



REGIONAL ECONOMIC ISSUES

Working Paper Series

Community Development-Fiscal Interactions:
A Review of the Literature

William H. Oakland and William A. Testa

FEDERAL RESERVE BANK
OF CHICAGO

WP - 1995 / 6

Community Development-Fiscal Interactions: A Review of the Literature

William H. Oakland and William A. Testa*

The relationships between business development and the community budget have important implications on several fronts. Through zoning decisions, impact fees, abatements and other vehicles, communities must often decide on the extent and terms with which businesses are supplied with sites for development. Such community decisions often hinge on the fiscal advantages and disadvantages that accompany business development. Advantages can arise from an enhanced local tax base and augmented revenues; fiscal disadvantage can derive from increased demands by business for local public services such as roads, police, fire, water, and sewers. In addition, business development may also give rise to added population pressures as workers follow job creation. Such population growth often has its own attendant service demands, especially for public schools.

In the context of metropolitan areas, in which almost 80 percent of U.S. population now resides, the implications of local community decisions concerning business development extend well beyond the home community.

*The authors are, respectively, assistant vice president at the Federal Reserve Bank of Chicago and professor of economics, Tulane University. This paper is drawn from a research project supported by the Metropolitan Planning Council and the Federal Reserve Bank of Chicago. The materials and findings presented here are attributable to the authors and not to their respective employers. At the Federal Reserve Bank of Chicago, David R. Allardice provided both direct assistance and program support. The authors would like to thank the following people for research assistance: Virginia Carlson, Xiao Chen, Richard Kaglic, and Robert McNamara. Thanks also to Jerry Szatan for his work on project organization, and for helpful comments. The authors also received helpful comments from members of the Regional Development Committee and the Technical Advisory Group of the Metropolitan Planning Council. Guidance on publicly available data was given by the staff of the Property Tax Division

of the Illinois Department of Revenue and the Illinois Department of employment services.

Community business development decisions impact job opportunities throughout the metropolitan area because new businesses draw their workers from wide labor sheds. For the same reason, attendant population pressures arising from business development may impact both fiscal health and quality of life in neighboring communities who may ultimately play host to workers seeking proximity to newly created jobs.

Despite the importance of the business development-local fiscal relationship, much more remains to be discovered about the behaviors of communities, population, and businesses in determining the pattern of land usage in our metropolitan areas. In moving toward a better understanding through more meaningful research, this paper reviews those studies that are relevant to community development-fiscal relationships.

Fiscal impact studies

The question of local government fiscal surplus or deficit attendant to land development has become so widely asked by local officials that an entire methodology and practice has been developed to facilitate specific inquiries and their circumstances. An extensive handbook is available to teach and assist those who would attempt to measure the fiscal impact associated with any particular property development (Burchell and Listokin 1993). This methodology has come to be known as "fiscal impact analysis", and it entails comparing the public service costs of land development in a particular use in relation to the public revenues to be derived from the property's development.

These latter-day repositories (Burchell and Listokin) of fiscal impact analysis trace back the roots of such analysis to the 1930s when it was first used to assess the efficacy of replacing urban slums with public housing. Over time, and especially with the massive wave of development which was unleashed after World War II, fiscal impact analysis became the vogue of local planning commissions who sought to maximize the fiscal well-being of their local communities (e.g. Hoyt 1949) by finding the most lucrative targets for local development. Most early efforts at estimating fiscal impact were straightforward and crude. At the build-out phase of development, the direct service costs of development were measured and compared to the local property tax revenues. Service costs were usually estimated to be the average

costs of serving the type of population generally associated with the development. For example, at the build-out phase of a residential development, fiscal impact studies of yesteryear would have assumed that a specific number of households would reside in the community and these households were assumed to contain the current U.S. average number of school age children. The costs of educating these children would have been estimated at the historic average costs of providing elementary and secondary education in the community. Today, although many fiscal impact studies continue to be done in a similar crude fashion, Burchell and Listokin report significant leaps in the sophistication of fiscal impact methodology. Rather than presuming that new public services will be provided at existing average cost, marginal cost, which includes, for example, costs of adding infrastructure capacity, is obtained through data analysis and extensive interviews with community public officials. Similarly, modeling approaches are being employed whereby year-by-year streams of costs and benefits are projected from the development's inception until final buildout, thereby yielding a far more comprehensive and dynamic picture of fiscal costs and benefits.

Regardless of the sophistication of the fiscal impact method, the finding of fiscal impact studies over all these decades has not changed dramatically. That finding is that, in most cases, there is a clear hierarchy of development usage. Generally speaking, and with important exceptions, commercial and industrial property appears to more than pay its way (Burchell and Listokin, 1993). For example, extensive studies of the impacts of individual developments, such as the Saturn plant, suggest that the local revenues of an industrial development exceed service costs by a factor of three (Bartik 1991 citing Fox and Neel 1987 and Bartik et al 1987). At the same time, low-to-middle income single family housing is usually found to be a losing proposition. The constancy of this finding has even suggested to one popular journalist that attracting commercial and industrial development has become a matter of survival for elected officials. One popular journalist has characterized this common finding as being accepted wisdom among developers of real estate, "WHY ELECTED OFFICIALS FEEL THEY MUST ENCOURAGE COMMERCIAL DEVELOPMENT OR DIE: For every \$1.00 of tax revenue that comes in from a residential subdivision, as much as \$1.22 goes out to provide services, especially schools. (By contrast, for every \$1.00 of tax revenue that comes in from commercial development, at most thirty-two cents is required in expenditures, usually for roads.)"¹

Statistical studies of fiscal impact

With respect to the finding that commercial and industrial property more than pays its own way, statistical studies from the economic and professional planning literature have tended to support the general tenor of fiscal impact studies. One recent statistical study examined 365 contiguous municipalities of northern New Jersey during the 1980s when the region gained 400,000 new jobs and 150,000 new residents (Danielson and Wolpert 1991). The study constructed several indices of benefits for each of the communities--both fiscal and nonfiscal benefits--and examined whether growth in jobs and population affected these indices. In general, employment growth was found to benefit local communities while population growth was largely detrimental. In particular, those affluent communities in the region that limited population growth were found to experience very favorable housing appreciation. With regard to fiscal benefits, own community employment growth significantly lowered property tax rates, while raising local government revenues per capita.

