

City and Suburban Growth: Substitutes or Complements?

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Over the past three decades, population and employment have been growing rapidly in suburban areas while most central cities have been declining or growing slowly. At the same time, there has been a growing divergence in the per capita income of city and suburban residents (Figure 1). Economic and social problems have become increasingly concentrated in the nation's urban core.

The rapid growth of the suburbs and the coincident decline of the cities has led to a

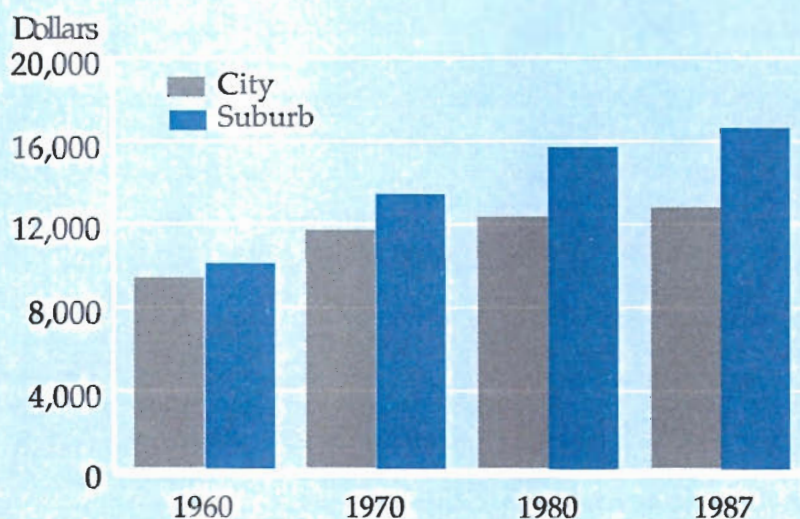
debate over the nature of the relationship between city and suburban economies. Are their economies closely interconnected? Do the interests of cities and suburbs coincide? Should suburban residents be concerned with central city decline?

One common view is that suburban economies are completely independent of their central city counterparts. This view is reflected in a *Philadelphia Inquirer* editorial, July 14, 1991:

The lesson of Detroit..is...[that its] suburbs are doing all right despite the city's demise... For years cities have tried to use the threat that if they are allowed to die, they'll take the suburbs down with them. Increasingly, the evidence is that this is not true.

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FIGURE 1
Real Income per Capita
Northeast and North Central MSAs



On the other hand, some believe that central city decline will eventually spread to the surrounding suburbs. This view is evident in the following quote from *The Economist*, November 2, 1991:

Nowhere is the separation of [the city and suburbs] so destructive...as in Detroit...It is becoming obvious that Detroit's troubles cannot be contained. Company head hunters, even in the distant suburbs, find it difficult to lure top-notch talent to a place with such a negative image.

The basic issue can be succinctly stated: Do suburbs *substitute* for cities, or do they *complement* one another? If central city decline results in higher growth in the surrounding suburbs so that the metropolitan growth rate is unaffected by where the growth occurs, we might say that suburban growth is a perfect substitute for central city growth. If declining central cities are associated with slower suburban growth,

or conversely, if healthy cities result in higher suburban growth, we might say that city and suburban growth are complements.

The choice of appropriate public policies for metropolitan areas depends crucially on whether city and suburban growth are substitutes or complements. If they are perfect substitutes, we need not be concerned with central city decline from an economic growth perspective,

since losses in the city will be offset by gains in the suburbs.¹ However, if city growth complements suburban growth, then declining cities will eventually undermine suburban growth. In this case, cooperative policies to arrest urban decline would be desirable.

SUBSTITUTES OR COMPLEMENTS: WHAT DOES ECONOMIC THEORY TELL US?

Communities in a metropolitan area are distinguished from one another by their own unique features. Communities may stand out simply because of the physical aspects of their location—it may be hilly or flat, beautiful or unattractive. Other communities' main attractions may be their proximity to other highly valued locations, the beach, for example. Still

¹Even if city decline is offset by suburban growth, social problems associated with declining cities are still an important concern.

other communities may provide excellent public services, such as education and recreation facilities. People and firms locate in neighborhoods with the attributes best suited to their needs. Of course, their location choices are limited by the amount they can pay. In general, people will be willing to pay higher prices for land in areas with very desirable attributes. In addition, firms will be willing to pay higher wages in areas that have attributes that make the firm more competitive.

The economic theory of location choice says that the price of land adjusts so that people and firms do not wish to change locations. Within a metropolitan area, highly attractive areas tend to have high land prices so that every one does not try to move to them. Of course, some regions are more productive than others and, hence, have higher wages, but again, land prices adjust upward in these metropolitan areas so that everyone does not move to the high wage regions.² Net migration occurs when the land and labor markets are out of equilibrium, making one locale within a region more attractive than another or making one metropolitan area more attractive than another.

