

The Economics of Population Settlement: Cost of Alternative Growth Patterns

An Essay and Annotated Bibliography

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Introduction

Policies for economic development in nonmetro areas have focused on the labor force (education and health), community organization and boosterism, and subsidies of several sorts in the form of tax breaks, low-cost loans and public services to attract employers. These have not been adequate to the task as nonmetro incomes fall further behind. Current policies can be further pursued and fine tuned, but there is room for a new perspective that looks beyond nonmetro areas to the broader population settlement system of which they are a part.

Individual firms and households make the best decision they can at the margin among their alternatives. The resulting distribution of firms and households is the aggregative result of these decisions. It is possible, however, that many of the participants may find that they are not living in the kind of world they really want. Further, since most of the population is urban and has many problems of its own, it is difficult to sustain support for nonmetro development based solely on sympathy.

Any sustainable support for nonmetro development then, must make urban dwellers better off. How is that possible? Metro people are quite familiar with the trade-offs they have made between the benefits and costs of dense population. Could they have chosen from a better set of trade-offs? Is there any reason to suspect that firms and households locating in urban places do not account for all of the costs that they create?

As urban systems grow, some costs increase, such as those for water supply, for liquid and solid waste disposal, and at some point for transport. At the same time there are economies of scale and agglomeration that lower input costs and increase output values for firms. If firms had to consider this whole package, would all of them still want to locate in urban areas? What does this metro locational advantage look like relative to available subsidies offered by non-metro areas?

Other types of income transfers should also be netted out. Nonmetro areas export human capital in the form of educated young people when they migrate to urban areas.

If some nonmetro areas received some of the new growth in the total economy, how would their economies change with respect to the locational disadvantage they may now suffer? How much bigger would they have to be before households and firms would find the trade-off between amenities associated with urban places, minus congestion costs, balanced with the advantages of amenities associated with nonmetro spaces?

The essay titled "Rethinking Cost in Population Settlement Patterns," which follows this introduction, elaborates on these research questions. The information available in the literature that answers these questions is then summarized and followed by a detailed annotation of the relevant literature. More precisely, it is the literature that describes the emerging patterns of growth and answers the questions with respect to congestion costs and public service costs associated with different-sized and -density places.

The literature with respect to agglomeration economies is reported in a companion work titled *The Role of Agglomeration Economies in Firm Location: A Review of the Literature*, by Anne Selting, Christopher Allanach and Scott Loveridge. The two works are the result of a joint project under the direction of Scott Loveridge and Allan Schmid and together are a preliminary response to the questions raised in the accompanying essay and a longer essay "Strategic Planning and Population Settlement," *American Journal of Agricultural Economics* 75(5): 1160-1163 (1993). An Appendix contains a draft of an applied research/outreach proposal to involve local governments in elaboration of the consequences of alternative growth patterns.

Cost of Alternative Growth Patterns

Since there will be six Americans in 2020 for every five now, we will have to add a lot of homes, apartments, roads, sewer and water systems, telephone lines, electric power systems, schools, parks, shopping centers, workplaces, and everything else one needs in modern living. To put this in perspective, serving another 60 million Americans will be like adding again all those things listed above that we constructed during the 25 years from 1969 through 1994.

Downs, Anthony. 1994. "Infrastructure Needs." *Washington Post National Weekly Edition* March 28-April 3: S4.

The only question then, is how will we distribute this growth over the landscape. Will it be in the same pattern as we did from 1969 to 1994? If it is, what will happen to the cost of infrastructure and the cost of business production and net living amenities? Do different growth patterns have different costs? What does the literature suggest?

The question has seldom been put in this fashion. There is a literature on growth management and fiscal impact at the local level. When the taxes from new housing and business are compared to the cost of supporting public services, the balance is often negative (Burchell and Listokin 1988, DuPage County 1992, Harvey 1992). This perspective does not dispose of the issue. There is going to be growth even if the fiscal impact is negative—the only question is relative cost, and that data is scarce.

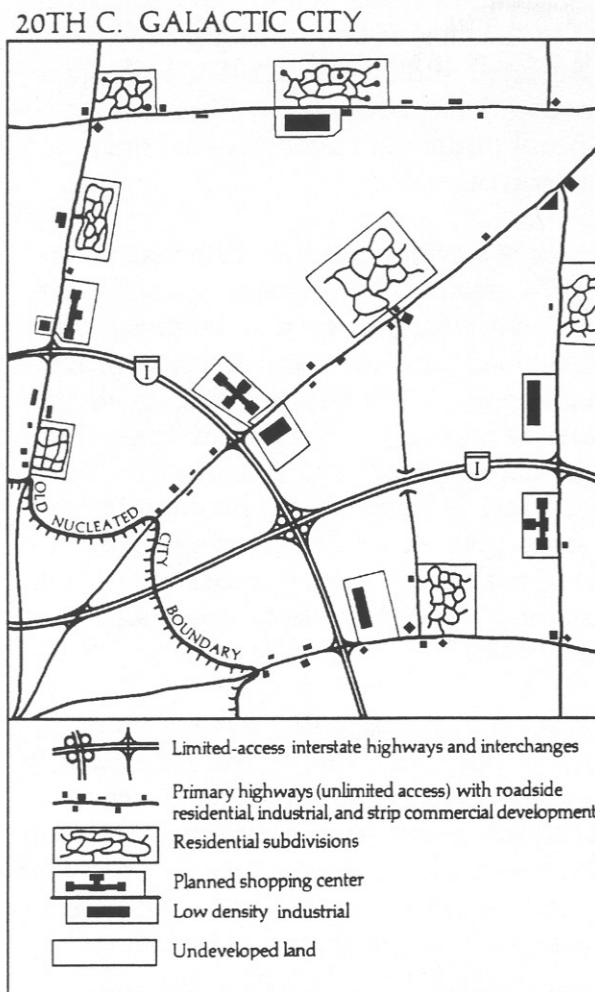
Another perspective is to compare the costs of development at different densities. This line of work peaked with the 1974 report, *The Costs of Sprawl*. The dominant development pattern was of suburbs which seemed to leapfrog about at urban fringes leaving patches of undeveloped land over which utility lines had to be built without accompanying customers. These studies concluded that low-density development was more expensive (American Farmland Trust 1986). The message mostly fell on deaf ears. The leapfrogging was simply too profitable to be stopped and eventually it filled in anyway. No doubt this private profitability was supported by public policies such as average cost pricing, which spreads any diseconomies of scale over the residents of the older declining areas rather than wholly on the new residents whose presence raised the marginal cost (Kasowski 1992, Tolley 1974).

Suburban sprawl misses the point if it is used to describe the development of the “galactic city” (Lewis 1991) or “edge city” (Garreau 1991). The galactic city is not just a growth out from some center, but is the creation of a new center with its own order (see Figure 1). It represents a new kind of balance between the advantages and disadvantages of size and density. It is a way to have short commutes, the shopping diversity of regional shopping malls, and a lot of grass between houses and between offices or campus-like groupings of high-tech firms. It is also a way to avoid the responsibility for the decaying old city centers and to escape its crime and pollution (Swasy 1994, Mieszkowski and Mills 1993).

Are these new galactic cities the best we can do? Is there any real alternative? For purposes of discussion, we will typify the present growing areas as the “New Jersey system” and its alternative as the “Mt. Pleasant system.” The New Jersey system is what is happening now—New Jersey is just its archetype. The pattern can be seen by reference to Figure 2 of northern New Jersey. The older settlements (noted in white) were suburbs of metro New York City and Jersey City.

The new galactic or edge cities are not just extensions of this old pattern, but new nodes usually formed by the intersection of interstate highways. Typical of these new areas are the “287 and 78”/Bridgewater Mall area, Whippany/Parsippany/Troy Hills at 1-287 and 1-80, and the Princeton corridor as shown in Figure 3. The area in between these new areas and the old Metro suburbs is hardly rural, but neither is it a steady progression of density from the old cores. It is part of the galactic system, the typical pattern of which is shown in Figure 1.

Figure 1. 20th C. Galactic City



Map by Peirce Lewis, Department of Geography, Pennsylvania State University, 1983.

The galactic city of the 20th century is often described as "suburban sprawl," but in fact free access to roads and automobiles. It is neither satellite nor suburb, but performs the functions of the old nucleated city. It does not look like a city to most Americans because it lacks a nucleus and has large empty spaces between its component parts. It occurs in almost all parts of the U.S.

West of the new galactic cities is a region of relative low density (solid black in Figure 2), but it appears to be filling in and if the present pattern is continued, it will be the home of some new nodes until the area from Philadelphia and Trenton to New York City is a fully integrated network of galactic cities and surrounding territory, which is hardly rural. This is the probable future.

A variant on the New Jersey pattern is in the spirit of the earlier cost of sprawl perspective. In fact, New Jersey passed the State Planning Act of 1986. Under this act the State Planning Commission approved an Interim State Development and Redevelopment Plan (IPLAN) in 1991. IPLAN envisioned an alternative to present trends (TREND) that would direct development to the older metro areas and the already established major suburban areas, instead of developing new edge cities in what is at present relatively rural areas.

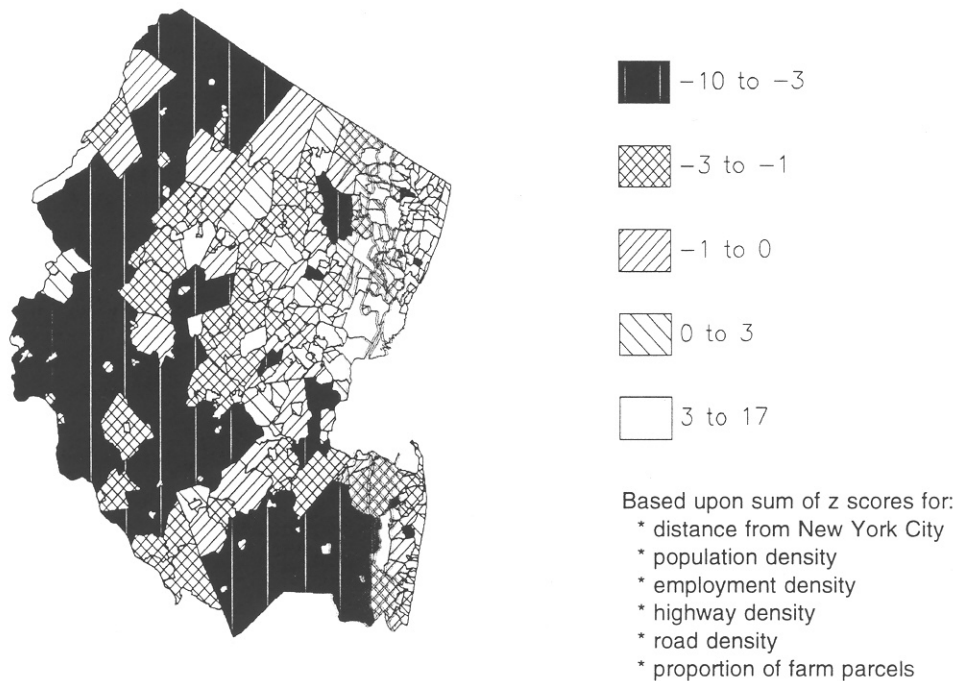
The TREND projection is for a decline in population of the old centers such as Passaic, Newark and Atlantic City. The Middlesex-Somerset-Hunterdon and Monmouth-Ocean areas are the big gainers. Between 1990 and 2010 these areas are expected to add 300,000 jobs to a base of 885,000 jobs. The IPLAN

envisages 62,000 new jobs in major urban areas and 300,000 new jobs in suburban and rural *centers* of one type or another, rather than in suburban and rural *environs*. In other words, a much more dense pattern (less sprawl) is planned.

Burchell (1992) was asked to estimate the cost impact of the projected trend patterns versus the interim plan pattern. They estimate substantial net cost savings for the planned, more compact and dense development and redevelopment. The main savings are from using already available but underutilized infrastructure in the old cities and from more compact, clustered development in the new areas. They assume that if 100 people were lost from an old city, then 100 new people could be added without any increase in cost for sewers and roads.

Not everyone would agree with this assumption. For example, where water quality standards are already violated in core cities, additional outfalls may be more costly per unit of volume. The data is primarily of a given cost of a mile of road or sewer pipe with the cost largely a function of the number of miles needed to accommodate a unit of population at different densities and different underutilized capacities. There is little data developed on the cost of adding a unit of volume to different-sized places or places as part of an existing galactic city system vs. new places. The estimates assume that people and jobs can actually be attracted to the old cities and existing suburban centers.

Figure 2. Rural Index 1970 (Northern New Jersey)



Map by Julian Wolpert, Woodrow Wilson School, Princeton University, 1991.

The more distinct alternative is to put the next 25 years of growth into what I shall call the "Mt. Pleasant pattern". It would leave the rest of New Jersey nearly as rural as it is today and put the new growth into new centers, perhaps in central or western Pennsylvania or even central Michigan, Kentucky or Idaho. Could the concentration of firms such as AT&T, Prudential, Bristol-Myers, etc., which populate the edge cities of New Jersey, just as well have started a new cluster in a Mt. Pleasant, Michigan? Do we have any clues as to what it would cost to accommodate the same population in some new clusters far away from the present ones?

Clues are all we have. Some data from New Jersey itself are illustrative. Julian Wolpert and Michael Danielson (1991) have assembled some data that can be used to demonstrate the cost of adding a given amount of population (100,000 in this case) to two areas of New Jersey they designate as sparse and dense. It just happened that from 1970 to 1987, 100,000 people were added to a set of relatively sparsely settled townships and also to a set of relatively dense townships.

This data is plotted in Figure 4 and shows that from the starting place in 1970, police expenditures were approximately \$8.60 per capita in the sparse areas and \$22.50 in the dense areas. But more to the point, when 100,000 people were added to the sparse counties, in 1987 the cost just approached the level of the dense counties in 1970. In contrast, the 100,000 extra people were associated with a rise to \$40 per capita in the dense counties. If one had a choice, it would appear that the 100,000 people added to the dense counties would have had cheaper police services if they could have found another sparse area somewhere to grow into. And the present sparse area with its new 100,000 people might appreciate it if the next decade's growth of 100,000 went somewhere else, rather than raise its costs from \$22 to \$40.

But maybe it is all made up for in more productivity and higher incomes when the new galactic cities are in the "New Jersey mode" close to the old urban centers. Paul Krugman (1991) says that concentration is evidence of increasing returns. One-third of U.S. population still lives in the original 13 colonies. Geographical concentration results from demand externalities. The circle of relationships rests on economies of scale, which means that each manufacturer wants to serve the whole market from a single location. To minimize transport costs, firms choose a location with a large local demand. Yet, local demand will be large because that is where manufacturers choose to be, thus creating a self-enforcing circle. Once a significant economic/population power base is imbedded in a geographical region, it becomes a special interest unto itself.