Enhancement of local government revenues has a somewhat ambiguous interpretation as a fiscal benefit because businesses may require increased public service expenditures including police and fire protection, thereby offsetting increased revenues which derive from an enhanced property tax base. Some ambiguity can be clarified by focusing on the growth of those public expenditures that are directly benefiting local residents, such as local school spending. While an educated workforce benefits the broader business sector to some degree, any particular business will not draw its labor force from the immediately surrounding suburb. Accordingly, school spending disparities at the community level largely benefit community residents rather than community businesses. In studying the educational spending decisions of communities in the Boston metropolitan area, Helen Ladd found that a greater proportion of commercial and industrial property sends signals to local voters that they face a lower "tax price" for education (1975). That is, for every additional dollar spent by local government on education, part of the cost will be born by out-of-community persons associated with the business property.² Fischel (1975) has found very similar results in examining school spending decisions in 56 Bergen County communities. In a recent study of the northern New Jersey area, community employment growth was found to

significantly increase school spending per pupil while, in contrast, population growth tended to suppress school spending (Danielson and Wolpert 1992).

Economists question whether fiscal surplus associated with property taxes paid by commercial/industrial development possibly distorts land use decisions. If business property tax bills exceed the marginal cost of a business moving to the community, as is the commonplace assumption of most fiscal impact analyses, inefficient location of industry will be the result. This result follows because firms will choose their location for "fiscal" or "pecuniary" reasons rather than for reasons reflecting spatial variations in costs derived from real features of the landscape and infrastructure. At the same time, the presence of industrial/commercial property may distort the "price" to residents of voting to consume those local public services that are financed by the property tax, thereby giving rise to inefficient (possibly too large) levels of local public service provision.

During the 1970s, several economists rebutted arguments that local property taxation of business property gave rise to inefficient or suboptimal allocation of business capital and industry. In arguing that the property tax is, in fact, efficient with regard to firm location decisions, Fischel (1975), Fox (1978), and White (1975) posited that local communities use their land-use zoning powers to regulate aggressive entry of businesses into the community so that, through a process of competition among communities, the taxes paid by business are equated with the marginal sum of business service demands (costs) and environmental costs borne by the community. In doing so, entry control through zoning allows communities to create a marketplace for environmental noxiousness whereby the business firm implicitly compensates local communities (through property taxes) for development costs (both fiscal and environmental). As pointed out by White (1975), this marketplace may still be characterized by spillover costs and inefficiencies in land use. For example, because noxious firms may exert a very local geographic impact, communities may tend to site industries at the boundary and corners of their jurisdiction, thereby imposing costs on other communities while reaping potential fiscal windfalls.

Implicit in this theoretical argument of inter-community competition and land use restriction is the outcome that business tax payments must exceed the costs they impose on the host community in the form of higher service costs. Otherwise, business could not compensate the community for environmental

costs. Fischel provided empirical evidence that was consistent with this implication of the theoretical model. (Fischel 1975). In studying school spending and school tax payments by household in 56 Bergen Co., New Jersey, communities, he found that 70 percent of commercial and 52 percent of all industrial property tax payments benefited residents in terms of lower taxes and greater school spending per household. In particular, a hypothetical \$1000 extra of commercial property was estimated to have resulted in \$8.60 lower property tax payment per household, and an extra \$8.10 in extra school spending per household. These results echo those conducted in a master's thesis over a sample of communities in Minneapolis-St. Paul (Litvack and Oates 1972). A subsequent study of 119 communities in the Minneapolis-St. Paul area from 1975-80 has found supporting evidence (McGuire 1987). In that study, McGuire stratified firms by their degrees of noxiousness, and found that, for a given dollar value of commercial property development, those communities experiencing growth of the more noxious types of firms tended to extract larger compensation by means of a greater falloff (or a lesser increase) in effective property tax rates.

Contrary studies

Not all empirical studies have supported the hypothesis that community pursuit of commercial and industrial property is advantageous. Julius Margolis (1956, 1957) examined both the real effective property tax rate of municipalities in the San Francisco Bay area in 1953-54 along with their total property value per resident. Margolis classified cities according to their intensity of commercial/industrial property land use, and then compared the distribution of property value and real tax rate by type of city. He found that "dormitory" cities (that is, those choosing to specialize in residential property) tended to display total property value per capita in excess of "balanced" cities (those being communities hosting both substantial nonresidential and residential property). Similarly, tax rates were found to be no higher in dormitory cities than in balanced cities. However, the Margolis evidence is far from compelling for two reasons. First, his classification scheme appears somewhat arbitrary and even slanted. In his comparisons, "industrial enclaves" are excluded. Yet there is no reason to treat such communities as anything more than nonresidential property-intensive communities. Perhaps more damaging, the Margolis studies examine tax rates over all property rather than on

residents only; yet fiscal benefits of business should be manifested only in residential property values.

More recently, a study by the staff of the DuPage County Development Department has received much public attention for its implications that the growth of nonresidential property has exerted large effects on the fiscal situation in 133 communities. Specifically, the study finds that "both residential and nonresidential land uses exhibit significant impacts on property tax levy impacts in DuPage County" and that "the areas of DuPage experiencing most rapid changes from residential to nonresidential land uses bear an additional service provision cost that translates into higher tax levies." While the results of the study have been interpreted by some as suggesting that nonresidential development has exerted a net fiscal burden, such an interpretation is well beyond the design of the study. The DuPage study does not isolate tax payments by residential property payers, but rather attempts to explain all (both residential and nonresidential) property tax payments. Again, as in the Margolis studies, payments by nonresidential property cannot necessarily be interpreted as a burden to established residents; nonresidential property payments may be compensating or benefiting local residents through the property tax system. Moreover, the study examined the growth of tax levy in absolute dollar amounts (and not the "price" or "tax rate" effect of growth and development).

