in enterprise zones are net increases, or shifts in employment from non-zone to zone areas.

Incidence of Benefits

The incidence of benefits from increased property values would also be an issue. Although some of the gains from increased property values in the zone might accrue to zone residents, it seems just as likely that landlords living outside the zone would also benefit. Because the political rationale for creating enterprise zones is often at least ostensibly to benefit lower income residents of urban areas, in addition to knowing whether property values rose or fell, one needs to know who owns the properties whose values have changed.

Property Value Change and Degree of Economic Distress

As discussed above, changes in property values are apt to be inversely related (other things being equal) to the degree of economic distress in the area prior to its designation as a zone. Thus, almost paradoxically, areas that arguably were "most in need" of economic revitalization would also be those in which local land market conditions would be less likely to result in significant capitalization of the effects of enterprise zones into property values.

Figure 1a: **Relatively elastic demand and inelastic supply**

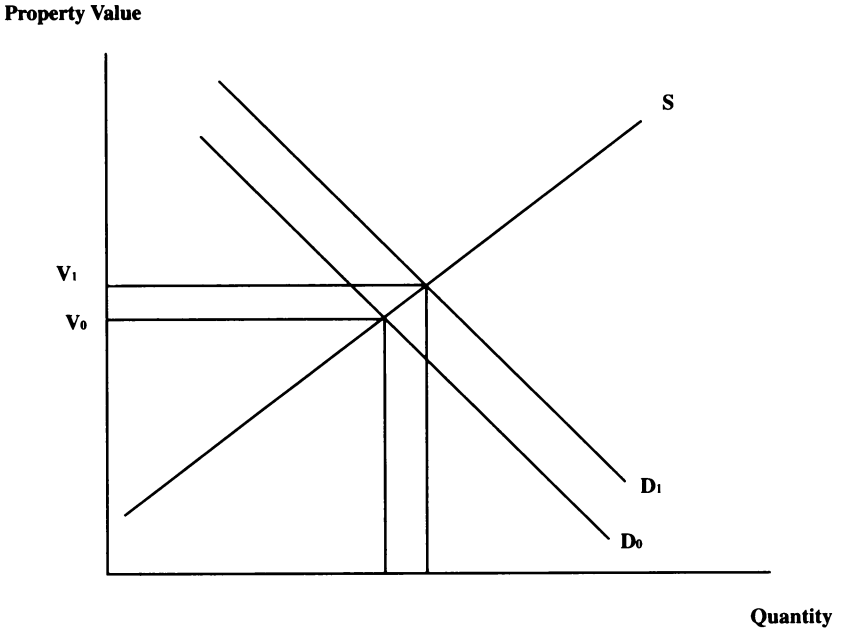
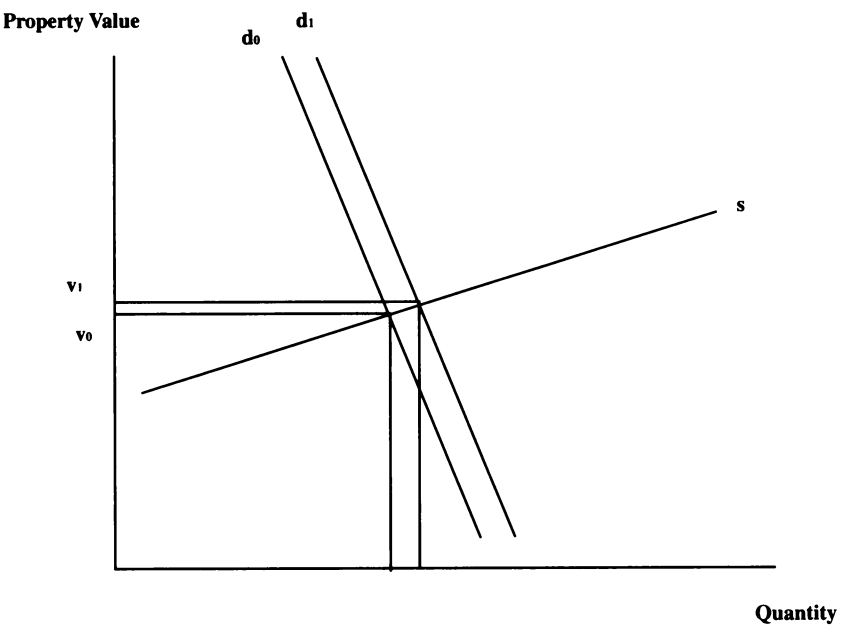