Krugman's analysis leaves serious doubts about what rural areas can do by themselves to change settlement patterns. It does provide for other perspectives, however. Krugman says, "An economy's form is largely shaped by historical contingency" (100). There is a certain randomness to development. Some nodes could have been in a number of other places than where they are now. He adds that institutional and cultural factors will be increasingly impor-

Figure 3. The New York Area



Map reprinted with permission from *Edge City: Life on the New Frontier*, by Joel Garreau, published by DOUBLEDAY, a division on Santam Doubleday Dell Publishing Group, Inc.

tant. Could institutional change create the conditions for a Mt. Pleasant pattern rather than a New Jersey pattern? The present pattern did not just happen and is itself a result of both individual and collective choices (Christopherson 1993), and some of the choices may not have accounted for all costs (Mieszkowski and Mills 1993). But before the institutional question is relevant, we must answer the question of whether a new pattern is desirable (and to whom).

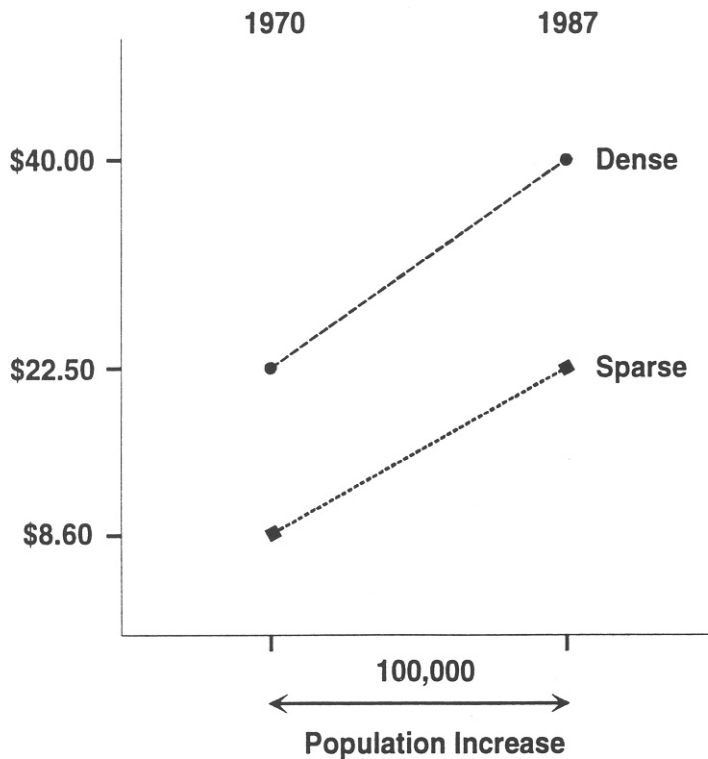
The desirability that will be politically sustaining of any new policies will have to combine the interests of both urban and rural people. The efforts of non-metro places to alter the dominant patterns of population settlement have had little effect, though we do not know if the differential in incomes might have been worse without these efforts. We don't even know how much subsidy has to be offered to overcome the first choices of business and households. We do know that the tax and other benefits offered to attract new jobs has the same effect as labor working for lower wages. Employees may get a national market wage, but after the business tax breaks and subsidized public services are taken out of the wage, the worker has paid for the job. This means higher taxes for everyone in the state or local government jurisdiction and is probably part of the taxpayer revolt that we are witnessing. People want to keep more of the money in their pay envelope and forget how they mortgaged their wage to get the job.

Manufacturing firms are primarily focused on the trade-offs of economies of scale, transport and wages in different locations. They have not given a lot of attention to the macro effects of the congestion they create. Employers pay higher wages to people to work in congested places. While this may be offset by higher profits in metro areas, these costs are included in product prices, which are paid by everyone including the people remaining in nonmetro places, and are part of the equation of U.S. competitiveness in world markets. Settlement pattern economics has wide implications.

The location of office workers who produce cleverness and information are probably more affected by the availability of networks of related services and the quality of life than the traditional economies of scale (Miller and Cote 1987, Summers and Linneman 1990, Swanson and McGranahan 1993). It is this industry cleverness that accounts for the growth of edge and galactic cities. There is no question that some threshold size and density are attractive to business and households. The only question is whether the net amenity balance represented by the edge and galactic cities can be generated in some new places distant from the present ones.

Retirement choices are also impacting settlement patterns. The positive amenities of living in nonmetro places, such as access to recreation and the negative amenities of crime and congestion, may have a different value to the retired than to working-age people.

Figure 4. New Jersey Per Capita Police Expenditures



Wolpert and Danielson 1991, 44.

The fact is that there is precious little information on the services costs of alternative patterns of population settlement. And there is even less information on the net macro consequences for individuals and firms of alternative growth patterns. Glenn Nelson hits it on the head when he observes that, “The gap in our knowledge concerning the social benefits and costs to migration is a key factor leading U.S. analysts and policy makers to tentative, lukewarm statements about the appropriate role for explicit policies.” Until we get more information, both the communities struggling to manage their growth and those suffering from decline will not realize that their struggles are interdependent. The extent of the interdependence is yet to be discovered.

A lot of people in fast growing areas have already come to the conclusion that they want little more or no growth. They are not waiting on the results of any research proposed here. They hope that they can control growth. They elect new slow-growth politicians, but these officials too seem to give way to the pressures of growth. It may slow a bit, but the force seems inexorable. The “New Jersey Pattern” is firmly entrained. The hypothesis is advanced that these urban people must become interested in rural development. The record so far is that urban people cannot control growth by their own effort alone. Perhaps the pressure must be redirected instead of wished into a benign state.

Rethinking Cost in Population Settlement Patterns

Why should the majority of people living in metropolitan areas care about rural development? Aside from the traditional concern about poverty and charitable concerns for more equal access to the good life, might there be a reason based on self interest? Do metropolitan residents suffer any consequences stemming from the relative inability of rural areas to attract economic development? Is further concentration of economic activity in metropolitan areas in the best interests of the people who live there?

Metro dwellers are well aware of the many costs associated with urban congestion and much money is spent to alleviate problems, but most cities are hard-pressed to attack underlying causes. Occasionally, a suburb will try a slow-growth policy limiting rezoning or building permits, but too often this does little more than a finger in a crumbling dike to stem the flow. Rural areas, for their part, try to attract industry through various subsidies and tax breaks. The federal government, likewise, has attempted to lure economic activity to nonmetro areas. Success has been minimal and piecemeal. We don't really know what it would take to change settlement and economic location patterns, but it appears to be more than most public budgets can afford.

If the total cost of congestion were computed and charged to firms who are relocating or expanding, would firms still choose to locate in metropolitan areas? To make informed policy decisions regarding settlement patterns it is necessary to compare the rising costs of metro congestion with the disadvantages that plague nonmetro areas. If firms save money by locating in metro areas, how large is the savings compared with the congestion costs that expansion creates? How much larger does a nonmetro area have to be before firms supplying inputs to relocating businesses are large enough to be competitive with metro areas? Is this point reached before the nonmetro area suffers diseconomies in provision of public services?

Consider the following typical scenario. Driving into Detroit on Interstate 696 you pass through rapidly growing suburbs and counties that surround the declining central city. The number of new gleaming office towers strung out along the interstate are impressive, but there are a number of consequences to this pattern of development. The capacity of the interstate as originally built is inadequate and is now being expanded at great cost. Some predict that by the time the expansion is complete, interim growth will require yet another expansion. The local feeder roads are grossly inadequate. A proposal for a special county tax on auto registration to finance local road improvements was voted down by residents in spite of near gridlock conditions. Detroit's metropolitan area has significantly higher housing costs than nonmetro areas. The long commutes may create stress on mental health and family relationships.

Metro Detroit is experiencing rising costs in water supply, sewage treatment, storm drains, and solid waste disposal. Solid waste disposal sites are increasingly hard to find and further away, again increasing costs because of the long hauls. A newly-built solid waste incinerator may never operate, because it cannot run without exceeding air quality standards for toxic emissions.

Many firms considering location and expansion do not consider the total external cost of their decision. They look at firm costs and revenues, certainly, and as a result see the continued advantage of metro locations. Some firms have moved out of the New York area to suburban Washington, D.C., for instance, because costs are cheaper despite the fact that Washington is itself a high-cost area. But would they relocate to Washington, D.C., a less-expensive but still a metro area—if they considered all the costs of the move both on employees and on the infrastructure of the people who already live there?

In addition to production cost considerations, firms must also consider household preferences. Many families now are attracted to metro areas because of social, service, shopping and cultural advantages in addition to jobs. At what point, however, are those amenities offset by urban congestion? Mt. Pleasant, Michigan, a university town of 23,000, does not have some of the cultural attractions of the Detroit area. How large would it have to be before its attractiveness as a place to live could successfully compete in the eyes of some people—recognizing that people have different tastes and values for lifestyle components.

The down side of redirecting growth may be that some folks already in Mt. Pleasant might not want urban growth and shiny office towers. Some planners and citizens believe the best growth pattern, both economically and environmentally, is to keep growth in high-density areas. But then, not all nonmetro areas of the country need to grow.

To sum up, if several of the office towers along Detroit's Interstate 696 had been built in Mt. Pleasant, would many of the people in both areas have been better off? To answer this question we need a better accounting framework to include the costs of production and marketing for businesses, the costs of public infrastructure including roads and water and waste management, the cost of commuting and housing, and the availability of consumer and cultural amenities associated with alternative population settlement patterns. Perhaps this kind of all-inclusive cost accounting for business growth and development could shed light on the controversial issue of how and where to direct growth for a better quality of life for more people.

Reprinted from CHOICES, Second Quarter 1991.

Annotated Bibliography **

1. Alonso, William. 1971. "The Economics of Urban Size." *Papers of the Regional Science Association* 26:67-83.
2. American Farmland Trust. 1986. *Density-Related Public Costs*. Washington, D.C.

The purpose of this report is to assess the difference in the cost of services between low-density residential development (one housing unit per five/10 acres) and high-density development (more than one housing unit per five acres). Loudoun County, Virginia, was chosen as the test site for the study because it has been experiencing tremendous growth since the late 1970s. The evidence gathered from this study indicates that large lot development is more costly in terms of major public services required. In addition, the report indicates that such residential growth patterns require more money for necessary services than is generated by tax revenue.

This report is also valuable in providing a methodology for assessing the costs of services to residential developments. This methodology may prove helpful in further studies that attempt to assess the cost of development growth, whether that growth is residential, commercial, or a mixture of the two.

This report's objectives were pursued using the following steps: 1) major categories of costs and revenues were identified; 2) representative demographic profiles of the residential community (based on census tract data) were developed; 3) four alternative density distributions were developed; and 4) detailed cost and revenue analyses were carried out for each of these distributions. Step four was by far the most difficult task of the study, due to problems of identification and aggregation.

The major public costs investigated in this study included: school capital, instruction, transportation, and operational costs; health and welfare; public safety; debt service; water and sewer services; and road maintenance. The major public revenues included: property taxes; other local taxes; state and federal payments. The study's cost analysis found that several major costs varied significantly and

**Material in [brackets] is commentary by the annotators. The authors wish to thank Gerald Vaughn for his bibliographic suggestions.

inversely with the density of residential development. This study made use of Burchell and Listokin's 1980 publication, *Practitioner's Guide to Fiscal Impact Analysis*, in developing the methods for estimating the costs of different patterns of development. The chart below illustrates the cost comparison ratios between rural sprawl and high density development for four categories of public goods:

Service Provided:	Provision cost ratio between areas of rural sprawl and high density
1. School operations and instructions	1.35 to 1
2. School transportation	5.59 to 1
3. Road construction and maintenance	2.95 to 1
4. Water and sewer services	2.95 to 1

The very high ratio in category two supports one of the findings of the study, which is that a large number of children in low density developments significantly increases the costs of low-density development. If the families in these low-density areas have a large number of children, then the high costs of educational needs (categories 1 and 2 above) will greatly contribute to the higher overall costs of high-density development as compared to low-density development.

Two important conclusions of this report are:

- a. Low-density development results in greater costs due to inefficient expenditures for educational needs as well as greater transportation and sanitary system costs. High-density development can take advantage of economies of scale in the provision of educational services.
- b. Low-density development removes large amounts of land from agricultural uses while requiring much expanded public services.

Two recommendations of this report are:

- a. Zoning ordinances should be adopted such that new development is directed to locate near existing residential development where sanitary services are already provided and where economies of scale in the provision of other services can be used.
- b. Annual reporting is required on a district by district basis for those local governments that wish to project the costs and revenues associated with anticipated development growth patterns.

3. Bank of America. 1995. *Beyond Sprawl: New Patterns of Growth To Fit The New California*.

"The sponsors of this report-Bank of America, the California Resources Agency, Greenbelt Alliance, and the Low Income Housing Fund-believe that California must pursue growth and development that is sustainable. Unfettered sprawl will make the state less competitive, burden taxpayers with higher costs, degrade the

environment, and lower the quality of life of every Californian.” This report is remarkable because one of its sponsors is a major bank. Banks in the past have supported continuation of existing settlement patterns because it added certainty to their mortgage lending. To reach a consensus with state and nonprofit organizations and call for a public discussion of new patterns is noteworthy.

4. Barkley, David L. 1993. “Manufacturing Decentralization: Has the Filtering-Down Process Fizzled Out?” In *Economic Adaptation: Alternatives for Nonmetropolitan Areas*, edited by David L. Barkley. Boulder: Westview.

“The bribes of low taxes, wages, and rents and lax regulations may no longer be sufficient to insure a continuance of manufacturing decentralization. Small towns must establish environments conducive to small-scale, nonstandardized production techniques or risk further erosion of their post World War II gains” (44).

5. Barkley, David L., S.M. Smith and R. Coupal. 1990. *High Tech Entrepreneurial Activity in the Rural West: Who Is Starting What?* WP 116. Corvallis, OR: Western Rural Development Center.

Quality of life factors are important location determinants to skilled-labor-intensive manufacturers.

6. Bender, Lloyd A. and Thomas F. Stinson. 1984. “Mitigating Impacts of Rapid Growth on Local Government.” *Journal of the Community Development Society* 15:59-73.
7. Blakely, E. 1991. “The Emerging Global Economy and Rural Communities.” In *The Future of Rural America*, by Ken Pigg. Boulder: Westview Press.
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10. Burchell, Robert and David Listokin. 1988. *The Fiscal Impact Handbook - Estimating Local Costs and Revenues of Land Development*. New Brunswick, NJ: Center for Urban Policy Research, Rutgers University.
11. Burchell, Robert, David Listokin and William Dolphin. 1990. *The New Practitioner’s Guide to Fiscal Impact Analysis*. New Brunswick, NJ: Center for Urban Policy Research, Rutgers University.