Summary discussion

Most individual fiscal impact case studies conclude that property taxes are lower (declining) in communities where nonresidential property base is higher (growing). Of course, individual circumstances and conditions vary widely. This is so to such an extent that the evaluation of specific cases of development to determine community impact has become a professional practice. Statistical studies also tend to suggest that, generally, there is an inverse relation between nonresidential development and property tax rates. However, many studies do not fully account for the interactions among important variables, including the possibility that the causation between tax rates and nonresidential property runs in both directions. Moreover, even if nonresidential property tax base tends to reduce residential property tax rates, caution should be exercised before concluding that business development pays its own way from the overall fiscal perspective of the host community. It may

be possible that nonproperty taxes born by community residents increase at the same time that property tax rates decline. Also, service demands by the business sector may be rising, thereby crowding out public services enjoyed by the community's households. Such crowding out is unlikely. The greatest demands on local governments are not usually for business type services but rather are for local schools. Here, studies find that school spending per pupil tends to rise along with increased nonresidential tax base, suggesting that there are fiscal gains on the spending side of the ledger. Again, it appears on the face of it that nonresidential property base tends to defray the costs of public services consumed by households--namely local education--while also allowing some reduction in residential property tax rates. However, conclusions with regard to any overall fiscal surplus must be tempered by other considerations. As suggested by Ladd (1975), property taxes nominally paid by commercial and industrial property may be partly borne by community residents through tax shifting. More importantly, such studies do not examine interactions of land use and development but, rather, limit their inquiries to the direct impacts of own community business and population development.

Land use interaction

Even though the early studies criticizing the wisdom of attracting nonresidential property contained some methodological flaws, one critique of fiscal impact studies per se was very well founded (Margolis 1956;1957). In particular, fiscal impact studies--both numerical and the statistical--are only a partial accounting of impact. In addition to direct fiscal impact, there may be inter-relationships of land use which need to be considered, each of which has its own attendant fiscal impact. Retail stores attract customers; either by bringing them in from afar over local roads, or they must have their customers living nearby. Similarly, factory and office jobs presumably may draw on a local labor force who, in turn, must be provided with public services including schools, roads, public safety, and sanitation. Early critics of industry-oriented community planning were skeptical that any particular community could be successful in attracting land uses having a net fiscal benefit (e.g. industrial) without also bringing in and hosting those land uses having a net fiscal loss (e.g. residential) (Margolis NTJ). Community use of zoning to exclude less desirable land uses, it was believed, is incapable of withstanding pressures to convert to higher valued land uses which are economically tied to the original

land use target. And even if exclusionary zoning were successful in doing so, the target land use could, in the process, become unprofitable from the standpoint of those landowners themselves who would not have economical access to laborers, shoppers, or certain business service inputs.

It is also true of most studies to date that, for the most part, the impact of development on own community *only* is being measured, without considering whether own-community development policies such as zoning, selective tax abatement, or commercial/industrial attraction have significant environmental or fiscal spillover impact on *neighboring* communities (Fox 1978). Consideration of these effects add much complexity to the mechanisms and outcomes of suburban development policies. Some communities may be quite successful in the use of their exclusionary zoning practices by bringing in those properties having a fiscal surplus while excluding nonbeneficial property development. However, other communities may be caught unawares of the negative development spillovers resulting from actions by neighboring communities. For example, commercial development in one suburb may be accompanied by population influx into neighboring suburbs--along with attendant fiscal stress associated with increased school and sanitation capacity. More generally, widespread "develop-as-you-please" practices amongst many neighboring suburbs could, while being rational from each individual community's viewpoint, give rise to fiscal or environmental overload for the suburbs as a group.

Perhaps because of the puzzling and disappointing results of "develop-as-you-please" in many fast-growing suburban areas, questions of growth impacts have taken a new turn during the 1980s and 1990s. Many of those places whose residents commute outside of their own community for jobs and income have come to oppose growth in any and all forms. At least on the face of it, such communities are more concerned about quality of life and the physical environment than about fiscal surplus accruing from commercial and industrial property. Motivated by this new or heightened community concern, along with a recognition that developments imply many complex interactions, some studies have begun to question the fiscal impact of overall growth and development rather than differentiating the fiscal impact of different types of development on the local fisc. Unlike earlier work, these studies often claim that the benefits and disbenefits of land-use interactions are fully recognized and measured.

Very recently, Black and Curtis (1993) have conducted a study of "the local fiscal effects of growth of commercial development over time" for towns and counties in Virginia. The authors conclude that both population growth and economic growth (jobs) increase revenue-generating capacity, and that revenue capacity is the primary determinant of local government expenditure levels. Since enhanced revenue capacity makes it possible to increase expenditures without raising tax rates, the policy implication that the authors draw is decidedly pro-growth. The Black-Curtis study results are difficult to interpret in the same way that the authors do. The authors interpret greater local government spending as evidence of fiscal surplus *per se* simply because fiscal capacity is a prime determinant of government spending. This would seem to be something of a *non sequitur* because higher spending alone could reflect, either higher costs (coupled with inelastic demand for public goods) or greater business service needs rather than fiscal surplus. If anything, one would presume that greater fiscal capacity would allow residents to consume or enjoy both greater public services AND lower taxes. Accordingly, if one observed lower tax rates directly, such evidence would be more convincing. However, the authors report no attempt to statistically associate population growth (or even fiscal capacity) with residential tax rates directly. For their method to have insight, increases in fiscal capacity must be measured net of the expenditure demands which are attendant to growth. Aside from these problems, even if one agrees with their finding that overall "growth" is fiscally sound, the study does not address which particular mixture, if any, of growth (commercial vs. industrial etc.) is most beneficial to the community or to society overall.

Other recent growth-oriented studies by Ladd (1992, 1993, and 1994) examine all local governments in 247(8) large countywide observations in the U.S. from 1978 to 1985. After controlling for growth in income, jobs, changing age distribution, and changing governmental responsibilities, it is found that population growth rates exceeding one percent per year exert a large and significant impact on per capita tax revenues and revenue per \$100 of personal income. Since Ladd finds that *average* tax rates go up, and since property taxes are paid by all residents--both new and established, her evidence implies that the influx of new residents is associated with rising tax burdens for established residents. (Study controls are also in place to assure that the new tax revenues being observed are not being "exported" to nonresidents via taxation of the business sector).