Figure 1b: **Relatively inelastic demand and elastic supply**



This latter feature of land markets complicates the use of changes in property values as policy outcome. On one hand, a quantitatively significant increase in property values that could reasonably be attributed to the creation of an enterprise zone would be evidence that creation of the zone "had an effect." On the other hand, a large increase in property values might also indicate that the zone area was not suffering from as high a degree of economic distress prior to receiving zone designation as other areas, raising questions about the target efficiency of the zone policy.

Conversely, if designation as a zone had no significant effect on property values, then several different inferences could be made. Such a result might mean that the positive effects of zone designation on residential property values were offset by some of the negative effects. Or, it might mean that the degree of economic distress in the area prior to designation as a zone was serious enough to limit the extent to which benefits from being in the zone were capitalized into real estate values, as shown in Figure 1B.

THE CHALLENGE OF EVALUATING ENTERPRISE ZONES

The foregoing comments imply that changes in property values should be used with care and preferably in conjunction with other outcome measures in evaluating the success of enterprises zones. Notwithstanding these limitations, however, changes in property values are one of several outcomes of designating areas as enterprise zones, and are an effect that is likely to be of interest to policymakers.

The empirical challenge is to devise a suitable framework for estimating the change in property values that can "reasonably be attributed to designation as an enterprise zone." In this regard, two broad issues need to be addressed. One has to with the process by which enterprise zone are selected, the other with the extent to which administratively available data on measures of outcome change (e.g., employment, investment, property values) and other variables can be matched to the geographic areas that are selected as enterprise zones.

Nonrandom Selection of Zones

As noted by Papke (1991, 1994), any properly designed empirical study of the effects of enterprise zones needs to take into account the manner in which areas are chosen or not chosen to participate in an enterprise zone program. From the researcher's perspective, an "ideal" experiment for assessing the economic effects of enterprise zones would be to randomly assign some economic areas to a "policy treatment" group that would receive the fiscal and other benefits provided by enterprise zones, and other identical (or at least similar) economic areas to a "control" group that did not receive enterprise zone benefits. Comparison of various measures of economic activity, such as employment, investment spending, and property values in the treatment group with the same measures of economic activity in the control group would then provide valid estimates of the effects of designating areas as enterprise zones.

The process by which state enterprise zone programs select economic areas does have the effect of creating "comparison" groups of economic areas that benefit from zone treatment and economic areas that do not. But, the analogy between the selection process and a true random policy experiment stops there.

Generally, zones are not chosen randomly. Instead, the states use a range of factors of economic distress as eligibility criteria (NASDA, 1986), which means that there are apt to be systematic differences between designated and non-designated areas. Because designations are made through a competitive process, additional unobserved, subjective factors, such as political considerations or perceived potential for improvement, are also likely to play a role in designation decisions. These omitted variables may also contribute to the performance of zones, leaving in question whether any observed changes in economic conditions can be attributed to zone designation.

Moreover, the mix of areas selected for zone treatment will reflect not only decisions made at the state level among applicants but also decisions made by local governments about whether to apply for zone designation. Thus, in addition to nonrandom assignment, researchers must account for self-selection bias in trying to evaluate results.

Recent research on the economic effects of enterprise zones has attempted to address the problem of nonrandom assignment in two ways. One is through the use of panel data on zones and nonzones, which permits the use of fixed-effects estimators to statistically control for unobserved factors that are specific to each zone. The basic form of the equation to be estimated in such cases is:

$$(1) \quad y_{it} = \theta_t + \alpha_i + \beta_1 EZ_{it} + u_{it}$$

where y_{it} is the outcome measure of interest in jurisdiction, or area i at time t (e.g., property values in census tract i at time t), θ_t is a series of time intercepts, α_i is the area or jurisdiction fixed effect, and EZ_{it} is a dummy variable that is set equal to 1 at the time that an area is designated as an enterprise zone, and 0 otherwise. In effect the time intercepts, θ_t control for economy-wide effects common to all zones that would be expected to affect the value of properties over time, the jurisdiction-specific intercept α_i controls for zone-specific factors that affect the relative value of property in different zones. As noted by Papke, the important advantage of this specification is that it offers a statistical way of answering the question: "How would property values in zones perform relative to what their performance would have been in the absence of zone designation?"