Both of the above works (#10 and #11) are handbooks to use for estimating the direct public costs associated with residential and nonresidential development. The 1990 work basically provides the estimator with updated figures for use in

making future demographic projections. The 1990 work also provides a summary of the methods discussed in the more detailed 1988 *The Fiscal Impact Handbook*. In summarizing the contents of these handbooks, it should be stated first that, in essence, the 1990 work (82 pp.) is a miniaturized version of the larger 1988 handbook (504 pp.); with the exception that the 1990 handbook has a more detailed and updated treatment of multipliers and their use in fiscal impact analysis. Both works are useful for the following tasks: 1) comparing the costs and revenues of proposed new development; 2) analyzing communitywide fiscal consequences of municipal land use policies; and 3) projecting school enrollment patterns, and hence, anticipated municipal educational investment needs.

The Fiscal Impact Handbook is based on a two year national study. Its primary focus is the detailed presentation of six methods by which the costs of new development can be projected. It also summarizes the traditional methods used to project revenues. The six methods of cost projection discussed in this handbook are: the per capita multiplier method, the case study method, the service standard method, the comparable city method, the proportional valuation method, and the employment anticipation method.

Though this summary will not elaborate further on these methods, they are listed here to indicate the thoroughness of this handbook in its presentation of cost estimating methodology. *The Fiscal Impact Handbook* also includes a chapter that presents standards by which the demand for public services can be anticipated. Finally, the fiscal impact estimator will find this handbook's appendices a rich source of case studies and literature that focus on fiscal impact analysis.

The 1990 handbook is meant to serve as an update to *The Fiscal Impact Handbook*. On its own, it is useful in obtaining a general understanding of what is involved in a fiscal impact analysis; however, it would only serve as a "guide" for the serious practitioner of fiscal impact analysis. The area where the updated version is quite useful to one actually using fiscal impact methods is its presentation of the most current and comprehensive multipliers available for fiscal impact analysis, obtained from the 1990 census. Also these multipliers are more specified in that multipliers for various housing development configurations are presented.

12. Burchell, Robert W. 1992. *Impact Assessment of the New Jersey Interim State Development and Redevelopment Plan*. Report II: Research Findings. New Brunswick, NJ: Center for Urban Policy Research, Rutgers University.

The State of New Jersey put forward an interim state plan to alter the pattern of development from that projected from current trends (TREND). The plan (IPLAN) anticipated directing more future growth to redeveloped areas of old central cities and to greater density in suburban centers. A number of models were used to estimate the impact of the two alternative patterns. The report concluded that, "The Interim State Development and Redevelopment Plan will bring benefits to New Jersey and its citizens that traditional development will not" (ix). The main findings were:

- a. IPLAN will shift 300,000 jobs to suburban and rural centers and 62,000 jobs to cities.

- b. \$400 million in annual savings to municipalities and school districts may be realized under IPLAN.
- c. TREND requires nearly 130,000 more acres for development.
- d. IPLAN will generate 40 percent less water pollutants than TREND.
- e. IPLAN saves \$740 million in road costs.
- f. IPLAN provides savings of \$440 million in water supply and sewer infrastructure costs. These costs are obtained by assuming excess capacity in the old urban centers and by savings from cluster development in the new areas. There is no estimate of the cost of adding capacity for a given unit of population to cities of different size. There is no cost estimate for such services as policing (see Wolpert and Danielson 1991, who show higher per capita policing costs for more dense areas).

13. Busch, Larry. 1991. "Waking the Owl of Minerva: Constructing a Future for Rural America." In *The Future of Rural America: Anticipating Policies for Constructive Change*, edited by Kenneth E. Pigg. Boulder: Westview.

Busch argues that rural people need to construct their own future, rather than just adjust to trends, if they are to escape malaise and crisis. Traditional rural values of ecologism, participation and self-realization might be implemented by the institution of worker self-management. Worker-owned firms are less likely to move out of town or pollute. The millions now spent on industrial promotion and transfer payments might be better spent to develop worker self-management. [For a complementary theme, see Christopherson 1993.]

14. Carlino, Gerald A. and Edwin S. Mills. 1987. "The Determinants of County Growth." *Journal of Regional Science* 27:39-55.
15. Castells, Manuel. 1989. *The Information City: Information Technology, Economic Restructuring and Urban and Regional Process*. Oxford: Basil Blackwell.
16. Castle, Emery N. 1991. "The Benefits of Space and the Cost of Distance." In *The Future of Rural America: Anticipating Policies for Constructive Change*, edited by Kenneth E. Pigg. Boulder: Westview.

Space is a necessary attribute in the production of certain goods, such as tourism and outdoor recreation. If rural areas wish to flourish, "they must take advantage of this unique variable" (53). Space-using activities are what rural areas have a comparative advantage in. These may be nontraditional, however, such as rural residences, outdoor recreation and waste disposal. "An important part of rural development strategy is to make the rural areas attractive as places to live" (47). Two successful examples stand out-Columbus, Indiana, the home of Cummings Engine, and Ashland, Oregon, home of Southern Oregon College and a Shakespearean festival. Both balance the attractions of space and relative accessibility.

17. Chinitz, B. 1991. "A Framework for Speculating About Future Urban Growth Patterns in the United States." Cambridge, MA: Lincoln Institute, 1990 unpublished paper. "Growth Management: Good for the Town, Bad for the Nation?" *Journal of the American Planning Association* 56.

18. Clawson, Marion. 1966. "Factors and Forces Affecting the Optimum Rural Settlement Pattern in the United States." *Economic Geography* (October).

Clawson introduces his topic by observing that much has been written about the location and form of cities, but little about the optimum pattern of rural life (i.e. a pattern that serves to satisfy all people at least cost). The patterns appropriate for horse and buggy are not optimal for the jet age, but there are many forces of persistence. What are the forces one should consider? These include intra-farm considerations of where to locate the farm house, marketing of farm output, purchases of farm inputs and home consumption, farm and family services consumed in towns, economies of scale in group services, and roads and related services ("is not much of rural American 'over-roaded today?"). In balancing these factors Clawson asks: how closely spaced should roads be placed?; where should farm families live?; where will farmers keep their livestock and store their crops?; how many rural service towns, location and size?; and what units of local government?

The forces against change that might answer these questions include sentimental attachments to present location and the fact that most improvements are marginal and do not consider aggregative effects. "There is almost no mechanism which now brings the whole of the settlement pattern up for scrutiny and review at one time. People make incremental decisions without realization that the whole structure is thereby determined." [The same can be said about the overall settlement pattern.]

19. Christopherson, Susan. 1993. "Explaining the New Spatial Inequality: Regulatory Policy and Local Economic Capacity." In *Population Change and the Future of Rural America: A Conference Proceedings*, edited by Linda Swanson and David Brown. Staff Report No. AGES 9324. Washington, D.C.: ERS-USDA.

Broad regional inequalities have declined, but intra-regional inequalities have increased. There is an increasing gap between metro and nonmetro areas. The ratio of nonmetro to metro per capita incomes declined from 77 percent in the late 1970s to 73 percent in 1987. The nonmetro poverty rate is nearly 50 percent higher.

Christopherson argues that the "fiscal and economic deterioration of the central cities and of rural communities and the booming growth of suburban cities are inextricably linked-manifestations of the transformation of the U.S. space economy" (79). She argues that this transformation is due in large part to policies of "national withdrawal from responsibility for the social welfare and economic development capacity of regions and localities".

The adjustment to changes in preferences and technologies is "micro-economic, firm-led, rather than mediated through societal level institutions" (81). "Firm-led adjustment is not only the product of politics, but also shapes politics in its own image, including definitions of the public good" (81).

The changing locus of regulation has regional growth implications. "We cannot simply assume that when regulatory mechanisms are removed, nothing appears in their place" (82). One of the major changes has been in the rules for banking.

As a result, “bank branches appear to be proliferating in some areas, particularly suburban counties, while at the same time being eliminated in less accessible and poorer areas” (84). “Branch banks staffed primarily by sales personnel are unlikely to have the type of representation on community boards and chambers of commerce that resulted in lending practices reflecting ‘local knowledge’” (84).

There has been a concentration of consumer services in fewer nodal locations, such as regional shopping centers. Prominent in this transformation is the growth of firms like Wal-Mart, which replace small general merchandise stores. These changes in retailing, fast food and population have a local fiscal impact. She notes “a vicious circle of failing fiscal capacity, service reductions, loss of establishments and jobs to the suburbs, and then, further declines in fiscal capacity” (86).

A restructuring of the provision of previously publicly provided goods “severs the bond between national and place-based prosperity” (86). There have been cuts in nonentitlement human service programs that were administered by localities such as for housing and community development, social welfare service and health care. More responsibility for infrastructure, education and job training has been transferred to the state and local level. [While these things might be defended on the basis of better fitting local preferences, they accentuate the consequence of regional disparity in fiscal capacity.]

The privatization movement also has differential regional impact. The rise of the private hospital has reduced the availability of care to the low-income people. Rural hospitals with a high proportion of elderly and acutely ill patients, including medicaid patients and others without insurance, have higher costs and are under great pressure to close.

A “beggar thy neighbor approach has exacerbated the economic development problems associated with firm-led investment” (88). Christopherson observes that the expected local development ancillary to the Saturn plant in Spring Hill, Tennessee, has not materialized. She believes it is because the local government gave up so much tax revenue that it cannot provide the public services necessary for other local growth. This led her to recommend an industrial district model of territorial governance and intra-regional cooperation. Instead of each locality competing to see who can give away more, local governments would cooperate to build a base for high-wage, high-capital investment strategies.

20. Christopherson, Susan and Beth Redfield. 1993. “The False Promise of Industrial Districts for Rural Economic Development.” In *Rural America and the Changing Structure of Manufacturing: Spatial Implications of New Technology and Organization*, edited by G. Andrew Bernat Jr. and Martha Frederick. Staff Report No. AGES 9319. Washington, D.C.: ERS-USDA.

The vertically disintegrated production organization is emerging to meet the needs of uncertain and rapidly changing markets. Can networks of small firms in peripheral areas be part of this new production organization? Such networks of closely related firms are called “Industrial Districts” when organized and stimulated by local governments (municipalism). The authors answer the above

question in the negative. "Local regulatory institutions are only a contributing factor to the conditions that foster successful industrial districts. Much more significant are national regulatory regimes, particularly those governing firm investment behavior" (107).

The relevant national regulatory regime is detailed in Christopherson (1993). These rules emphasize individual-firm independent adjustments to market conditions. In summary, the over-riding system rules encourage the maximization of short-term returns to the firm's capital with little incentive to maximize returns to a region's people and their local resources. One result is a low investment in nondefense research and development compared to other industrial countries (109).

The experience of the advanced ceramics industry near Corning, New York, is a case in point. The industry is stimulated by and has developed under the protection of Corning Inc. In other countries, this sheltering function is aided by active national government programs, but in the U.S. the Department of Energy is not known for its ability of technology transfer, since subcontractors do not compete to a great degree in supplying components. This only leaves the source of shelter from very large firms "who themselves cannot bear the substantial long-term investment in research and development that will be required to translate innovations into products in this industry" (115).

"Because of the absence of an integrated network of producers and suppliers and, importantly, the lack of infrastructural investment in the region, few multipliers will be generated and the resulting economic development can be expected to be quite narrow" (116). "Direct investments will generate jobs for highly-skilled technical workers, while indirect investments will benefit extraterritorial providers of service and manufactured producer inputs and local providers of consumer and residential services" (117). [For another reference to the "ceramic corridor", see Kelly 1992.]

"The particular pressures exerted on firms, operating within U.S. financial market rules, tend to produce some types of outcomes, such as the concentration of activities in large firms, and inhibit others, such as the development of small firm networks as sheltering mechanisms" (117). [This work is included in this bibliography because it emphasizes that local policy can only have its intended effect if consistent with national policy and resulting pressures. While this work is focused on scale and agglomeration effects, the argument is structurally similar to that made by Schmid (1991) with reference to how accounting for congestion costs shapes spatial decisions of firms. Attempts by local nonmetro governments to shape settlement patterns can be overwhelmed by larger forces engendered by metro and national policies.]

21. Coppedge, Robert O. 1987. "Which Rural Communities Will Survive?" *Business Sense and Economic Development*. Las Cruces, NM: New Mexico State University Cooperative Extension Service.
22. Cotterill, Ronald. W. 1989. *Private Initiatives for Rural Development: Ideological Cop Out or Engine for Progress*. Food Marketing Policy Center Report No. 3. Storrs, CT: The University of Connecticut Press.

“An effective and efficient rural development policy, moreover, must analyze the distribution system that delivers goods and services to rural communities. There is evidence that noncompetitive distribution channels distort prices in some rural communities and transfer wealth from them. In addition, many rural communities are at the end of distribution channels. Therefore, even in competitively structured channels, the relatively high costs of delivered goods and services for productive activity and consumption retard economic development and standards of living. Changes in the structure of rural households and the employment shift out of agriculture limit the ability of rural families to offset these higher cost via traditional household production activities” (vii).

23. DuPage County Development Department. 1992. *Impacts of Development on DuPage County Property Taxes*. Wheaton, IL.

In the 1980s, DuPage County experienced unprecedented growth in both residential and nonresidential development. The economic data for those years indicates that the county’s employment base was growing significantly faster than its residential base, indicating a shift toward a more urbanizing employment center, rather than just a “bedroom community” of Chicago. Along with this growth, the residents of the county have seen their personal property taxes rise at a rapid rate. Between 1982 and 1988 property tax levies rose by 82 percent, while the rate of inflation for those years was only 23 percent.

The data challenge the conventional wisdom that has existed among development planners that growth in nonresidential development is a working strategy for keeping property taxes in check, by establishing a solid fiscal base to provide public services demanded by local residents and businesses. By 1989, DuPage County had the second highest residential per capita tax of all counties in Illinois. This study’s aim is to investigate in greater detail the relationship between development and property taxes. By extension, this study can be viewed as one that examines the relationship between development and the costs for services associated with that development. Thus, this study never explicitly examines the costs of services, rather, it uses taxes as a proxy for the costs of services.

This study includes itself in the growing body of evidence that suggests a causal relationship between new development, particularly nonresidential development, and increases in local property tax levies. This study associated this relationship to the fact that new residents who are attracted to the job growth in the region, begin to demand higher and higher levels of services, particularly educational services. This phenomena has been intensified due to the fact that the industries locating in the new regions of growth are industries with higher-skilled, higher-paid, and higher-educated labor. These workers, in turn, demand amenities for themselves and their families that fit the quality of life aspirations that these workers associate with their level of skill and education.