Empirical work by Ladd (1992) also suggests that population exerts a negative fiscal impact in several ways. First, the costs of public services are found to have a "u-shape," that is costs per unit decline over low to moderate population densities, and raise thereafter. However, in contradiction to many engineering-type or planning studies, Ladd finds also that higher densities result in higher unit costs (after accounting for other demand side effects, including the effect of population itself). Secondly, in examining current spending (net of capital spending), Ladd (1992) also finds that high rates of population growth (at least in the short term) depress current spending and service levels. Apparently, rapidly populating communities find it difficult to keep up with population-related rising service demands. Part of this puzzle is perhaps solved in a later work by the author (1994) in which it is found that, when population rises very rapidly, declining state shares of total state-local spending for services are a prime culprit in accounting for declining levels of current services. In contrast, capital spending and interest payments rise more than proportionately. Overall, community spending per capita is found to rise along with population.

From the business side of the development equation, it is notable that the 1994 Ladd study includes variables which measure business demand for services (the ratio of countywide jobs by place-of-work, per capita). In this study, and in her 1993 study, it is found that business demands do increase overall spending growth even while population continues to significantly create fiscal pressures on residents. This latter finding cannot be taken as evidence that business does not "pay its own way" because greater spending may be accompanied by higher taxes paid by the business sector (that is, such taxes are exported outside the community). The Ladd study uses business demand (and also "tax price") as a control variable to show that population raises fiscal pressure after taking account of the impacts that business development exerts on expenditures and on tax base.

Broad-based approaches to the issue of growth and its fiscal impact, such as these, are promising in that they address the most serious shortcoming of the fiscal impact type of study; that being that one must account for the interactions among types of land use in understanding growth and development. However, such studies will perhaps become more compelling if the specific nature of the land use interactions are specified, tested, and verified.

Do jobs follow people?

One of the earliest recognized interactions of land use associated with nonresidential development is that workers, other things equal, would prefer to live within a short-to-reasonable distance (driving time) to their place of employment. For example, the monocentric model of large urban areas, which has been developed by Richard Muth (1969) and others, posits that households maximize their well-being by choosing to locate at a distance from the city center (i.e. the job location) so as to trade off commuting time to the city center for more affordable housing (which is presumably at greater distance from city center). In context of studies of the fiscal impact of nonresidential development, this attraction of household location to job location would seem to imply that, as land uses which increase job opportunities are developed, so too will the demand for housing in the vicinity of nonresidential development subsequently unfold over time. This suggests a dynamic whereby commercial development--and its attendant fiscal benefits--can potentially be followed by household growth--with its own attendant fiscal deficit. Insofar as the vicinity of labor force attraction likely includes an entire labor shed area (and exceeds the community itself), the spatial effect of this dynamic may be to encourage a geographically widespread development of both jobs and housing which does not necessarily have beneficial fiscal consequences over the long run.

Most of the existing studies of the intraurban location of jobs and people have been conducted, not by observing individual suburban communities or labor sheds themselves, but by observing central city jobs and people versus aggregate suburban jobs and people; or by examining the density of jobs and people in city versus aggregate suburban areas in metro areas over time (Bradford and Kalejian 1973; Mills and Price 1984; Cooke 1978; Mills 1986; Palumbo, Sacks, and Waslenko 1990). Generally, these studies have found little evidence that people follow jobs; or if they do find that people follow jobs, the strength of the effect is less robust than the effect that jobs have followed people to the suburbs. Nonetheless, one recent study found that, by disaggregating industries into individual industries, suburban decentralization of population is enhanced by suburbanization of jobs in the transportation, communications, public utilities, and services sectors (Thurston and Yezer 1993). (Failure to find such effects in previous studies, it is suggested, may be due to over-aggregation of industries).

So too, studies of individual household behavior have been more convincing of the "people follow jobs" effect. Greenwood and Stock (1990) examined household migration into major metropolitan areas, and migration of household from city to suburb and suburb to city within large U.S. metro areas during the 1950s, 1960s, and 1970s. Those authors found that suburban job opportunities attracted both high- and low-income households from the central city during the 1950s and 1960s, but discouraged such migration during the 1970s. Metro area immigrants were attracted by suburban jobs only for the 1970s. In a study of migration behavior of households in the San Francisco-Oakland, and San Jose areas, Brown (1975) divided land area into 300 traffic zones to examine whether households tend to move closer to job locations. That study found that 28 percent of household experiencing a change of jobs also moved to a new traffic zone with average savings of commuting time of 6.2 minutes.

Studies using observations of individual communities within a single metropolitan area are uncommon, perhaps due to the difficulties of compiling such data sets. One early exception was conducted for a sample of 100 communities in the Chicago metro area during the 1950 to 1960 period (Steinnes and Fisher 1974). Interestingly, in contrast to the dominant research finding of the prior 20 years, the authors characterized the common thinking of that time as being that employment location affects or determines residential location, while residential location has no effect on employment location. The Steinnes-Fisher study contradicted the common wisdom of the time in finding little evidence that employment growth in a community was a prime causal factor of the community's own population growth. Potential spillover whereby population attraction could result from neighboring community job growth was not examined.

One must jump ahead some 20 years before encountering a study wherein (1) individual communities within a metropolitan area are observed and (2) spillover impacts of neighboring job and population growth are examined. Luce (1994) investigated the simultaneous relationship between intraurban job and population location for municipalities in the Philadelphia metropolitan area. Although the study is primarily interested in examining the effects of local tax and spending features on job and population location, the interactions of job and residential location are also determined as some of the important behavioral mechanisms of growth and land use in a metropolitan area. In that regard, it is found that labor force location is significantly influenced by both

a municipality's own employment, and also by the location of jobs within commuting distance (although the reverse impact of labor force on job location is, once again, found to be the stronger). Of additional interest is the speed of adjustment of labor force to changed or "equilibrium" employment location. The statistical estimates suggest that within a 10-year period following a change in employment, 25 percent of the subsequent labor force or population adjustment will take place.