Another approach is to use data on the selection of enterprise zones to estimate the probability of zone designation, conditional on a number of zone characteristics. These estimates can then be used to place zones into groups according to their predicted selection probabilities. In principle, if there are enough observations, one can use this method to construct valid comparison groups of zone and non-zone areas that control for pre-designation characteristics by using the predicted probability as an index of selection.

Data Mismatch

Researchers must also deal with the fact that the geographic boundaries of enterprise zones typically do not conform to the geographical boundaries of units, such as census tracts and ZIP codes, that are used to collect data on local economic conditions. Research to date has been forced to deal with this problem on an ad-hoc basis by, for example, defining census tracts or ZIP codes as benefiting from zone designation if a portion of the tract or ZIP code is included in the boundaries of an enterprise zone. This is the best that can be done, but it is not entirely satisfactory because it can have the effect of blurring the observed or calculated difference between areas that are affected by ZIP codes and those that are not.

THE EVIDENCE

To date, there have been five studies of the effect of zone designation of property values (see Table 1). The first such study was undertaken by Erickson and Syms (1985) and focused on two adjoining zones in Manchester, England, which were designated in 1981. The authors observed industrial rental transactions in the 21 months prior to zone designation and the first 40 months of zone designation, and then compared the change in rents within the zone area and within a defined peripheral area during that period. In the 21-month period prior to designation, real rents for existing sites fell slightly throughout the entire region due to new construction and weak demand for industrial property. In the first year after designation, rents within the zones held steady, and then in the second year (second half of 1982), rents began to grow. Real rental prices peaked by the end of 1982, and then gradually declined through the study period. In the peripheral area, real rental prices dropped immediately on commencement of zone incentives as those landowners tried to keep their properties competitive with those within the zone, and fell very slightly during the study period. The authors assumed that rental prices inside and outside the zone would converge as zone incentives were phased out and eliminated after ten years.

An important limitation of Erickson and Syms' methodology is that it fails to control for many other factors that might have caused rental prices to change as they did. For instance, real rental prices prior to designation were initially lower outside of the zones than within them, suggesting that those properties were less desirable or perhaps more suitable for "lower-rent" operations. Changing economic conditions could have hit such lower-rent operations harder than the segment of the industrial market represented in the zone. New construction within the zones alone may have pushed up average rental prices. The study also did not control for prior differences in vacancy rates, characteristics of the properties and buildings, access and infrastructure, land ownership patterns, zoning or planning designations, or presence of a noxious use that may have depressed some property values.

More recently, Boarnet and Bogart (1996) have estimated the economic effects of the New Jersey enterprise zone program, using municipal-level data from 1982 to 1990 to determine whether property values grew more rapidly in cities in which a portion of the land area (typically 30 percent) had received zone designation than in other cities. The study sample included seven municipalities in the

northern part of the state in which a portion of the land area had received zone designation. These municipalities were compared to 21 other qualifying municipalities in the same part of the state, of which seven applied unsuccessfully and 14 did not apply. Boarnet and Bogart compared property values within zones and a large peripheral area (the rest of the city) to other cities that did not have any land area designated as an enterprise zone.

Unlike the earlier study by Erickson and Syms, Boarnet and Bogart use panel data techniques of the sort described above to account for idiosyncratic differences among places over time by including a variable to control for the unique, fixed characteristics of each city, as well as a jurisdiction-specific growth rate, which varies from year to year.

The authors expected to find a positive relationship between zone designation and property value because zone designation provided a factor price subsidy to activities located within a geographic area. Contrary to expectations, however, the study found that zone designation did not have a significant effect on property values, either among the qualifiers or among the applicants. The result was robust to a series of alternative specifications of the model.