This study also attributes the rising tax burdens on the public as partially due to competing local governments who, viewing any increase in industrial/commercial activity as a good, offer “package deals” to industry to locate in their jurisdictions. As a result, industry has been able to pay less and less of the true costs of their operations, with the public making up the difference. Besides finding a causal relationship between new development and property tax increases, the

study also has shown that nonresidential development had more than three times the impact of residential development. Thus, the primary conclusion of this study is that new commercial and industrial development creates a huge demand for more infrastructure and services (leading more of both to be provided), the financial burdens of this expansion are not being paid for by the taxes generated from the increased values of the land.

The conclusions and recommendations from this study are:

- a. Emphasis on attracting nonresidential development may not lead to reduced tax burdens on taxpayers. Better impact analysis must be made on new developments, and perhaps higher development permit and impact fees are required.
- b. Managed growth that incorporates a time-frame to development, in conjunction with the pace of infrastructure and service growth, will more likely mitigate the need for tax increases.

24. Edel, Matthew. 1971. "Land Values and the Costs of Urban Congestion: Measurement and Distribution." *Social Science Information* (December): 7-36.

Empirical study of the relation between aggregate land value (assumed to measure net economies of agglomeration) and city size.

25. Evans, Alan W. 1990. "The Assumption of Equilibrium in the Analyses of Migration and Interregional Differences: A Review of Some Recent Research." *Journal of Regional Science* 30:515-31.

26. Freshwater, David, Stephan J. Goetz and Larry D. Jones. March 1993. *Industrialization of Kentucky: Resources and Constraints* T93001. Lexington: Center for Robotics and Manufacturing Systems, University of Kentucky.

In a review of factors affecting industrial location there is a brief discussion of infrastructure and quality of life.

27. Frey, W. and A. Spears. 1988. *Regional and Metropolitan Growth and Decline in the United States*. New York: Sage Foundation.

28. Friedman, Joseph, Daniel A. Gerlowski and Jonathan Silberman. 1992. "What Attracts Foreign Multinational Corporations? Evidence from Branch Plant Location in the United States." *Journal of Regional Science* 32(4): 403-418.

The authors look at the reasons behind the decisions of foreign firms to invest in the construction of new plant sites in the United States. This type of foreign investment was chosen because it is the most coveted form of new investment in that it creates jobs. The results that are obtained could also be applied deductively to consider why a U.S. firm would decide to relocate its plant operations from one state to another. State development authorities can make use of this study, first of all, in assessing the potential of their state to attract outside

investment, and secondly, to consider what conditions and investment can they generate in order to make their state more conducive to attracting outside investment. Thus, the results generated by this study are helpful in assessing a given state or region's relative advantage and disadvantage in attracting new investment. The data for this study was obtained from the United States Department of Commerce.

The authors find that four factors predominate in attracting foreign investment in plant facilities: market size (exhibiting a potential for sales), manufacturing wage rate, transportation infrastructure (e.g., roads and proximity to a port), and state promotional activities to attract investment (e.g., lower tax burdens for investing firms). The extent of labor unionization, though initially thought to be an important factor, turned out to have little significance. Reasons for this that are posited by the authors are the decline in union power in the 1980s and the coexistence in union states of large numbers of unemployed workers willing to work at less than union wages. The authors do point out other studies that challenge their findings on the impact of unionization, and in their conclusion they state that this factor warrants further study. The authors also call for further work on location decisions that better differentiates the types of industries in question.

29. Fuguitt, Glenn V. and David L. Brown. 1990. "Residential Preferences and Population Redistribution 1972-1988." *Demography* 25(1): 115-128.
30. Fuguitt, Glenn V., David L. Brown and C.L. Bede. 1989. *Rural and Small Town America*. New York: Russell Sage.
31. Garreau, Joel. 1991. *Edge-City: Life on the New Frontier*. New York: Doubleday.

Edge cities constitute the third wave of dominant population settlement change in the U.S. The first wave was suburbanization. People moved their homes out of the city, but most still worked and shopped at the core. The second wave was the malling of America as the stores moved to the suburbs. Today, the means of creating wealth (jobs) moved out where people wanted to live. These edge cities contain all of the functions of a modern economy and are not mere satellites of the old cores, though they are usually in the region of the old cores. The following are Garreau's criteria for edge city designation.

- a. Has five million sq. ft. or more of leasable office space.
- b. Has 600,000 sq. ft. or more of leasable retail space.
- c. Has more jobs than bedrooms.
- d. Is perceived by the population as one place.
- e. Was nothing like "city" as recently as 30 years ago.

By any standard of urbanity, each edge city is larger than downtown Portland, Oregon, or Maine, or Tampa, Florida, or Tucson, Arizona. Two-thirds of all American office facilities are in edge cities. Edge cities may not be familiar to people outside of the region, but include such places as the area around Route 128 and the Massachusetts Turnpike in the Boston region; the Schaumburg, Illinois, area west of O'Hare Airport; the Perimeter Center area north of the Atlanta Beltway; and Irvine, south of Los Angeles.

“Our new city centers are tied together not by locomotives and subways, but by jetways, freeways and rooftop satellite dishes” (4).

Garreau has formulated a number of laws of this new domain:

- a. “The law of unintended consequences: No matter what your plan is, the result will always be a surprise.
- b. The farthest distance an American will willingly walk before getting into a car: Six hundred feet.
- c. How many customers must live within a fifteen-minute drive of a mall for it to be successful: A quarter of a million—roughly the population of Las Vegas.
- d. The average distance from the main office of a company in edge city to the chief executive’s home: Eight miles by road.
- e. The prime location consideration when a company moves: The commute of the chief executive officers always becomes shorter.
- f. The maximum desirable commute, throughout human history, regardless of the transportation technology: Forty minutes” (464-71).

(For related references, see Lewis 1991 and Swasy 1994.)

32. Gottdiener, Mark and George Kephart. 1991. “The Multinucleated Metropolitan Region: A Comparative Analysis.” In *Postsuburban California: The Transformation of Orange County Since World War II*, edited by Robert Kling, Spencer Olin and Mark Pester. Berkeley, CA: University of California Press.
33. Greenwood, Michael J. 1985. “Human Migration: Theory, Models, and Empirical Studies.” *Journal of Regional Science* 25:521-44.
34. Greenwood, Michael J., Gary L. Hunt, Dan S. Rickman and George I. Treyz. 1991. “Migration, Regional Equilibrium, and the Estimation of Compensating Differentials.” *The American Economic Review* 81(5-December): 1382-1390.

The authors address what they believe are shortcomings in the recent literature dealing with quality-of-life measures. The primary shortcoming that is addressed is the belief that regional markets are in equilibrium, and that wage and rent differentials among markets are explained by the differences in amenities and environmental quality among the various regions. The authors believe that “the erroneous assumption that markets are in equilibrium at any point in time leads to biased estimates of amenity valuations and, in general, to biased valuations of the entire bundle of the location-specific characteristics associated with each region” (1,382).

In their study, the authors find that amenity valuations do widely differ among both regions and states, yet these differences are not fully accounted for in the variations in earnings. Hence, neither in nor out migration is occurring to the extent that the disequilibrium should bring forth. The authors find that when equilibrium is assumed (as many studies have done) an undervaluation of compensating differentials occurs, yet these errors are not significant enough to warrant a full criticism to those studies that have assumed equilibrium. (cf. Herzog & Schlottmann 1993)

35. Guest, Avery M. 1976. "Nighttime and Daytime Populations of Large American Suburbs." *Urban Affairs Quarterly* 12 (1-September).

This article seeks to explore the interrelationships of work-force and residential populations in suburbs. The focus of the study is an analysis of the daytime populations of workplaces in the suburbs. Previous research has overemphasized suburbs as places of residence from which people go to central cities as places of work. Research (as of 1976) is showing suburbs as "suppliers of labor and consumers of commodities" as well as "consumers of labor and suppliers of commodities."

This article asks whether there might be some way of distinguishing suburbs as either places of residence or places of work. The issue at hand is whether suburbs might also be found to be jointly places of residence and work. The data evaluated in this study indicates that most suburbs are not polarized into either residential or workplace orientations. The data reveals that 38.1 percent of workers surveyed lived and worked in the same suburb community.

(One weakness of the study was its lack of information on where those who worked in a given suburb, yet lived elsewhere, did in fact reside. Were they from other suburbs, the central city or rural regions? However, the fact that this study shows that two-fifths of workers in suburbs also live in that community is significant, for it challenges previously held stereotypes that suburbs are just bedroom communities for central cities' work forces).

In his conclusion, the author suggests that one of the major findings of the study is the fact that two out of five suburban residents live their lives and earn a living within geographically segmented parts of the metropolis. This phenomena is related to the existing transportation and housing infrastructure. The study further revealed the similarity in race, social status, educational status and family status of those persons who both live and work in the same suburban communities, while the "character of those who only work and those who only live in a community is less strongly associated." Finally the study revealed that the levels of government expenditures and the level of retail establishments are clearly related to the size of both the local work force and residential populations.

One of the concluding comments of the author is that the results of the study suggest that further study of the interrelationships of work force and residential populations may lead to new insights into the nature of "metropolitan spacial organization."

[Though this study was conducted several years before the development of the concept of "edge cities," such a concept logically follows from this study. For if workers live and work in the same suburban community, and this increases retail sales and property taxes, which further increases government expenditure on transportation and housing infrastructure, then such developments in infrastructure will attract new workers to reside in suburban communities. Eventually, the suburban communities become economically and socially independent of the old central city metro area-hence the "edge city" growth pattern results. See Garreau 1991.]

36. Hamer, Andrew Marshall. 1973. *Industrial Exodus from the Central City*. Lexington, MA: D.C. Heath and Company.

This book investigates the public policy and cost foundations of the decision of where industrial firms locate. The concern of the author is to explain why industrial firms have chosen to exit central cities in order to begin operations in the suburbs. The Boston area is chosen as the point of study.

The framework of the author's study is to first treat all firms as profit maximizing. Therefore, questions such as racial discrimination and other sociological explanations of firm location theory are not treated in this work. Taking the firm's profit equation, the author concentrates on the cost variables rather than revenue variables in explaining what motivates firms to relocate from either a central city area to a suburban area, or from a suburban area to an urban area. [What this study lacks is any treatment of rural areas in its analysis.]

In treating the costs of site location, the author concentrates on labor cost, land cost, and taxation cost differentials. [The various costs of services that are behind the taxation cost differentials are not delineated by the author, hence, this study is of little use to one who seeks a detailed methodology of cost analysis for alternative industrial development patterns]. The author's treatment, however, of the distinctions of costs within the labor and land markets is substantial, and should be of interest to one researching real estate or labor questions. The author devotes two chapters to the alternative costs of multilevel versus single-story construction, in addition to the conversion of these real estate construction costs into rental costs for the firms.

The author seems to approach and write his work with an inherent bias toward keeping industrial bases and the potential for further industrial growth in the central city. The author, therefore, devotes his last chapter to the possible role that government subsidies can play in limiting the movement of industrial firms out of central cities. Such a subsidy, he contends, may be perhaps the only alternative for central cities to maintain their economic base in the face of suburbs having a "decisive advantage in the location of manufacturing enterprises." According to the author, this decisive advantage lies in land costs that allow single level, spacious floor designs, which are better able to take advantage of new production and transportation technologies.

37. Hansen, Niles. 1993. "Endogenous Growth Centers: Lessons from Rural Denmark." In *Economic Adaptation: Alternatives for Nonmetropolitan Areas*, edited by David L. Barkley. Boulder: Westview.

"Prior to 1974, local industrial councils—made up of representatives from local governments, businesses, unions, banks and other local groups—concentrated their efforts on attracting branch plants in the manufacturing sector. When it became increasingly clear that this approach did not yield much in terms of long-run development, the councils shifted their focus to stimulating local SME's (small and medium sized enterprises) in the manufacturing sector. Typical activities in this regard included construction of industrial buildings and incubator facilities for entrepreneurs; promotion of cooperation among SME's, e.g. in exporting and sharing equipment; providing exhibition facilities; arranging courses for potential entrepreneurs; and offering advice concerning financial, technical and marketing issues" (81).

In each county Denmark has established Technological Information Centers, which are jointly financed by central and local government. These centers identify potential, establish links between enterprises and sources of finance, arrange for consultants, and identify subcontracting linkages. [This parallel to the U.S. experience with agricultural extension is striking and supports its replication as industrial extension. It appears to meet the needs identified by Christopherson (1993) for an innovative corporate body who has as its mission the realization of the potential of local resources rather than some collection of capital in individual firms whose centers of decision making are nonlocal.]

“Danish experience indicates that business subsidies are neither needed nor desired in areas where independent entrepreneurship is an integral part of the local culture” (84). “The development of peripheral Jutland was indirectly promoted by the central government through the creation of a substantial social infrastructure, particularly high-quality general education and industry-relevant technical education” (87).

38. Harrington, James W. 1993. “U.S. Banking Change and Local Economic Development.” In *Rural America and the Changing Structure of Manufacturing: Spatial Implications of New Technology and Organization*, edited by G. Andrew Bernat Jr. and Martha Frederick. Staff Report No. AGES 9319. Washington, D.C.: ERS-USDA.

The wave of financial reform and consolidation of banks makes it more difficult for small, nonconforming borrowers to get credit for economic development. “The very information intensity that makes small business lending so dependent on local branch networks also makes these linkages susceptible to re-evaluations and restrictions by the managers that take over the assets of a failed or merged bank “ (135). (See Christopherson in this annotation for a similar point.)

39. Harvey, Lynn. 1992. “Balancing Benefits in Rural Life.” *Michigan Planner* Winter: 3-5.

This article asks why communities continually support development policies that increase the gap between service costs and revenue generation. The question is even more compelling when one considers that there exists numerous case-studies and public finance literature, which discuss the type of development that generates tax revenues in excess of (or at least equal to) the cost of providing community services. The focus of this article is to address the above question for predominantly rural regions that are experiencing increased development.

The article mentions a study by Michael T. Manore (1985) that examines a rural township with few township public services and a limited number of paved roads. Manore developed a model which predicted the costs and revenues generated when, over a short period of time, 500 new homes (with an estimated \$100,000 market value) were built in the township. He found that there would be a substantial gap between the revenue generated by levies and the amortization of the incurred debt. The township could not possibly expect state or federal grants to cover this gap.