These studies suggest a continuing interest on the part of economic analysts in the attraction of labor force in response to a community's job development. While the literature is still somewhat young, it appears that the causation of people-follow-jobs phenomenon is significant but weaker than the reverse causality of jobs following labor force. However, there have been only a very few studies conducted over a sample of communities within a single metropolitan area, and only the latest study has appropriately measured all job creation which occurs within commuting distance of a community (rather than confining job measurement to the community itself). The importance of the job location-residence location interaction implies that these linkages may need to be accounted for in examining the fiscal impacts of business development.

Concluding Discussion

To date, economic studies of the fiscal impact of community business development are not yet definitive. The weaknesses of the existing body of literature relate to (1) the direct linkages between business development and its host community and (2) the indirect consequences of business development which follow from land use interactions between business and residential land development.

With regard to direct linkages, studies have not identified and distinguished the separate *direct* lines of causation running from business development to fiscal indicators. With regard to property tax rates, business development affects community expenditures (the numerator of tax rate) and also the tax base (the denominator). Tax base impacts of business development are unambiguously positive from a fiscal perspective. In contrast, augmented expenditures are ambiguous: those expenditures representing services to business must be distinguished from services to residents. One methodological

solution has been taken by those studies that narrow the examination to the impact of business growth on the subset of services that are unambiguously residential at the local level, namely local education. Findings here seem to suggest that local school spending is higher, and property tax rates lower, in those communities that have chosen to be the domicile of business development. However, although local school expenditures are important, local government spending on other services are also significant so that the conclusions are not definitive. (Unfortunately, many local public services are not easily classifiable as benefitting local residents versus local business.) A different approach has recently been taken which identifies the effect of business development on tax base; and which identifies residential service demand as depending on community income and demographics (Oakland and Testa 1995). This framework allows any independent influence of business growth on community expenditures to be verified. While the Oakland-Testa results are still preliminary, it appears that business service demands do not overwhelm the beneficial influence of business development on community's tax base.

With regard to the indirect linkages between business development and the community fisc, studies have long recognized that business development can be induced or be accompanied by residential development. If so, and if such residential development gives rise to local fiscal strain, these indirect linkages of business development may negate direct fiscal advantages of community business growth. While many studies have addressed the land use interactions between residential and employment location decisions, until recently few studies have examined these behaviors within the context of suburban communities in which most U.S. population now resides. The Oakland-Testa framework and results suggest that there has been a significant pull of population toward employment location in Chicago suburbs during the 1980s. Employment growth tended to give rise to population pressures, while population growth was found, in turn, to give rise to local fiscal stress. Moreover, these population pressures were experienced not only by those communities where employment had increased, but also in surrounding communities where workers chose to commute to nearby jobs. Accordingly, individual community decisions regarding business development were found to have powerful potential impacts on neighboring communities.

The weaknesses of existing studies, along with the promising results of recent statistical work, argue for further study of both direct and indirect linkages

between business development and both local fiscal health and land use decisions. The policy implications of such research are important on several fronts. First, local communities often have responsibility for making land use, public service, and tax abatement decisions with regard to business development. The fiscal calculus of these decisions affects community residents who are seeking low-cost yet abundant public services. In addition, the possibility that land use decisions encouraging business location have powerful impacts on neighboring communities lends added importance to a better understanding of the indirect linkages between business development and fiscal impact. While individual communities often decide whether or not to supply sites to for business development, the attendant impacts on job availability and on fiscal health may often fall on the remainder of a metropolitan area.

Footnotes

¹Joel Garreau, *Edge City*, Doubleday, 1991. p. 465.

²Unlike the assumption of some statistical studies and most fiscal impact studies, it appears from Ladd's study that local residents comprehend that part of local taxes imposed on businesses are shifted forward to local consumers or backward to local wage earners or landowners. In their selection of property tax rates, communities act as if 39-45 percent of the property taxes paid by industrial property are borne by such property rather than by local residents (Ladd 1975).

References

Bartik, Timothy, "The effects of property taxes and other local public fiscal policies on the intrametropolitan pattern of business location," in *Industry Location and Public Policy*, Henry W. Herzog, Jr. and Alan Schlottmann, (eds.), Knoxville: The University of Tennessee Press, 1991.

Bartik, Timothy, et al, "Saturn and state economic development," *Forum for Applied Research and Public Policy*, Vol. 2, 1987, pp. 29-40.

Black, J. Thomas, and Rita Curtis, "The local fiscal effects of growth and commercial development over time," *Urban Land*, January 1993, pp. 18-21.

Bournet, Marlon G., "An empirical model of intrametropolitan population and employment growth," *Papers in Regional Science*, Vol. 73, No. 2, pp. 135-152.

Bradford, D., and H. Kelejian, "An econometric model of flight to the suburbs," *Journal of Political Economy*, Vol. 81, 1973, pp. 566-589.

Brown, "Changes in workplace of workplace and residence," *Journal of the American Institute of Planners*, Vol. 41, 1975, pp. 32-39.

Burchell, Robert W., and David Listokin, *The Development Impact Assessment Handbook and Model*, Cambridge, MA: Urban Land Institute, 1993.

Carlino, Gerald, and Edwin Mills, "Do public policies affect county growth?" *Business Review*, Federal Reserve Bank of Philadelphia, July/August 1985.

Cooke, T., "Causality reconsidered: A note," *Journal of Urban Economics*, Vol. 5, 1978, pp. 538-542.

Danielson, Michael N., and Julian Wolpert, "Rapid metropolitan growth and community disparities," *Growth and Change*, Fall 1992, pp. 494-515.

Danielson, Michael N., and Julian Wolpert, "Distributing the benefits of regional economic development," *Urban Studies*, Vol. 28, No. 3, 1991, pp. 493-413.

Downing, P. B., and R.D. Gustely, "The public service costs of alternative development patterns: A review of the evidence," in *Local Service Pricing Policies and Their Effects on Urban Spatial Structure*, Vancouver: University of British Columbia, 1977.

DuPage County Development Department Planning Division, *Impacts of Development on DuPage County Property Taxes*, prepared for the DuPage County Regional Planning Commission, October 9, 1991.