Engberg and Greenbaum (1999) used data from 22 states, comparing small cities with zones to small cities without zones for the period 1980-1999 to test the hypothesis that zone designation has a positive effect on growth rates in housing values, rental prices, and vacancy rates. A dummy variable for zone designation was included to control for the influence of unobserved differences between cities with and without an enterprise zone. Additional variables that capture variation among cities in economic conditions at the beginning of the study period were included. An adjustment was made for differences in initial years of designation as an enterprise zone.

The authors conclude that the overall impact of zone designation on rental prices and vacancy rates was not significant, although, as expected, positive impacts on property values were more likely to be observed in areas that were experiencing relatively less economic distress. Thus, zone designation was found to accelerate growth in housing values in areas where housing vacancy rates were initially low, but to lower growth in housing values in areas where housing vacancy rates were initially high. The authors conjecture that the latter result may be due to a reduction in other government expenditures because of zone designation, or because firms attracted to the zone tend to make the area less attractive for residential use.

More recently, Greenbaum and Engberg (2000) examined the impact of enterprise zone designation on housing markets in six states: California, Florida, New Jersey, New York, Pennsylvania, and Virginia. Each program offers a variety of tax and other incentives (California, 2001; Florida, 2001; NASDA, 1988; New Jersey, 2001; New York, 2001; Virginia, 2001) and, except for New Jersey, allows local officials to supplement the incentives.

An interesting feature of this study is that it attempts to control for the nonrandom selection of enterprise zones by using predicted probabilities of selection to create comparison groups. Data were collected at the ZIP code level in metropolitan areas with at least 400,000 population. A probit model was estimated to determine the predicted probability of any ZIP code being designated, according to distress criteria. The ZIP codes that were predicted to be most likely and least likely designated were eliminated, leaving a middle group of ZIP codes, some of which were designated, and some of which were not. Greenbaum and Engberg argue that because zones in this group had similar pre-designation characteristics, they form a statistically valid comparison group for analysis.

Separate regressions were run for each state in which the dependent variables were growth rates in housing values, rents, and occupancy rates observed for each area between 1980 and 1990. The results are broadly consistent with those of their earlier study. Among ZIP codes that had a moderate probability of being located in areas designated as enterprise zones, designation as a zone did not have a statistically significant positive impact on the growth rate in housing values, rents, or occupancy rates. Indeed, zone designation was found to depress growth in housing values in California and Virginia, as well as the growth rate in rents in California and Florida, and the growth in occupancy rates in Florida and Pennsylvania.

The most recent bit of evidence on enterprise zones and property values is reported in Papke (2001), who extends her 1994 study of the Indiana enterprise zone program, this time considering the impact of zone designation on land values in addition to other outcome measures used in the 1994 study. Like Boarnet and Bogart, Papke is able to exploit the panel nature of her data to control for

Table 1
Summary of Studies

	Treatment group	*Control group*	*Dependent Variable(s)*	*Design*	*Finding*
Erickson and Syms (1985)	Rental transactions for 2 adjoining zones in Manchester, England, 1979-84	Rental transactions in a peripheral industrial area defined by authors	Rental prices on industrial properties	Time trend of rents of zone properties and rents of peripheral area properties; no controls.	Rents slightly higher on zone- designated properties.
Boarnet and Bogart (1996)	7 cities with zones in northern New Jersey, 1982-90	7 other cities that applied but were not chosen, and 14 other cities that qualified but did not apply, all in northern New Jersey	Property values	Random growth rates model, incorporating a jurisdiction-specific fixed effect, a jurisdiction-specific growth rate, and a time trend.	No significant effect of zone designation.
Engberg and Greenbaum (1999)	Census-designated places of population 5,000 to 50,000 with zones in 22 states, 1980-99	Places of population 5,000 to 50,000 without zones *in all states*, excluding places in counties that had zones	Housing values Residential rental prices Residential vacancy rates	Growth a function of initial characteristics, the impact of zone designation.	No significant effect on rental prices or vacancy rates. Among places with zones, housing values grew faster in areas with low initial vacancy rates, and slower in areas with high initial vacancy rates.
Greenbaum and Engberg (2000)	Zip codes with zones in the 28 largest metropolitan areas in CA, FL, NJ, NY, PA, VA	Zip codes in these same metro areas that had a comparable probability of having been designated	Housing values Residential rental prices Residential occupancy rates	Probit to determine probability of designation. Growth is a function of the annual growth rate of housing values, the impact of zone designation, and the probability of designation (used to capture varying growth rates among zones). Separate regressions for each state.	Negative effect of zone designation on some indicators in some states; otherwise, no significant effect.
Papke (2001)	Taxing districts in Indiana, 1981-1992	Taxing districts in Indiana without any zone designations	Property values	Fixed effects model, incorporating a jurisdiction-specific fixed effect; random growth model, with and without a time variable.	No significant effect of zone designation on property values.