This article has two important points, which should be considered by any person who researches the cost of alternative community development patterns. First, the article recognizes the difficulties involved in conducting such studies. Financial data aggregation problems, estimation problems, and the common practice of allocating fixed and operating costs among various sectors in the community and among various levels of government, all make the task at hand for the researcher a complicated, tedious, and long-term task. Second, the author comments that making value statements of development patterns (which are better or worse than others) based solely on a cost-revenue analysis should be discouraged. For it is community preferences that remain the predominant determining factor in allocating development.

Other key findings reported by the author are: 1) public finance studies conclude that there exists a positive income elastic demand for public services. As development occurs, new and old residents alike demand more and more services, which brings about higher tax rates in the attempt to meet the demand for services; 2) municipalities often must provide these demanded services while at the same time trying to meet the demand for maintaining the peace and serenity of the area that attracted the new residents to the area in the first place. Economies of scale in the provision of services are thus not always an option for development planners. Hence, there exists significant trade-offs for communities seeking to develop and attract new residents.

40. Herzog, Henry W. and Alan M. Schlottmann. 1993. "Valuing Amenities and Disamenities of Urban Scale: Can Bigger Be Better?" *Journal of Regional Science* 33(2): 144-165.

When people decide where to live they trade-off the amenities and disamenities of place. Large places offer higher wages and consumer choice and disamenities such as congestion and crime. This study finds that the net amenity is associated with larger population. If labor was perfectly mobile and all locations equally desirable in other respects, people would move until their wages were equal in all locations. If locations differ in amenities, any difference in wages could be interpreted as the implicit price of the net amenity. For example, a person of a given skill would have to be paid more to live in an undesirable place.

Following Greenwood, et. al. (1991), the authors find the perfect mobility assumption untenable. They believe the mobility question can be avoided by a two stage model. The logic of their construction is as follows: If a person moves when their wage is constant, then it can be inferred that the new location had a net amenity. Likewise, if the likelihood of migration diminishes with scale of present location, scale has a net amenity. So they estimate what the migrating person's wage would have been at their previous location.

Data used in this study come from the 1980 Census. The Census asked if the person lived in this city or town five years ago (1975). The data was used only for white males aged 19-55. This gives the data on migration. First, a wage model is estimated for 1979 using such determinants as personal characteristics like education, family, occupation and experience, as well as metropolitan area characteristics like central city residence, unemployment rate, and climate plus urban scale variables (population and density).

“On the basis of market compensation, both population size and density appear to be, on net, disamenities” (154). But the authors do not leave it here because of their unwillingness to accept the perfect mobility assumption. Then two equations of the probability of moving are estimated, both with urban size variables. One equation includes the estimated wage and the other does not. The authors reason that if the sign for the urban scale variables is unchanged in the two equations, then scale is a net amenity (underpriced).

In one equation, wage is held constant while it varies in the other. In the equation without the estimated wage, outmigration diminishes with population of the place lived in 1975 measured in 1980. This can be because people regard larger places as having more net amenities, or because they are paid more. In the second equation, the possibility of being paid more (overcompensated given the amenity-disamenity balance) is controlled by including the estimated wage in the equation. The second equation has the same sign for the population variable and thus the authors conclude that population is a net amenity—people are more likely to stay as size of place where they lived in 1975 increases.

There are several problems with the conclusion. First note that the dependent variable is simply “move or not” during the period 1975-80. The person may move to a larger, smaller or same-sized place. In fact, of the 8,595 in the sample, 924 migrated to other metropolitan statistical areas (MSAs) of unknown relative size and 366 moved to non-MSAs. So the conclusion is about the likelihood of moving as a function of size where one lives and not the likelihood of moving to a larger place. The conclusion is consistent with the observation that if you live in a large place and lose your job, you are more likely to find another in the same MSA the larger it is.

Second, the predicted 1980 wage equation explains little of the variation in wage. Nevertheless, this estimate is used as an independent variable in the migration equation. Econometricians are not agreed on how good an estimate has to be before it can be used in another equation. [This is a matter over which reasonable analysts can differ, but it makes this analyst skeptical about the end results.]

The urban scale variable is expressed in two ways: total population and population density. Population is found to be a net amenity and density is a net disamenity. [Shall this difference be taken as fact or does the inconsistency of what can reasonably be expected to be correlated variables cause the results to be questioned?] The authors take the difference as fact and go on to explore the implications of different ratios of change in population vs. density.

[This analysis for the period 1975-80 needs to be placed alongside of the phenomenal growth of edge cities (Garreau 1992 and Lewis 1991) and the fast growing counties reflected in the 1990 Census (Swasy 1994 and Kelly 1992), which reflect new solutions to the congestion disamenities of the older MSAs. Most of these new places are new MSAs or extensions of old ones, but at a lower density than the old MSAs. They represent the best of both worlds—shopping associated with a regional mall, job choice within a 40 minute commute, and grass between houses and between offices.]

41. Hiss, Tony. 1990. *The Experience of Place*. New York: Knopf Publishers.
- “If we’re ever to reach the goal of man-made environment that nurtures human beings, we need to proceed with caution; otherwise, the act of getting there may take away any ‘there’ there.”
42. Hoch, Irving. 1972. “Income and City Size.” *Urban Studies* October:299-328. Adjusting for differences in living cost, income rises with city size.
43. Hoch, Irving. 1977. “Variations in the Quality of Urban Life Among Cities and Regions.” In *Public Economics and the Quality of Life*, edited by Lowdon Wingo and Alan Evans. Baltimore: Johns Hopkins University Press.
44. Hoehn, John, et.al. 1987. “A Hedonic Model of Interregional Wages, Rents, and Amenity Values.” *Journal of Regional Science* 27:605-620.
45. Humphrey, Craig R. and Richard S. Krannich. 1980. “The Promotion of Growth in Small Places and its Impact on Population Change, 1975-1978.” *Social Science Quarterly* 61:561-94.
46. Jackson, Kenneth T. 1985. *Crabgrass Frontier-The Suburbanization of the United States*. New York: Oxford University Press.

Jackson’s work is primarily a history of the American suburbs, from their beginnings as upper-class bedroom communities off of commuter railway lines to their present status as self-governing, semi-independent economic entities in which many of the residents are also employed in the suburbs. While early suburbs were often annexed by the city at the core, today’s suburbs are more often than not an agglomeration of self-governing municipalities. Jackson credits the existence of the current phase of the suburbs to the following factors:

- a. Changes in incorporation and annexation laws, supported by state legislatures, which to some extent gave fringe city districts the ability to secede from and/or avoid city control, and which to a much greater extent allowed rapidly growing fringe areas to fend off annexation by the dominant city.
- b. The automobile allowed settlement in new areas, which were both further away from existing train lines and city economic cores. Federal funding of massive highway programs supported the dominance of the automobile as the primary transportation mode.
- c. Federal housing subsidies after WWII, which allowed young families to obtain credit to purchase homes. Movement into new areas was further encouraged by what the author calls the “white fear” of increasing numbers of minority groups in older neighborhoods of the city. Poorly implemented federal public housing schemes exacerbated this phenomena known as “white flight”.

The text is valuable in its presentation of the historical development of the suburb. The author sees the future as one where the process of suburbanization will slow down (mainly due to higher fuel costs with associated increases in transport and energy costs). He also seems to think that the rise of the suburb has resulted in a general loss of community in metropolitan America.

[Yet the author ignores the latest development of the suburb—that of a complex, interconnected unit that has grown to be economically independent of the central city. His conclusions are questionable given the continued popularity of settling in the “edge cities” as well as the high level of community involvement in the edge cities. Perhaps his argument would be better made if he saw the rise of the suburb leading to a loss of community in one particular area of the metro area (i.e., the central city). The argument has been made by some sociologists that the suburbs have drained off too large a portion of the working middle class from city areas, leaving in its place a higher proportion of poor, needy families and individuals and a lower tax base with which to support community programs].

47. Johansen, Harley E. and Glenn V. Fuguitt. 1990. “Infrastructure, Development Efforts and Other Factors in Small Town Business Growth.” In *Entrepreneurial and Sustainable Rural Communities*, edited by Floyd W. Dykeman. Sackville, New Brunswick, Canada.

Aside from the agricultural sector, the traditional source of economic livelihood for most rural communities has been in the retail and service sectors, and in small-scale production centers. In recent years, however, rural communities have seen a dramatic loss of employment opportunities in the retail and the small-scale production sectors, while concurrently, not undergoing a similar percentage decline in population. This phenomena has led to economic depression in many communities. The authors of this study, after illustrating the divergent trend in residential and business activities (using data from two Dunn and Bradstreet studies), investigate the efforts made by the local governments of rural townships to stimulate and support new business growth.

The authors divide the efforts by communities to induce new business to locate in their borders into two categories. The first category involves a collection of strategies designed to attract new business: organizing committees, advertising, industrial parks, applying for state and federal funding, and other activities designed to convince business that their location is attractive for new investment. The second category of efforts involves the improvement of infrastructure (either improvement in existing infrastructure or new construction). Infrastructure includes schools, roads, libraries, sewage systems, health services, etc. The strategy behind this effort is to convince potential business locators that the community can handle further growth and can serve its current population.

A regression analysis was completed in which the two methods of attracting businesses were variables along with population size and percentage of population in agriculture. The study found that both development efforts and infrastructure improvements were positively correlated with attracting business, yet also found that development efforts were more successful in attracting industry than infrastructure improvements. The study also found the most significant variable

in attracting new business to rural communities to be their population size. This variable was included in the study with the expectation that communities with larger populations would be more competitive with regards to potential markets and adaptability to business change.

[Some important conclusions can be drawn from this study. First of all, communities must decide what type of businesses they wish to attract before adopting costly business-attracting strategies. Secondly, it is important that communities do not lose their population in times of economic downturn. While this is easier said than done, it suggests that communities that hold together in a downturn are more likely to experience an upturn, for those communities will be more attractive to an influx of new business investment].

48. Kasowski, Kevin. 1992. "The Costs of Sprawl, Revisited." *Developments* 3(2-September): 1-3.

The author discusses a study by the Center for Urban Studies at Rutgers University in New Jersey, which has sought to estimate the costs of sprawl development patterns. Twenty researchers and economists were asked by the New Jersey legislature to evaluate the economic impacts of a newly adopted (by the N.J. Planning Commission) statewide land use plan. This plan has hopes of "deflecting suburban sprawl by directing new development into older urban areas." What this study has sought to investigate is the "sprawl premium" associated with continued urban sprawl expansion. Who bears the cost of this premium? Answer: taxpayers, home buyers, current homeowners, the environment, and developers; or quite possibly the costs are not fully compensated, leading to a deterioration of infrastructure, the quality of life, and the environment.

This study argues that sprawl has become a problem in large part because commutation has been heavily subsidized by the federal government. In the past, the federal government has also subsidized heavily other public infrastructure needs such as sewer works. Yet the federal government has made it clear recently that the subsidies are stopping, and that local and state government budgets must bear the burden of increased growth. These governments have found it increasingly difficult to pass new and/or higher taxes on to their constituents, so there has come the need to understand better the costs associated with alternative growth and development patterns.

One issue that this article addresses is the issue of "fairness" in paying for sprawl. More often than not, the way local and state governments pay for new water, sewer, transportation and school systems is by evenly distributing the costs among all users through "average cost pricing methods." Because the marginal cost of providing services for new developments far exceeds the marginal cost of using these services in older, established communities, the end result is an "enormous price subsidy" for the newcomers in newly created sprawl areas, which is paid for by those who did not move into the new areas of development.

Hence, in the first instance the pricing method is not fair. It also is doubtful whether it is equitable, for it has been the pattern that those who are moving into the new developments are relatively more wealthy than those left behind in older communities; and these wealthier individuals are buying bigger houses on

bigger plots of land. As one researcher has put it, the situation is one of “capitalism for the poor and socialism for the rich.” Finally, the subsidy arising from average cost pricing methods for development has encouraged sprawl for the main reason that developers are able to pass off some of the development costs to the general public.

What, if any, are the solutions to this problem? Some communities have begun to charge “impact fees” on new homes in new areas. Other communities are assessing “geographically variable fees” in order to bring pricing more in line with the associated marginal costs of development. Difficulties that arise are politicians’ reluctance to set and explain varying fees and taxes among constituents. Average cost pricing appears more fair to those who have not reasoned through the economics of the development equation—and sadly, that’s probably most people. Finally what this author recommends is that planners concern themselves more with overall “least-cost” development strategies, which would probably make development in older areas more attractive, and would encourage these older areas to design more efficient services if they knew that such efforts would attract development into their regions.

[Firms do not pay all of the congestion costs that they help to create by moving into new areas. Not only are the costs, which are created by the new industry and populations, spread out over all of the present local residents (average cost pricing), but in addition, the federal government subsidizes the construction of water and sewer lines, highways, etc. Hence, the U.S. taxpayer pays the cost of the congestion while receiving little of the benefit.]

49. Kelly, Kevin, et.al. 1992. “Hot Spots: America’s New Growth Regions are Blossoming Despite the Slump.” *Business Week* October 19:80-88.

Fast growing areas featuring high-tech jobs stimulated by infrastructure, universities, and local coalitions of business leaders and educators include:

- Boise, ID. Semiconductor chips, laser printers; 25 companies, 14,300 jobs.
- Salt Lake City, UT. “Biomed Mountains;” Medical devices; 75 companies, 8,000 jobs.
- Provo, UT. “Software Valley;” 175 companies, 12,000 jobs.
- Tucson, AZ. “Optics Valley;” 40 companies, 1,000 jobs.
- San Diego, CA. “Golden Triangle;” Biotech; 163 companies, 11,000 jobs.
- Minneapolis/St. Paul, MN. “Medical Alley;” 500 companies, 40,000 jobs.
- Champaign/Urbana, IL. “Silicon Prairie;” 63 companies, 3,500 jobs.
- Richardson, TX. “Telecom Corridor;” 500 companies, 50,000 jobs.
- Austin, TX. “Silicon Hills;” 450 companies, 55,000 jobs.
- Orlando, FL. “Laser Lane;” 35 companies, 5,000 jobs.
- Washington West, VA. Systems integration; 1,000 companies, 80,000 jobs.
- Suburban Philadelphia. “Medical Mile;” 500 companies, 166,000 jobs.
- Princeton Corridor. Biotech, telecommunications; 400 companies, 132,400 jobs.
- Corning, NY. “Ceramics Corridor;” 110 companies, 31,500 jobs.

50. Kemmis, Daniel. 1990. *Community and the Politics of Place*. Norman, OK: University of Oklahoma Press.

Community can best be discovered and created out of the experience of place. There is a limit to our ability to intellectually rationalize the necessity to forge accommodations to settle conflicts that often prevent cooperative change and maintain the status quo. People learn accommodations best from experience in dealing repetitively with the necessity to live together. Exit and migration reduce the feeling that people must create their common environment. Rights-based liberalism begins with the claim that we are separate, individual persons, each with our own aims, interests, and conceptions of the good.” In this conception, each individual and group makes its demands on government and where they conflict, it is inevitable that some come away as bitter losers complaining of the loss of rights. “The oscillation between unrestrained individualism and stifling bureaucracy never seems to come to rest on how to go about living well together” (68).