Fischel, W., "Fiscal and environmental considerations in the location of firms in suburban communities," in *Fiscal Zoning and Land Use Controls*, E.S. Mills and Wallace E. Oates (eds.), Lexington Books, MA: 1975.

Fox, William F. "Fiscal differentials and industrial location: Some empirical evidence," *Urban Studies*, Vol. 18, pp. 105-111.

_____, "Local taxes and industrial location," *Public Finance Quarterly*, Vol. 6, 1978, pp. 93-114.

Fox, William F., and C. Warren Neel, "Saturn: The Tennessee lessons," *Forum for Applied Research and Policy*, Vol. 2, 1987, pp. 7-16.

Garreau, Joel, *Edge City*, New York: Doubleday, 1991.

Greenwood, Michael J., *Migration and Economic Growth in the United States*, New York: Academic Press, 1981.

Greenwood, Michael J., and Richard Stock, "Patterns of change in the intrametropolitan location of population, jobs, and housing 1950 to 1980," *Journal of Urban Economics*, Vol. 28, No. 2, Sept. 1990, pp. 243-276.

Hoyt, Homer Associates, *Economic Survey of the Land Uses of Evanston Illinois*, prepared for the Evanston Plan Commission, September 1949.

Kain, John F., "The distribution and movement of jobs and industry," in *The Metropolitan Enigma*, J. Wilson, (ed.), Cambridge, MA: Harvard University Press, 1968.

Ladd, Helen F., "Land use and tax policy," prepared for the Lincoln Institute of Land Policy, August 1992 (revised draft).

_____, "Fiscal impacts of local population growth, a conceptual and empirical analysis," *Regional Science and Urban Economics*, forthcoming 1994.

_____, "Population growth, density, and the costs of providing public services," *Urban Studies*, Vol. 29, No. 2, 1992, pp. 273-95.

_____, "Effects of population growth on local spending and taxes," *Research in Urban Economics*, Vol. 9, 1993, pp. 181-223.

_____, "Local education expenditures, fiscal capacity, and the composition of the property tax base," *National Tax Journal*, Vol. 28, No. 2, June 1975.

Ladd, Helen F., and Katherine L. Bradbury, "City taxes and property tax bases," *National Tax Journal*, Vol. 41, pp. 503-523.

Lavernier, William, and Brian Cushing, "A new look at the determinants of the distribution of population and employment," *Urban Studies*, Vol. 31, No. 8, 1994, pp. 1391-1405.

Litvack, James, and Wallace E. Oates, "The impact of commercial-industrial property on the fiscal position of local governments in the Minneapolis-St. Paul Area," Masters thesis, Princeton University, 1972.

Luce, Thomas F., and Anita A. Summers, *Local Fiscal Issues in the Philadelphia Metropolitan Area*, Philadelphia: University of Pennsylvania Press, 1987.

Luce, Thomas F., "Local taxes, public services, and the intrametropolitan location of firms and households," *Public Finance Quarterly*, Vol. 22, No. 2, April 1994, pp. 139-167.

Margolis, Julius, "Municipal fiscal structure in a metropolitan region," *Journal of Political Economy*, Vol. 64, June 1957, pp. 226-236.

_____, "On municipal land policy for fiscal gains," *National Tax Journal*, Vol. 9, Sept. 1956, pp. 247-257.

_____, "The variation of property tax rates within a metropolitan region," *National Tax Journal*, Vol. 9, Dec. 1956, pp. 326-330.

_____, "Municipal fiscal structure in a metropolitan region," *Journal of Political Economy*, Vol. 64, June 1957, pp. 226-236.

McDonald, John F., "Local property tax differences and business real estate values," *Journal of Real Estate Finance and Economics*, Vol. 6, 1993, pp 277-87.

McGuire, Therese J., "The effect of new firm locations on local property taxes," *Journal of Urban Economics*, Vol. 22, Sept. 1987, pp. 223-229.

Mills, Edwin S., *Studies in the Structure of the Urban Economy*, Baltimore: Johns Hopkins Press, 1972.

Mills, Edwin and R. Price, "Metropolitan suburbanization and central city problems," *Journal of Urban Economics*, Vol. 12, 1984, pp. 1-17.

Muth, Richard F., *Cities and Housing*, Chicago: University of Chicago Press, 1969,

Oakland, William H. and William A. Testa, "Does Business Development Raise Taxes: An Empirical Appraisal," *Economic Perspectives*, March/April 1995, pp. 22-32.

Oakland, William H. and William A. Testa, "Community Development-Fiscal Interactions: Theory and Evidence from the Chicago Area," *Regional Economic Issues*, WP-1995-7, Federal Reserve Bank of Chicago, August 1995.

Oakland, William H. "Local taxes and urban industrial location: A survey," in *Metropolitan Financing and Growth Management Policies*, George Break (ed.), Madison: University of Wisconsin Press, 1978.

Palumbo, G., S. Sacks, and M. Wasylenko, "Population decentralization within metropolitan areas: 1970-80," *Journal of Urban Economics*, Vol. 27, 1990, pp. 151-67.

Steinnes, Donald N., "Causality and intraurban location," *Journal of Urban Economics*, Vol 4, 1977, pp. 69-79.

Steinnes, Donald N., and Walter Fisher, "An econometric model of intraurban location," *Journal of Regional Science*, Vol. 14, 1974, pp. 65-80.

Thurston, Lawrence and Anthony M.J. Yezer, "Causality in the suburbanization of population and employment," *Journal of Urban Economics*, Vol. 35, No. 1, January 1994, pp. 105-118.

_____, Bureau of the Census, *Census of Population, 1990*.

White, Michelle J., "Firm location in a zoned metropolitan area," in *Fiscal Zoning and Land Use Controls*, Edwin Mills and Wallace Oates (eds.), Lexington, MA: Lexington Books, 1975.

_____, "Property taxes and firms location," in *Studies in State and Local Public Finance*, Harvey S. Rosen (eds.). Chicago: University of Chicago Press, 1986.

Working Paper Series

A series of research studies on regional economic issues relating to the Seventh Federal Reserve District, and on financial and economic topics.