potential problems of nonrandom selection. Her results imply that designation as an enterprise zone had similar qualitative effects in Indiana as Boarnet and Bogart report for New Jersey. Namely, zone designation does not have a significant impact on property values in either specification, and this finding is robust to a number of alternative specifications of the model, including one that includes a variable for the length of time that an area participated in the enterprise zone program.

CONCLUSIONS

Taken at face value, the results reported above imply that enterprise zones do not have a positive impact on property values. What should one make of these findings?

Many would regard these results as at least mildly surprising, but the simple model sketched out above suggests one plausible explanation. It may be that economic conditions in many areas that are ultimately chosen as enterprise zones are depressed enough to limit the amount of capitalization that is likely to occur. In addition, because most of the research to date has used residential property and rents as the indicator of change in property values, it is possible that the potential negative effects of zone designation on residential property values may outweigh the positive effects.

One cannot, however, rule out the possibility that the results could also reflect data limitations. The mismatch between the geographic boundaries of enterprise zones and the geographic boundaries of units that are used to collect data on local economic conditions poses a particularly important challenge. In principle, one way of getting around this problem might be to assemble a data base of individual properties located in zone and non-zone areas. This would be a challenge because the data base would need to be a panel of individual properties in order to deal with the issues of nonrandom selection of zones.[4]

It may be that approaches to evaluating enterprise zones up to now have aggregated too many effects at a cost of being unable to discern which types of incentives are effective under particular circumstances. For instance, it would be helpful if future research were able to distinguish between the effects of enterprise zone designation on the values of different types of property. Much of the research to date has used data either on total property values or on residential property values, and it is possible that designation as a zone could have different and offsetting effects on commercial and residential property. Alternatively, it would be interesting to see if designation as a zone had different effects depending on the mix of commercial and residential property in the zone. None of the studies performed to date aim to calculate the "value" of the incentives or differentiate among incentives. Recent work by Anderson and Wassmer (2000) suggests, for example, that not all incentives are equally effective. They found that tax increment financing authorities and downtown development authorities are more clearly related to enhanced property values than are tax incentives.

From the perspective of informing public policy, the lack of evidence that enterprise zones increase property values, combined with similar evidence that enterprise zones have little positive effect on other economic indicators, may also suggest that there are diminishing marginal returns to sole reliance on econometric evaluation of enterprise zones.

In addition to econometric studies, it may be also be useful to undertake some careful case studies, including surveys and interviews of businesses and residents in enterprise zones, as a way of understanding what these programs do (and what they fail to do). It would be particularly helpful to policymakers if such research could compare the workings of programs that, by some reasonable standard, were judged to be successful with others that were less successful.

Notes

[1] The *NASDA State Enterprise Zone Roundup* (1988) identified 37 states, plus the District of Columbia, that had established enterprise zone programs A recent Internet search revealed that at least one additional state has adopted an enterprise zone program since 1988.

[2] Nearly all urban areas in the US have zoning regulations that specify the category and intensity of uses allowed for each property. Forward-looking land use plans also designate specific uses for specific properties and can impede changes in zoning.

[3] In terms of Figure 1, the question would be whether the rightward shifts in demand in the zone were mirrored by leftward shifts in demand in other areas.

[4] An example of a study that uses such property-level data to examine the impact of housing programs on property values is the paper by Ellen et al (2001) on this panel.

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