The alternative is a process of learning that results in a willingness to live and let live. Kemmis argues for a more face-to-face process of learning and the creation of accommodation and compromise on substance. Mere reliance on procedure cannot solve the need for substantive agreement on what the people in a place want their world to be.

51. Krugman, Paul. 1991. *Geography and Trade*. Cambridge: MIT Press.

Economic geography (the location of production in space) is a perspective that deserves more attention and should unite students of international trade, urban economics and regional economics. Its major explanations of location are the role of increasing returns, demand for intermediate inputs, and knowledge spill-overs.

For Krugman, geographic concentration is evidence of increasing returns (5). One-third of the U.S. population still lives in the original 13 colonies. “Trade represents arbitrary specialization based on increasing returns, rather than an effort to take advantage of exogenous differences in resources or productivity” (7). This represents a radical paradigm shift—“big push” theories are back in style. Krugman believes that key determinants of trade are: pervasive increasing returns and imperfect competition; multiple equilibria; the role of history; accident; and perhaps sheer self-fulfilling prophecy (9).

He quotes Robert Hall who sees that a city and a boom (business cycle) are the same thing. Both feed on themselves and eventually decline and are replaced by a new cycle. Krugman’s theme is shown by the stylized facts of the history of the U.S. “manufacturing belt.” “Once the belt had been established, it was not in the interest of any individual producers to move out of it” (14).

Geographical concentration results from demand externalities. The circle of relationships rests on economies of scale, which means that each manufacturer wants to serve the whole market from a single location. To minimize transport costs, firms choose a location with a large local demand. Yet, local demand will be large because that is where manufacturers choose to be, thus creating a self-reinforcing circle.

Still, there are possibilities for sudden change. The role of irrigation in the West and discovery of oil near LA. in 1800 created the population base for industrial growth in the former periphery. “A small increase in the agricultural base may

therefore set in motion a cumulative process of import substitution and growth” (31). (The same would be true for the surge of sun-seeking migrants to California, Arizona and Florida). Also, “the belief that the West is the land of opportunity turns out to be a self-fulfilling prophecy” (31). Hence, there has always been a role for “boosterism.”

To sum up Krugman’s argument so far, by the phrase “economic geography” is meant the economic development that results from geographic concentration. When people “en masse” have settled an area (for some initial reason) the industries in that area can take advantage of economies of scale. The process feeds itself, for as more people are attracted to the region for employment, the increased numbers make industrial investment even more attractive. Once a significant economic/population power base is imbedded in a geographical region, it becomes a special interest unto itself, and that power base tends to fight any regional decline and engage in regional competition. The evolving components are linked as follows:

Geography > Settlement > Population/Industry Concentration > Further Economic/Population Growth (due to demand and scale externalities) > Activities to Protect that Power Base.

What are the sources of regional industrial development (Le. localization)?

1. Labor Pooling — Increasing returns interact with uncertainty to create an advantage of labor pools in that an increase in demand for a product of one firm (and thus the need for labor) may coincide with less demand for another firm (40-41). This attracts labor.

Firms would prefer a monopoly over hiring a given sized labor force (company towns), but firms gain if the presence of more firms increases the availability of labor via migration. The same is true for workers and the number of firms (42). “The gains from labor pooling do not rest...on a failure of labor markets to clear” (45). “The intuitive argument that says that firms prefer company towns, because of the monopsony power this gives them, is exactly wrong” (47). Since workers seek competitive labor markets, the effort of firms to monopolize are defeated and if labor pools grow faster than the number of firms, it is more efficient for firms to be competitive (46-47).

2. Intermediate Inputs — “It is only the presence of increasing returns that makes a large center of production able to have more efficient and more diverse suppliers than a small one...The intermediate inputs story does not depend on some asymmetry in transportation costs between intermediate and final goods” (49).

The increased share of manufacturers used as inputs into other manufacturers occurred in the U.S. “industrial belt” and led to the emergence of sharply distinct industrial characters for particular cities or districts (such as autos in Michigan). In the core-periphery model, firms grow in a location as a function of growing demand for their final products and as a function of growing demand for their intermediate products used as inputs by other firms (52).

3. Technological (Knowledge) Spillovers — Knowledge may spillover from one local firm to another. While today many localized industries are high tech (e.g., Silicon Valley), other previous concentrations were not (carpets in Dalton, GA; jewelry in Providence, RI; finance in NYC; shoes in Massachusetts; rubber in Akron, OH). Localized concentration can be observed in some traded services: Hartford-insurance; Chicago-futures trading; L.A.-entertainment. Transport has not changed much in the last 80 years. What has changed is the transmission of information technology. This has led to a concentration of service industries in southeast England for example.

Some perspective on localization forces (as opposed to dispersion) can be obtained from comparison of the U.S. and Europe. The large U.S. market can be contrasted to the segmented European case with its historical barriers to trade. If the barriers to trade were reduced, would large country cores absorb the small country cores with losses to immobile assets?

The case for protectionism is illustrated by Canadian policy before WWI. In 1878, Canada erected a tariff wall that made agriculture buy inputs in Canada rather than from cheaper established U.S. sources. Because farmers were forced to buy Canadian, there were more Canadians than otherwise because of foreign migration. This “infant country” protection produced a core that is now strong enough to withstand U.S. competition (though some Canadians are not so sure).

Europe has less industrial concentration than the open economy of the U.S.

Europe has a more even population distribution than does the United States, and also has a stronger concentration of purchasing power. “The poorer regions of Europe are in general also distant from markets” (95). Krugman believes that “Northwestern Europe is relatively rich for reasons that have to do more with culture than with geography” (95).

The future trade-offs among transport costs, economies of scale, and wages that affect firm location are hard to predict, but substantial relocations seem likely with the removal of trade barriers in Europe. Krugman’s guess is that the economic forces will favor peripheral manufacturing (e.g., German textiles will move to Spain or Italy), though heavy and high-tech industry might move north). Krugman illustrates the economies of scale, transport and wage trade-offs by a hypothetical set of figures for Belgium (core) and Spain (periphery). [One can substitute U.S. metro areas for Belgium and rural America for Spain and get a feel for the same forces at work.]

And what is Krugman’s conclusion? It is that “an economy’s form is largely shaped by historical contingency” (100).

The “commodity” type production is moving to the periphery, not just in Europe but all over the world. The textiles that will remain in Germany, for example, will be high tech with highly trained craft workers. Protection against periphery low wage competition will be achieved by those countries who can manage and finance successful training and apprentice systems that produce skilled and motivated workers. These institutional and cultural factors will be increasingly important to the location of production in space.

[What are the implications for the possibility of changing population settlement patterns in the U.S.? Rural America can do little to affect the future's historical contingencies or overcome the paths already firmly established. However, the transport disadvantage of some presently peripheral areas may be altered somewhat by NAFTA. State universities might play a role in creating some of the so called "accidents" of seeds of new products and industries. There are no doubt other strategies, but Krugman's analysis leaves serious doubts about what rural areas can do by themselves. Krugman gives no attention to congestion costs, living preferences, or the environment, which are the downside of concentration in cores.]

[One key question to address is what draws people to a particular region in the first place? Krugman mentions the sudden shifts in population patterns due to fortuitous events like a mineral find, which is in part supported by beliefs "about it being greener on the other side." There is also the possibility of gradual shifts, as Lewis says took place in the first half of the 19th century, when New Englanders and coastal farmers abandoned their poor soils for the more fertile Midwest (Lewis 1991). Indeed, the pattern up until WWII in America was a pattern of gradual change, whether that change was one of development or one of decline. Lewis claims that since WWII the American city (particularly in the East) has been transformed, and would disagree with Krugman and others who would argue that such cities have declined. In many respects this new city development (called the "galactic city" by Lewis) has occurred suddenly. Why?]

The new population/economic settlement pattern, that has occurred to a great extent on the East and West coasts, much of the Midwest, and is spreading throughout the nation, is the result of technological developments of the last 40 to 50 years: reliable automobiles, highway systems, refrigeration, agricultural production increases. What this combination of developments has allowed is the destruction of the previous settlement pattern, which possessed a rural/urban dichotomy. Krugman would view this "galactic city" as evidence that previous concentration centers are expanding, and technology has allowed for this expansion.

What is truly new about the developments of U.S. population/economic concentration patterns of the past 50 years is that for the first time such a concentration pattern has not taken place along some natural conduit of transport, or at some crossroad of two or more conduits (e.g., river, valley, trail, harbor, mountain). Technology has allowed humanity to settle, expand and prosper in areas that, 50 years ago, would never have experienced such growth—either due to the inhospitality of the region, or due to the need to keep the region rural to maintain its agriculturally productive base.

The expansion of Phoenix, Los Angeles, Houston and Dallas would never have occurred if scientists and engineers had not first found cost efficient ways of cooling the air and finding and transporting water great distances. The expansion of the "galactic city" in the East was made possible by transport developments, government policies, and the rising incomes that resulted from the previous economic/population concentration patterns.

[Three questions that follow from Krugman's thoughts are: 1) Is the population/-economic development patterns of the last 50 years a problem to be addressed (i.e., did we somehow go wrong?); 2) In the light of the above discussed development patterns, are there ways to bring development to regions that have been skipped over?; and 3) Krugman mentions the power interests seek to maintain "at best" a status quo in regions that have already developed. Is there a way of convincing people in these regions that their regional development patterns might be altered in their own best interests?]

52. Lewis, Peirce. 1991. "The Urban Invasion of the Rural Northeast." In *Proceedings: National Rural Studies Committee*, Reading, PA. May 16-17:11-22. Corvallis, OR: Western Rural Development Center.

Lewis begins his discussion with the urban/rural system that existed in the Northeast United States at the turn of the century; a system of small, medium, and large towns and cities that were surrounded by a dominant agricultural base. The name that geographers used for such a system, a system that still exists in much of the United States and the world today, is the system of "central-place hierarchy."

Lewis uses this system as a starting point from which to begin his discussion of a new geographic system that now dominates the Northeast. In this new system, the distinction between urban and rural cultures is blurred. The central aim of Lewis in this article is to discuss the geographic base on which this enormous systematic change in population settlement patterns occurred. Lewis believes that by looking at the geographic base of the Northeast, one will be able to understand how this systematic change is taking place, as well as understand why it has taken place more intensely in particular areas.

Rural and urban life in the Northeast was shaped by the productivity of the land on which farmers attempted to make a living. In those areas of the Northeast where soil was poor, there occurred the first rural to urban shift (e.g., New England, first half of 19th century). Though New Jersey, southern New York and eastern Pennsylvania were endowed with relatively good soils, the shift from rural to urban also occurred in these regions in the first half of the 19th century in and around areas that lay on important vectors of transportation (trails, toll roads, rivers, canals). New York City and its surrounding region experienced tremendous growth when the Erie Canal was opened, which connected the more fertile Midwest/Northern Ohio Valley with an Atlantic Ocean outlet. A similar phenomenon occurred to a lesser extent in the Philadelphia and Baltimore regions. As the urban east developed, agricultural production shifted westward.

The urbanizing effect of major seaports, however, was secondary to the urbanizing effect of the development of the railway in the second half of the 19th century. Railways brought about the development of towns, outside of the city proper where city workers could reside. Yet even the railroad had limits as to the extent to which its urbanizing effect could displace rural life. Up until World War II, the primary effect of the railroad was the creation of "nucleated cities"—hubs of commercial activity with numerous spokes (railways) reaching out from the city to connect with bedroom "sub"-urban communities.

Alongside and beyond these suburban communities, there still coexisted productive farmers, tilling the fertile lands of the Mid-Atlantic states of Maryland, Virginia, Pennsylvania, New Jersey, and Southeastern New York and Long Island. Until the mid-20th century, therefore, the “central-place hierarchical system” predominated in the Northeast, with some central places (e.g., New York City, Philadelphia) being bigger than other central places (e.g., Reading and Albany, New York). The rural/urban dichotomy, however, still existed for the most part.

In the second half of the 20th century, a new system of geographic settlement has rapidly replaced the old system of settlement (Le., central-place hierarchy) in much of the Northeast, and now threatens to completely erase any trace of the urban/rural dichotomy that dominated the Northeast for almost 150 years. Also, either already lost to a great extent or now threatened are some of the most fertile and productive farming regions in the United States. This new “usurping” system is called the “galactic city” by Lewis and has been made possible by the following combination of 20th century developments: automobiles, highways, rising incomes, and numbers of middle-class Americans. [Though Lewis does not state the following, it should be added that this system’s growth was also influenced by rapid agricultural productivity increases and refrigeration, allowing more distant farms to adequately feed the nation’s population].

Lewis claims that the term “suburban sprawl” is not only simplistic, but erroneous if used to explain what has transpired with the development of the “galactic city.” What has transpired is that Americans have reformed the concept and actual structure of cities. The “galactic city” does not spread across the rural landscape as in the past (Le., along a solid front like a growing body, or in tentacle form with commuter vectors shooting out from the center). Instead, the “galactic city” is growing like it is jumping on a pogo stick, leapfrogging over rural areas. (Yet this jumping has order...more on this later).

A checker board of urban growth is occurring, with some squares empty, to be filled later, and other squares becoming vast commercial centers (e.g., Tysons Corner, VA; Morristown, NJ; King of Prussia, PA). Eventually, the distinction between rural and urban is lost. Lewis describes four elements of the “galactic city.” They are: 1) internal transportation system; 2) internal commercial clustering at key transportation junctures; 3) “campus-like” industrial districts; and 4) residential growth around these junctures and districts.

Lewis states that the “nucleation” of cities is occurring within the “galactic city;” hence, the nuclear city has not disappeared, but rather, has been resurrected in an entirely new form. The key difference with this form, however, is that rural areas do not maintain their integrity. They are absorbed into the “galactic city,” perhaps even zoned into a permanent rustic existence to please the galactic city dwellers’ eyes, yet they are no longer productive regions in their own right.

Finally, Lewis wants to stress that this new pattern of settlement is here to stay, and is not, as some critics claim, a disorderly sprawling process that must be stopped. For Lewis, the “galactic city” has internal order. If the negative effects of this development are to be properly addressed, Lewis says, then scholars had better make a greater effort to study this system’s order. [Garreau (1991) has a concept of “edge city” that is complementary to Lewis’ “galactic city”.]