REGIONAL ECONOMIC ISSUES

- | | |
|--|-----------------|
| Estimating Monthly Regional Value Added by Combining Regional Input With National Production Data
<i>Philip R. Israilevich and Kenneth N. Kuttner</i> | WP-92-8 |
| Local Impact of Foreign Trade Zone
<i>David D. Weiss</i> | WP-92-9 |
| Trends and Prospects for Rural Manufacturing
<i>William A. Testa</i> | WP-92-12 |
| State and Local Government Spending--The Balance Between Investment and Consumption
<i>Richard H. Mattoon</i> | WP-92-14 |
| Forecasting with Regional Input-Output Tables
<i>P.R. Israilevich, R. Mahidhara, and G.J.D. Hewings</i> | WP-92-20 |
| A Primer on Global Auto Markets
<i>Paul D. Ballew and Robert H. Schnorbus</i> | WP-93-1 |
| Industry Approaches to Environmental Policy in the Great Lakes Region
<i>David R. Allardice, Richard H. Mattoon and William A. Testa</i> | WP-93-8 |
| The Midwest Stock Price Index--Leading Indicator of Regional Economic Activity
<i>William A. Strauss</i> | WP-93-9 |
| Lean Manufacturing and the Decision to Vertically Integrate Some Empirical Evidence From the U.S. Automobile Industry
<i>Thomas H. Klier</i> | WP-94-1 |
| Domestic Consumption Patterns and the Midwest Economy
<i>Robert Schnorbus and Paul Ballew</i> | WP-94-4 |

Working paper series continued

To Trade or Not to Trade: Who Participates in RECLAIM? **WP-94-11**
Thomas H. Klier and Richard Mattoon

Restructuring & Worker Displacement in the Midwest **WP-94-18**
Paul D. Ballew and Robert H. Schnorbus

Financing Elementary and Secondary Education in the 1990s:
A Review of the Issues **WP-95-2**
Richard H. Mattoon

Community Development-Fiscal Interactions: A Review of the Literature **WP-95-6**
William H. Oakland and William A. Testa

ISSUES IN FINANCIAL REGULATION

Incentive Conflict in Deposit-Institution Regulation: Evidence from Australia **WP-92-5**
Edward J. Kane and George G. Kaufman

Capital Adequacy and the Growth of U.S. Banks **WP-92-11**
Herbert Baer and John McElravey

Bank Contagion: Theory and Evidence **WP-92-13**
George G. Kaufman

Trading Activity, Program Trading and the Volatility of Stock Returns **WP-92-16**
James T. Moser

Preferred Sources of Market Discipline: Depositors vs.
Subordinated Debt Holders **WP-92-21**
Douglas D. Evanoff

An Investigation of Returns Conditional
on Trading Performance **WP-92-24**
James T. Moser and Jacky C. So

The Effect of Capital on Portfolio Risk at Life Insurance Companies **WP-92-29**
Elijah Brewer III, Thomas H. Mondschean, and Philip E. Strahan

Working paper series continued

A Framework for Estimating the Value and Interest Rate Risk of Retail Bank Deposits <i>David E. Hutchison, George G. Pennacchi</i>	WP-92-30
Capital Shocks and Bank Growth-1973 to 1991 <i>Herbert L. Baer and John N. McElravey</i>	WP-92-31
The Impact of S&L Failures and Regulatory Changes on the CD Market 1987-1991 <i>Elijah Brewer and Thomas H. Mondschean</i>	WP-92-33
Junk Bond Holdings, Premium Tax Offsets, and Risk Exposure at Life Insurance Companies <i>Elijah Brewer III and Thomas H. Mondschean</i>	WP-93-3
Stock Margins and the Conditional Probability of Price Reversals <i>Paul Kofman and James T. Moser</i>	WP-93-5
Is There Lif(f)e After DTB? Competitive Aspects of Cross Listed Futures Contracts on Synchronous Markets <i>Paul Kofman, Tony Bouwman and James T. Moser</i>	WP-93-11
Opportunity Cost and Prudentiality: A Representative-Agent Model of Futures Clearinghouse Behavior <i>Herbert L. Baer, Virginia G. France and James T. Moser</i>	WP-93-18
The Ownership Structure of Japanese Financial Institutions <i>Hesna Genay</i>	WP-93-19
Origins of the Modern Exchange Clearinghouse: A History of Early Clearing and Settlement Methods at Futures Exchanges <i>James T. Moser</i>	WP-94-3
The Effect of Bank-Held Derivatives on Credit Accessibility <i>Elijah Brewer III, Bernadette A. Minton and James T. Moser</i>	WP-94-5
Small Business Investment Companies: Financial Characteristics and Investments <i>Elijah Brewer III and Hesna Genay</i>	WP-94-10

Working paper series continued

Spreads, Information Flows and Transparency Across
Trading System **WP-95-1**
Paul Kofman and James T. Moser

The Cultural Affinity Hypothesis and Mortgage Lending Decisions **WP-95-8**
William C. Hunter and Mary Beth Walker

MACROECONOMIC ISSUES

An Examination of Change in Energy Dependence and Efficiency
in the Six Largest Energy Using Countries--1970-1988 **WP-92-2**
Jack L. Hervey

Does the Federal Reserve Affect Asset Prices? **WP-92-3**
Vefa Tarhan

Investment and Market Imperfections in the U.S. Manufacturing Sector **WP-92-4**
Paula R. Worthington

Business Cycle Durations and Postwar Stabilization of the U.S. Economy **WP-92-6**
Mark W. Watson

A Procedure for Predicting Recessions with Leading Indicators: Econometric Issues
and Recent Performance **WP-92-7**
James H. Stock and Mark W. Watson

Production and Inventory Control at the General Motors Corporation
During the 1920s and 1930s **WP-92-10**
Anil K. Kashyap and David W. Wilcox

Liquidity Effects, Monetary Policy and the Business Cycle **WP-92-15**
Lawrence J. Christiano and Martin Eichenbaum

Monetary Policy and External Finance: Interpreting the
Behavior of Financial Flows and Interest Rate Spreads **WP-92-17**
Kenneth N. Kuttner