53. Lonsdale, RE. and J.H. Holmes. 1981. *Settlement Systems in Sparsely Populated Regions*. New York: Pergamon Press.
54. Logan, John. R and Harvey L. Molotch. 1987. *Urban Fortunes: The Political Economy of Place*. Berkeley: University of California Press.
55. Loveridge, Scott and Allan Schmid. 1993. "Strategic Planning and Population Settlement." *American Journal of Agricultural Economics* 75(5): 1160-63. (See introduction to this Annotation.)
56. Lueck, Thomas J. 1993. "New Jersey Slump: Go-Go Suburbs Went." *The New York Times* May 20:(A1 and A9).
57. Lyson, Thomas A. and W.W. Falk, eds. 1993. *Forgotten Places: Uneven Development and the Underclass in Rural America*. Lawrence, KS: University of Kansas Press.
58. MacPherson, Alan. 1993. "Service-to-Manufacturing Linkages Among Small-and Medium-Sized Firms: Prospects for Rural Industrialization." In *Rural America and the Changing Structure of Manufacturing: Spatial Implications of New Technology and Organization*, edited by G. Andrew Bernat Jr. and Martha Frederick. Staff Report No. AGES 9319. Washington, D.C.: ERS-USDA.

This chapter provides further empirical evidence on the suggestion in Malecki (1993) that small innovative firms might substitute external technical inputs for metro or in-house inputs. A survey of 146 small manufacturers in western New York shows that firms with extensive links to a wide mix of service specialists exhibited superior performance. Half of the technical services consumed by the surveyed firms came from western New York.

"Certain types of firms can partially neutralize consequences of peripheral location by accessing mobile expertise" (63). "At least half of the external service demand generated by local SMF's (small manufacturing firms) is satisfied by importable inputs that can be delivered via telecommunications...All told, however, prospects for rural industrialization based upon networks of service-linked SMF's appear modest at best." This is because "potential users are denied the opportunity to experiment with a range of external options" and because "the cost of delivery delay is downtime" (64).

The case is made for a public system of information brokerage (industrial extension) to facilitate the import of technical services by small firms in peripheral areas.

59. Malecki, Edward J. 1993. "Competitive Manufacturing in the 1990s: Implications for Rural Communities." In *Rural America and the Changing Structure of Manufacturing: Spatial Implications of New Technology and Organization*, edited by G. Andrew Bernat Jr. and Martha Frederick. Staff Report No. AGES 9319. Washington, D.C.: ERS-USDA.

“Two of the most significant processes in economic development are linkages or input-output connections among firms, and new firm formation” (1). These are more difficult in peripheral regions dependent on branch plants of large, multi-locational corporations that use their peripheral plants for routine work with low-skilled personnel. It is difficult, but not impossible for small firms to develop networks of contacts with other firms to obtain specialized inputs and provide high-quality outputs appropriate for niche markets, domestic and foreign. The emerging flexible production systems that are developing place a premium on subjective factors representing human interactions, cultural patterns, and sharing of specific knowledge that are distinctive in each locality. “As economies of scope and shorter product life cycles replace economies of scale as priorities of firms, such innovativeness is ever more crucial to corporate, and local, competitiveness” (5).

It is possible that networks of small firms in a nonmetro location can substitute for the mix of inputs, information and contacts available within multi-functional large firms that also use a web of subcontractors-but it is far from automatic and depends on the initiative of a few people with the skills and aptitude to make it work. Industrial districts have developed in Italy involving small, often artisanal and family firms who reinforce each other. Observers seem divided on whether this pattern can be replicated.

The closer integration of sales and marketing with production appears to promote larger, rather than smaller, firm size. The technology adapted to innovative small run products requires a more skilled labor force, and areas that only offer cheap labor are disadvantaged. “Within developed economies, the decentralization of industry to rural areas and to foreign sites common in the 1970s is no longer the norm” (12). [The general drift of the literature cited in this chapter seems to be that “New economy jobs are mostly urban.” The other major theme is that networks are everything]. (See also MacPherson 1993.)

60. Manore, Michael T. 1985. “The High Costs of Urban Sprawl.” *Michigan Society of Planning Officials Advisor* 1(4).
61. Mieszkowski, Peter and Edwin S. Mills. 1993. “The Causes of Metropolitan Suburbanization.” *Journal of Economic Perspectives* 7(3): 135-147.

Two theories of suburbanization are explored. The “natural evolution” theory emphasizes transport costs and residential preference. It emphasizes “the distance of residential sites to central work places, the effects of rising real incomes over time, the demand for new housing and land, and the heterogeneity of the housing stock” (136). In contrast, the fiscal-social problems theory emphasizes flight from blight and from higher taxes. Those who can move escape paying for central city costs.

The authors suggest that these two theories have quite different policy implications. “If suburbanization is largely the result of natural evolution, and technologically-and income-induced changes in the demand for land, then it is appropriate for the public sector to accommodate these demands” (144). But if there is a fiscal incentive to move caused by public policy, then “the decision-making process of higher level governments becomes more complex, since the effects of

redistributive policies include the aid they provide low income groups, the fiscal relief this aid provides to the immediate neighbors of the poor, and the allocative improvement that these policies may bring about by moderating out-migration to the suburbs.”

The authors conclude that there is not sufficient data to inform these policies. [Some interesting parallels can be drawn between metro and nonmetro area and the points made here between central cities and suburbs. Nonmetro areas subsidize metro areas when their educated youth migrate.] (For some indication of the flight from blight and crime, see Swasy.)

62. Miller, Roger and Marcel Cote. 1987. *Growing the Next Silicon Valley—A Guide for Successful Regional Planning*. Lexington, MA: D.C. Heath and Company.

Miller and Cote’s work is, in a nutshell, a book about the promotion of economic development on a regional basis through high technology. The inspiration for the book comes from the authors’ studies in the management of technology and in their exposure to the hands-on experience of individuals (business executives, entrepreneurs and public officials) committed to the economic development of their regions.

The book basically provides the readers with an overview of the author’s argument that development can be generated by high technological investment in a region. It begins by providing a summary of how Silicon Valley originated between the two Californian cities of San Jose and Menlo Park in Santa Clara County. Approximately 3,000 people worked for the electronics industry in that county in 1950, in jobs that had their stimulus from World War II investment. By 1980, there were more than 5,000 different high-technology companies in that same region.

The authors ask, “How did this amazing growth occur?” Of course, the follow up questions are: 1) What are the regional patterns that exist which allow such high-technology based growth to occur; 2) Can these patterns be duplicated in other regions; and, perhaps most importantly, 3) How does one go about duplicating such growth in a region that lacks it now, yet appears to either have the necessary pattern for such growth to occur or is willing to invest to create the necessary pattern?

To answer the second question first, yes, the pattern of high-technology based growth has occurred in many regions of the United States. Growth on the Silicon Valley scale has also occurred along Route 128 in Massachusetts, in Metro New York-New Jersey, in the Los Angeles vicinity, and in the counties bordering Chicago. High-technology based economic growth has also taken place to a lesser extent around many other U.S. cities. What factors are common to the regions above? That is, how do we answer question number one? The factors that all these regions have in common are:

- a. Clustered development: Interaction among the various firms is essential. This means exchange of employees among competing firms, non-competitive exchange of information among symbiotic firms, and the ability for employees of one firm to “nurture their own ventures while working in incubator firms.”

- b. Proximity to a major city: [The authors do not adequately expound on this point, perhaps due to their belief that the reasons are obvious (e.g., transport infrastructure, banking services, reliable courts of law, all of which are usually associated with large cities).]
- c. Combination of venture capitalists and entrepreneurs.

Surprisingly, the authors do not believe as do so many analysts keen on replicating the Silicon Valley development phenomenon that a major research university needs to be present in the targeted region of growth. The authors dismiss the “planned” Research Triangle Park in North Carolina as artificial and as insignificant in comparison to those regions that grew into high-technology clusters through no planned effort of government.

How then do the authors address the third question of duplication of growth? They say that such “growth nurturing” is slowly mastered. But one thing, which is crucial is an environment that encourages small, dynamic enterprises to blossom and multiply, rather than one which concentrates its resources on the birth, maintenance or transplantation of big firms.

- 63. Mines, Deborah A. and Robert C. Einsweiler. 1992. *Managing Community Growth and Change*, Vol. II, Bibliography of Academic and Professional Literature on Growth and Growth Management.
- 64. Mueser, Peter R. and Philip Graves. 1991. *Examining the Role of Economic Opportunity and Amenities in Explaining Population Redistribution*. Working Paper #91-1. Department of Economics, University of Missouri-Columbia.
- 65. Nelson, Glenn. 1994. “Multiple-Level Data Sets.” In *Rural Data, People and Policy*, edited by Jim Christenson, et al. Boulder: Westview Press.

“The gap in our knowledge concerning the social benefits and costs to migration is a key factor leading U.S. analysts and policymakers to tentative, lukewarm statements about the appropriate role for explicit spatial policies” (10).
- 66. Musser, W. N. and F. C. White. 1977. “The Potential for Rural-Urban Population Balance.” *Growth and Change* 8(4): 9-14.
- 67. Oakerson, Ronald J. 1990. “Institutional Diversity and Rural Development in America: An Institutionalist’s Approach to Rural Studies.” *Rural Development News* 14(6).
- 68. Oakland, William H. and William A. Testa. 1995. “Does Business Development Raise Taxes?” *Economic Perspectives* (March/April). Federal Reserve Bank of Chicago.

The public revenues generated from business development tend to exceed the costs of public services they require. On the other hand, people “simply don’t pay for themselves.” This is the conclusion drawn from a fiscal impact study of suburbs in a six-county Chicago area from 1980 to 1990. So a local government

would benefit if they were the site of business and the people lived in another jurisdiction. But of course, this option is not available in the aggregate. Also, over time, jobs attract people and residential construction. Simple correlations were run between business development and percentage change in tax burden measured in terms of both assessed and market values and in relation to income. The inclusion of capital gains in a multiple regression analysis strengthens the inverse relation between changes in business equalized assessed value and changes in residential tax burdens.

69. O'Connor, Kevin and E. Blakely. 1990. "Suburbia Makes the City: A New Interpretation of City Suburbs Relationships." *Urban Policy and Research* 7:3.
70. Pankratz, John. 1989. *Job Creation in Rural Areas—A Selected Annotated Bibliography*. Corvallis, OR: Oregon State University.
71. Parr, John B. 1987. "The Development of Spatial Structure and Regional Economic Growth." *Land Economics* 63(2-May).
72. Quante, Wolfgang. 1976. *The Exodus of Corporate Headquarters from New York City*. New York: Praeger.
73. Real Estate Research Corporation. 1975. *The Cost of Sprawl*. Washington, D.C.: Real Estate Research Corporation.
74. Richardson, Harry W. 1973. *The Economics of Urban Size*. Lexington, MA: Heath, Lexington.
75. Rothenberg, Jerome. 1970. "The Economics of Congestion and Pollution." *American Economic Review* 60(2): 114-121.

A deductive model shows that a system without congestion charges will have too much relative dependence on public investment to carry the burden of control against a growing congestion problem.

76. *Rural Economic Development in the 1980s—Prospects for the Future*. 1988. Rural Development Research Report No. 69. Washington, D.C.: ERS-USDA.
77. Schmid, A. Allan. 1991. "Rethinking Cost in Population Settlement Patterns." *Choices* 39(2nd quarter). Reproduced following the introduction to this annotation, see page 10.
78. Shaffer, Ron. 1989. *Community Economics: Economic Structure and Change in Smaller Communities*. University of Iowa Press.
79. Smith, Stephen M. 1993. "Service Industries in the Rural Economy: The Role and Potential Contributions." In *Economic Adaptation: Alternatives for Nonmetropolitan Areas*, edited by David L. Barkley. Boulder: Westview Press.

Services have grown in rural areas; rural service growth continued in the 1980s, despite declines in traditional manufacturing and extractive industries (though service growth in nonmetros was slower than in metros); there is considerable export activity among rural services; and services are important to the future of nonmetro areas. "Decentralization has not occurred, and data indicate continued movements toward urban areas" (116). Producer and distributive services were primarily urban oriented.

80. Stanback, Thomas M. Jr. 1990. *The New Suburbanization: Challenge to the Central City*. New York: Columbia University Press.
81. Summers, Anita A. and Peter D. Linneman. June 1990. "Pattern and Processes of Urban Employment Decentralization in the U.S. 1976-1986." Working Paper #75, The Wharton School of the University of Pennsylvania, Real Estate Center.

This paper seeks to describe and analyze the patterns of urban employment from the mid-1970s through the mid-1980s. The question addressed is why particular employment patterns occurred in certain sections of the 60 largest metropolitan areas of the United States. Almost all of the 60 metropolitan areas studied experienced employment growth in the time period under consideration. (The one exception was Youngstown, Ohio.) Despite this growth, there are sections within these areas that experienced decline. As such, "urban decline" is an accurate term insofar as it refers to particular parts of major U.S. metropolitan areas.

Three tasks confronted the writers of this article as they looked at U.S. urban employment patterns. The first task was to disaggregate and decipher the census data for PMSAs. The U.S. census aggregation process makes it difficult to see patterns and changes within a given grouping. Once these aggregated areas were disaggregated, the writers' second task was to explore and describe the differing patterns of employment within particular PMSAB and among various PMSAs. Finally, the writers addressed the question of the role government policies play in influencing urban employment patterns. This paper concludes with a summary of the major findings of the study and suggested policy implications. A more extensive treatment of the above three tasks follows:

Task1 - Deciphering and Disaggregating the Data

The authors developed employment data that is location-specific with data compiled by the Small Business Administration and that needed to be decoded from its available "county level" aggregation. These data were then re-aggregated according to the authors' specs using zip codes as the aggregating unit of choice. Employment data were generated for "Central Cities," "Central Business Districts," "Rest of Central Cities," and "Outside Central Cities" categories for 60 PMSA census tracts.

Task 2 - The Employment Patterns and Changes

The 60 largest PMSAB (this study's focus of research) experienced more rapid employment growth than the nation as a whole between 1976 and 1986. Hence, the urban concentration of employment increased. Yet, key to the

“disaggregated MSA-reaggregated regional tracts” methodology of this study are three striking patterns. There were wide disparities in growth rates: 1) among the 60 PMSAs; 2) within the individual PMSAs; and 3) among the same sections in PMSAs across the country.

In summary, employment growth was stronger in the 60 MSAs relative to the rest of the U.S., yet in urban areas, employment growth was relatively slow overall. Why? By looking at the intrametropolitan patterns revealed by this study’s reaggregated data, it is remarkably clear that considerable growth in employment occurred in the suburban areas of the PMSAs, not in the urban central cities. This was true in metropolitan regions across the country.