Testing Long Run Neutrality **WP-92-18**
Robert G. King and Mark W. Watson

Working paper series continued

A Policymaker's Guide to Indicators of Economic Activity <i>Charles Evans, Steven Strongin, and Francesca Eugeni</i>	WP-92-19
Barriers to Trade and Union Wage Dynamics <i>Ellen R. Rissman</i>	WP-92-22
Wage Growth and Sectoral Shifts: Phillips Curve Redux <i>Ellen R. Rissman</i>	WP-92-23
Excess Volatility and The Smoothing of Interest Rates: An Application Using Money Announcements <i>Steven Strongin</i>	WP-92-25
Market Structure, Technology and the Cyclicalities of Output <i>Bruce Petersen and Steven Strongin</i>	WP-92-26
The Identification of Monetary Policy Disturbances: Explaining the Liquidity Puzzle <i>Steven Strongin</i>	WP-92-27
Earnings Losses and Displaced Workers <i>Louis S. Jacobson, Robert J. LaLonde, and Daniel G. Sullivan</i>	WP-92-28
Some Empirical Evidence of the Effects on Monetary Policy Shocks on Exchange Rates <i>Martin Eichenbaum and Charles Evans</i>	WP-92-32
An Unobserved-Components Model of Constant-Inflation Potential Output <i>Kenneth N. Kuttner</i>	WP-93-2
Investment, Cash Flow, and Sunk Costs <i>Paula R. Worthington</i>	WP-93-4
Lessons from the Japanese Main Bank System for Financial System Reform in Poland <i>Takeo Hoshi, Anil Kashyap, and Gary Loveman</i>	WP-93-6
Credit Conditions and the Cyclical Behavior of Inventories <i>Anil K. Kashyap, Owen A. Lamont and Jeremy C. Stein</i>	WP-93-7

Working paper series continued

Labor Productivity During the Great Depression <i>Michael D. Bordo and Charles L. Evans</i>	WP-93-10
Monetary Policy Shocks and Productivity Measures in the G-7 Countries <i>Charles L. Evans and Fernando Santos</i>	WP-93-12
Consumer Confidence and Economic Fluctuations <i>John G. Matsusaka and Argia M. Sbordone</i>	WP-93-13
Vector Autoregressions and Cointegration <i>Mark W. Watson</i>	WP-93-14
Testing for Cointegration When Some of the Cointegrating Vectors Are Known <i>Michael T. K. Horvath and Mark W. Watson</i>	WP-93-15
Technical Change, Diffusion, and Productivity <i>Jeffrey R. Campbell</i>	WP-93-16
Economic Activity and the Short-Term Credit Markets: An Analysis of Prices and Quantities <i>Benjamin M. Friedman and Kenneth N. Kuttner</i>	WP-93-17
Cyclical Productivity in a Model of Labor Hoarding <i>Argia M. Sbordone</i>	WP-93-20
The Effects of Monetary Policy Shocks: Evidence from the Flow of Funds <i>Lawrence J. Christiano, Martin Eichenbaum and Charles Evans</i>	WP-94-2
Algorithms for Solving Dynamic Models with Occasionally Binding Constraints <i>Lawrence J. Christiano and Jonas D.M. Fisher</i>	WP-94-6
Identification and the Effects of Monetary Policy Shocks <i>Lawrence J. Christiano, Martin Eichenbaum and Charles L. Evans</i>	WP-94-7
Small Sample Bias in GMM Estimation of Covariance Structures <i>Joseph G. Altonji and Lewis M. Segal</i>	WP-94-8

Working paper series continued

Interpreting the Procyclical Productivity of Manufacturing Sectors: External Effects of Labor Hoarding? <i>Argia M. Sbordone</i>	WP-94-9
Evidence on Structural Instability in Macroeconomic Time Series Relations <i>James H. Stock and Mark W. Watson</i>	WP-94-13
The Post-War U.S. Phillips Curve: A Revisionist Econometric History <i>Robert G. King and Mark W. Watson</i>	WP-94-14
The Post-War U.S. Phillips Curve: A Comment <i>Charles L. Evans</i>	WP-94-15
Identification of Inflation-Unemployment <i>Bennett T. McCallum</i>	WP-94-16
The Post-War U.S. Phillips Curve: A Revisionist Econometric History Response to Evans and McCallum <i>Robert G. King and Mark W. Watson</i>	WP-94-17
Estimating Deterministic Trends in the Presence of Serially Correlated Errors <i>Eugene Canjels and Mark W. Watson</i>	WP-94-19
Solving Nonlinear Rational Expectations Models by Parameterized Expectations: Convergence to Stationary Solutions <i>Albert Marcet and David A. Marshall</i>	WP-94-20
The Effect of Costly Consumption Adjustment on Asset Price Volatility <i>David A. Marshall and Nayan G. Parekh</i>	WP-94-21
The Implications of First-Order Risk Aversion for Asset Market Risk Premiums <i>Geert Bekaert, Robert J. Hodrick and David A. Marshall</i>	WP-94-22
Asset Return Volatility with Extremely Small Costs of Consumption Adjustment <i>David A. Marshall</i>	WP-94-23

Working paper series continued

- Indicator Properties of the Paper-Bill Spread:
Lessons From Recent Experience** **WP-94-24**
Benjamin M. Friedman and Kenneth N. Kuttner
- Overtime, Effort and the Propagation
of Business Cycle Shocks** **WP-94-25**
George J. Hall
- Monetary policies in the early 1990s--reflections
of the early 1930s** **WP-94-26**
Robert D. Laurent
- The Returns from Classroom Training for Displaced Workers** **WP-94-27**
Louis S. Jacobson, Robert J. LaLonde and Daniel G. Sullivan
- Is the Banking and Payments System Fragile?** **WP-94-28**
George J. Benston and George G. Kaufman
- Small Sample Properties of GMM for Business Cycle Analysis** **WP-95-3**
Lawrence J. Christiano and Wouter den Haan
- The Fed Funds Futures Rate as a Predictor of Federal Reserve Policy** **WP-95-4**
Joel T. Krueger and Kenneth N. Kuttner
- Capital Utilization and Returns to Scale** **WP-95-5**
Craig Burnside, Martin Eichenbaum and Sergio Rebelo