The authors question why urban research has not examined the above micro patterns of employment growth more carefully. Questions that they believe ought to be addressed are: 1) What factors underlie these patterns? 2) What socioeconomic and policy factors explain the strong suburban development? 3) What factors explain the different patterns across the suburban jurisdictions? 4) What factors account for the different economic development patterns within central cities?

The authors attempt to address these questions using a regression analysis to understand employment growth patterns. Their regression analysis uses the following five independent variables:

- Population Characteristics (e.g., population growth, racial mix and educational level)
- Industrial Structures (e.g., percentage of employment in manufacturing, transportation)
- Quality of Infrastructure (measured in terms of age of housing units)
- Quality of Life Measures (Rand McNally measures used)
- Government Policy (e.g., amount of defense spending per given area).

The hypothesis of the authors is that areas with high education levels, low percentage of blacks in population, high manufacturing, industrial structure, high concentration of new housing, and high degree of defense spending will show the highest employment growth rates.

Task 3 - Authors Results, Summaries, and Policy Implications

- a. Population growth accompanied employment growth in all regions. Hence, if you want to grow do not restrict population growth. Cities should seek and encourage a gentrification process.
- b. Employment growth in the suburbs had a much more positive effect on employment growth in the cities than vice versa. One should not view suburban growth as competitive with central city growth.
- c. The percentage of minorities in a city was not a significant factor linked with employment growth.

- d. Percent manufacturing in industrial structure at first seems to be a negative factor on employment growth, yet in the second half of the study, it was not. Percent retail was a positive factor on employment growth. Policies that support noncompetitive manufacturing operations do not ultimately benefit communities.
- e. Age of infrastructure (housing) in cities appears to be a factor of employment growth, particularly in the suburbs. (I believe this is how authors delineate between old suburbs and new suburbs.) Ongoing construction reflects optimism and may attract even more growth, hence governments should encourage housing construction and rehabilitation.
- f. Government policies do matter, particularly state policies that target central business districts of cities. Growth in central business districts affects growth in the rest of cities more than any other region's growth. Government policies had less effect on suburban employment growth, yet since suburban growth affects cities positively, central cities should "adopt a new posture and encourage business growth anywhere in the metropolitan area, not just in central city boundaries."
- g. Due to people preferring to live and work in less densely populated areas, manufacturing industries being in decline, and transportation and technological developments, the pattern of employment decentralization (from cities to suburbs) is here to stay. As suburbs increasingly gain more and more independence from cities, central cities will continue to decline (in percentage terms). Should the "invisible hand" be left alone? The authors suggest that the cities may play very valuable roles (e.g., cultural centers, immigration processing in the American mainstream), which go unrewarded, and they have very valuable infrastructure already. Such high exclusion cost goods ought to receive government support. The next step is to place value on these high exclusion cost goods.

82. Summers, Gene F. 1976. "Small Towns Beware: Industry Can Be Costly." *Planning* 4:20-21.

83. Swanson, Linda and David McGranahan. 1993. "Summary." In *Population Change and the Future of Rural America: A Conference Proceedings*, edited by Linda Swanson and David Brown. Staff Report No. AGES 9324. Washington, D.C.: ERS-USDA.

What drives spatial inequality? "Remoteness and small size have continuing importance economically." "Inequality has a spatial component, not just of metro versus nonmetro, but of suburban versus all other types of places, and of newly developed regions versus all other type of regions" (176). [Suburban or sub-suburban or suburban city centers is where the action is. Why? One possible explanation is the seeking of rents. The margin of rent gain available to new development is greater in undeveloped land than that already developed. Still, there are advantages to being close to already developed areas because of economies of scale. The balance point is found in suburbs and new galactic or edge cities. See Lewis (1991) and Garreau (1992).]

Swanson and McGranahan urge us to visualize the emerging settlement pattern as one of “networks of cities rather than hubs with spokes” (174). The patterns are not well captured by available data on commuting flows since the interaction flows have much other content. Size and place have a different meaning in the context of a network. The network of places is part of “the emerging form of the new economy, (which) appears to be one of small organizations with flexible production schedules and variable output, closely linked to suppliers and buyers through a web of networks” (173). (See also Lewis 1991 and Garreau 1992.)

84. Swasy, Alecia. 1994. “Suburban Flight Spurs White-Collar Boom in 20 Rural Counties.” *Wall Street Journal* March 8.

Some of the fastest-growing, wealthiest, and most educated counties in the U.S. are rural with economies independent of cities. The attractions are “businesses and families looking for relief from the crime, congestion, expensive housing and poor schools endemic in cities and now encroaching on the suburbs.” The data are from the 1990 Census and include counties with 50,000 to 500,000 with at least 15 percent increase between 1980 and 1990 with high income and education.

While the employment is local (not just commuting to a central city), many of the fast growing counties are near metro areas. For example, Hamilton County, Indiana, is a rural county north of Indianapolis and includes companies such as GTE Corp., Polygram Entertainment, and Marsh Supermarkets. United Airlines moved a maintenance facility to Indianapolis from San Francisco and many employees choose to live in Hamilton County.

Fort Bend County, Texas, has 260,000 people, many of which moved out of Houston in search of better schools and cheaper housing. Some are more distant from metro areas and are sites of major new plants such as Mercedes Benz in Tuscaloosa County, Alabama, and adjoining Shelby County where many prefer to live. Another is Delaware County, Ohio, the site of a Honda component plant.

(This phenomenon seems to be the latest version of white flight as these counties are more than 90 percent white. Managers with the power to affect location are trying to personally opt out of urban ills and create their own utopian islands. Settlements seeking a particular quality of life underlies this particular growth pattern and perhaps signals a different trend than the pattern observed by Herzog and Schlottmann from 1975 to 1980 (1993). They found that urban places below 4.4 million had a net-amenity value for residents.)

Can these rapidly growing counties be just anywhere? In the second article in this series, Swasy (WSJ March 9, 1994) describes Peachtree City in Fayette County, Georgia, 25 miles south of Atlanta’s airport. The settlement pattern is representative of what others have called galactic cities, which are components of networks. The web of transportation appears the key in this case, including the nearby airport and freeways, and the ports in Savannah and Jacksonville. The county has attracted firms that import components from overseas. Firms report more on-time shipments there than in their former locations in New Jersey. Industrial land costs \$30,000 to \$45,000 an acre in Peachtree, while land with similar accessibility costs more than \$500,000 in New Jersey. Cost of living for employees is 25 percent less as well.

[In the broadest sense, these fast growing counties are trying to escape urban congestion, while still benefiting from proximity to the web of activity at least initially spawned by an urban center. These counties are more distant than the previous generation of edge cities (see Garreau 1991). So while the particular location could be in more than one particular location and still fit into the network, it could not be just anywhere. For a complementary analysis, see Kelly 1992.]

85. Tolley, George S. 1974. "The Welfare Economics of City Bigness." *Journal of Urban Economics* 1: 324-345.

Congestion externalities tend to make big cities too big because marginal costs are greater than average. "Internalizing the externalities would be likely to make a city large if the externalities emanate from production of nontraded goods, but might make the city smaller if the externalities emanate from export production (324)." He offers a hypothesis that most external economies of scale are exhausted at small city size and urges more research on the city size effects of fiscal externalities and the disassociation of benefits and costs of government services. [This task still remains.]

86. Tweeten, Luther. 1976. *Micropolitan Development*. Iowa City, IA: University of Iowa Press.
87. Varady, D. 1990. "Influences on City-Suburban Choice: A Study of Cincinnati Homebuyers." *Journal of the American Planning Association* 56:1.
88. Wardwell, John M. 1980. "Toward a Theory of Urban-Rural Migration in the Developed World." In *New Directions in Rural-Urban Migration* edited by David L. Brown and John M. Wardwell. Chapter 4. New York: Academic Press.
89. Webber, Melvin. 1963. "Order in Diversity: Community without Propinquity." In *Cities and Space: The Future of Urban Land*, edited by Lowdon Wingo Jr. Baltimore: John Hopkins University Press.

"The quintessence of urbanization is not population density or agglomeration but specialization, the concomitant interdependence, and the human interactions by which interdependencies are satisfied" (41). "The task is to seek that spatial distribution of urban populations and urban activities that will permit greater freedom for human interaction, while simultaneously providing freer access to natural amenities and effective management of the landscape and of mineral resources. This is no mean task. And probably the meanest part of the task will be to disabuse ourselves of some deep-seated doctrine that seeks order in simple mappable patterns, when it is really hiding in extremely complex social organization, instead" (54).

90. Wolpert, Julian and Michael N. Danielson. 1991. "The Rural Fringe in the New Metropolis." In *Proceedings: National Rural Studies Committee*, Reading, PA. May 16-17:33-46. Corvallis, OR: Western Rural Development Center.

One-half of the new jobs and two-thirds of the new residents in northern New Jersey in the 1980s took place in “denser townships” with municipalities (minor civil divisions) with more than seven square miles of area and more than average density for this group. These are the areas such as the New Brunswick-Princeton-Trenton corridor, the I-78 and I-80 corridor, especially where crossed by I-278. [These are the “galactic cities” ala Lewis marked by short commutes, campus-like corporate headquarters, regional shopping malls, and scattered residential areas that use the old villages as convenience stores. A few spots become “edge cities” ala Garreau with high-rise office buildings and shopping area exceeding the old CBDs.]

By chance, two of the groupings of townships used by the authors had the same absolute population growth of approximately 100,000 from 1970 to 1987. One of the areas was the denser townships noted above and another group of more sparsely settled townships. This circumstance gives evidence of the growth of per capita expenditures (constant dollars) for police and other services to accommodate 100,000 additional people.

	Denser Twntp.	Sparser Twntp.
Fire	\$8.27	5.05
Police	39.47	22.56
Streets	17.59	28.48
Sewage	6.87	2.70
Garbage	9.13	3.17
Services	160.32	138.23

The general pattern is that per capita expenditures after adding 100,000 to two different sized bases and densities are less for the sparser townships. The added population in the sparser area raises its cost to the level experienced previously in what is now the denser area. Adding the same increment to the denser area further increases the expenditures. The percentage increase is greater in the sparser area as it goes from perhaps individual wells and waste systems to public systems. But the rise is only to the absolute level previously experienced in the now denser area.

The study found: “significant unevenness of local growth even during a rapid regional growth surge; wider and more diverse distribution of benefits from growth than from job or tax base growth per se; stability of benefit levels and their wide distribution among the communities despite uneven growth; and significant gains achieved by communities that had little or no local growth” (45).

91. Vaughn, G.F. 1994. *Land Use Planning in the Rural-Urban Fringe*. Extension Bulletin 157. Newark: University of Delaware.

The costs of sprawl are detailed and an argument presented for state level overview to avoid sprawl. It is noted that land use planning “was too little too late to cope with the avalanche of urbanization that fully fell on New Castle

County after World War II. County planning has been forced to play catch-up ever since” (25). It is further noted that the original Delaware State Planning Office was abolished in 1981 and “no other agency has studied the big picture of the state’s future “ [It must be asked why planning is so feeble. It may be because Delaware is in the midst of the megalopolis of galactic cities, which spreads from Norfolk, Virginia, to Boston, and constitutes a set of demands and pressures that are beyond the ability of local governments and even small states to control.]

Appendix:

The Contribution of Alternative Population Settlement Patterns to Michigan's Comparative Economic Development

A Proposal for Applied Research/Outreach

Parts of southeast Michigan are suffering from rapid growth and rising costs of congestion and environmental damage, while parts of the northern half of the state are suffering from declining jobs and working age population. Efforts to control and direct growth in the southeast are often inadequate and overwhelmed, while efforts to promote growth in the north are fighting an uphill battle. There seem to be larger forces which are not controlled by current efforts.

The attached paper, "Rethinking Cost in Population Settlement Patterns" (see page 10), suggests that this larger set of forces is fueled by the ways we distribute our population over the landscape. Unless that settlement pattern can be redirected, the individual efforts of local governments to control their destiny will be overwhelmed. Congestion costs, the unplanned increase in new infrastructure, and the underutilized existing infrastructure are all part of the rising cost of local government services. States that can get better control of these costs will be more competitive for job growth and as a place to live.

This proposal combines applied research and policy analysis with service learning and policy debate. It is proposed that data be collected that would allow the comparison of the costs of accommodating a given unit of population expansion in alternative distributions around the state. For example, what is the cost of solid waste disposal from an additional 5,000 people in southeast Michigan vs. north central Michigan? On the other side of the ledger, how much would a nonmetro city or area have to grow before it reaches a scale in size and support services that makes inputs to industry competitive with metro locations?

On the applied research side, it is proposed to work with selected state government agencies, local governments and regional planning agencies to determine both the facts and perceptions of some of the above cost dimensions. One or more technical panels will be created to guide the analysis and help ensure its credibility. Through a series of workshops with staff of the above agencies it will be determined how these cost dimensions are now perceived and how public decisions and policies take them into account. Further, interaction will address the question of how present institutions and laws hinder or can help redirect the pattern of population settlement in the state.

With the aid of the technical panel(s) and representatives of agencies and governmental units, a series of workshops will be offered. Stakeholders from rural and urban communities, governmental units, and state and local agencies and legislative committees will be invited to participate in an interactive dialogue. Groups such as municipal, township and county associations will be prominent as will professional associations. Groups such as the Michigan Society of Planning Officials and the Michigan Economic Developers Association will be invited to co-sponsor these workshops.

Intended Outcomes:

1. Increased understanding about settlement costs and opportunities by the stakeholders.
2. Increased appreciation of cooperative approaches in nonmetro areas that enhance their opportunities for retaining and expanding jobs.
3. Increased comparative advantage for Michigan if our communities can lower costs for new and expanding businesses.

Intermediate outcomes would be measured in terms of changes in planning practices and current programs and policies, and in intergovernmental and public-private sector cooperation.

Relevance to State Issues:

The proposal provides a new and more comprehensive way to look at development and settlement strategies and the balancing of claims for economic development with environmental and quality of life concerns. Instead of trying to make tradeoffs only within a given area, it explores the possibility of avoiding some of these tradeoffs by alternative settlement patterns of mutual benefit to both metro and nonmetro areas. Cooperation and coordination among communities is now hampered by what is seen as local competition for new jobs, destructive to possible scale approaches and development support. Communities must reframe the question so that all can be winners. This proposal provides new information and a framework for exploring mutual gains.

Sustainability:

During the course of the project, the Michigan Department of Commerce, including officials of the Michigan Strategic Fund, local governments, and regional planning agencies such as the Southeast Michigan Council of Governments, and Michigan public utilities and other private business groups, will be asked if they would like to participate financially in a continuing effort. National funding sources will also be investigated.

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