Disequilibrium can be induced by a variety of factors, including technological change, change in personal income, and changes in public policies. For example, improvements in automotive technology; higher incomes, which increased the affordability of cars; and public investments in highways have all worked together to increase the appeal of the suburbs. In response, people and firms have moved from

the city to the suburbs. According to the theory, the outmigration should result in lower city land prices, eventually stemming the outflow of people. A new equilibrium should result in fewer people and lower land prices in the city.

In this simple view of the world, locations are good substitutes for one another, and inhibiting the adjustment mechanism serves only to lower regional welfare. Competition between the city and its suburbs, each pursuing its own policies independently, yields the most desirable outcome for the region. Growth or decline depends on each community's inherent attractiveness and on the efficiency of its public policies. If the suburbs are more attractive than the city, then central city population decline is simply a healthy response that results in more people and firms in the desirable area. Eventually, migration from the less attractive city to the suburbs ends because land prices adjust so that city and suburban areas give equal value for the dollar.

The simple adjustment mechanism will break down, however, when the process of migration affects local and regional attributes. When outmigration hinders the declining community's ability to provide basic public services, falling land prices may not be sufficient to halt the decline. Further, the decline may have "spillover" effects that change the attractiveness of the entire region.

There are several potential sources of spillovers. First, some amenities are valued by people throughout the region, but these amenities may be tied to a single locality.³ For example, a historic site and a waterfront park are two examples of amenities that cannot be replicated elsewhere. Other amenities, such as a cultural district or a vibrant, pedestrian-ori-

²See Jennifer Roback, "Wages, Rents and the Quality of Life," *Journal of Political Economy*, 90 (1982), pp. 1257-78, for a discussion of how wages and rents adjust to make workers and firms indifferent across regions. The Roback framework can be expanded to examine intrametropolitan differences in land prices as well. See Richard Voith, "Capitalization of Local and Regional Attributes into Wages and Rents: Differences Across Residential, Commercial and Mixed-Use Communities," *Journal of Regional Science*, 31 (1991), pp. 127-45.

³See Richard Voith (1991) for a discussion of how regional attributes differ from purely local attributes in their effect on location decisions.

ented city street, may be very difficult, although not impossible, to recreate in a different location.⁴ The value of these amenities will be reflected in land prices throughout the region, especially in areas with good accessibility to the amenity. If a declining city provides fewer or less attractive regionally valued amenities, it will render the entire region less desirable. The land value premium enjoyed by suburban neighborhoods with good accessibility to the city will fall as the value of the city-provided amenity erodes.

Another source of spillovers is what economists call agglomeration economies.⁵ Agglomeration economies are essentially the benefits from having many businesses in close proximity. These agglomeration economies result from increased availability of business services, opportunity for face-to-face interactions, and accessibility to a large labor force through well-developed transportation systems that depend on economies of scale. The compact development of cities that is supported by high-density public transportation systems increases the opportunities for agglomeration economies. If city decline results in a decline in agglomeration economies, industries benefiting from them most are likely to suffer, and if they do move, they may well choose locations outside the region with greater agglomeration economies.

Finally, there are social spillover effects of city decline. Urban decline is frequently asso-

ciated with an increasing concentration of lower income people and a declining ability to fund needed investments in education and infrastructure. If city decline results in a concentration of the population with very little education and in a deteriorating physical infrastructure, eventually the decline is likely to impose additional costs manifested by high crime, poor health, and unproductive workers. These costs may initially be borne by the city itself (thus causing further decline), but ultimately, the increased costs affect higher levels of government and will be unavoidable by other residents of the region.

The short- and long-run consequences of these spillover effects are likely to be quite different. Initially, city decline is likely to reduce city amenities, providing further impetus to move to the suburbs. Thus, in the short run, urban decline might be associated with suburban growth. Spillovers from city decline, however, may adversely affect the entire region, causing people and firms to move to more desirable regions. Eventually, a new equilibrium will be achieved with lower land prices and fewer people in the metropolitan area. The resultant equilibrium might be one in which the city is but a fraction of its former size, and the suburbs, though larger, are smaller than they would have been.

Complementarity of city and suburban growth implies that unfettered competition between city and suburb resulting in rapid city decline may be counterproductive. Public policies to arrest city decline based on regional cooperation are desirable, even though they may not be in the short-run interests of the suburbs. The benefits of cooperation, however, may not be readily apparent, since the suburbs are likely to remain attractive when compared with the declining city neighborhoods. Only when compared with the suburbs of other metropolitan areas without declining cities will the negative effects of urban decline on the suburbs be evident.

⁴Cities and suburbs provide very different sets of local attributes. Suburbs are characterized by widely dispersed development and privately controlled space, while cities have dense development with a considerable amount of publicly accessible space. In the event of city decline, it is unlikely that city-style amenities would be reproduced in the suburbs.

⁵Gerald A. Carlino provides a clear introduction to agglomeration economies in "Productivity in Cities: Does City Size Matter?" this *Business Review* (November/December, 1987), pp. 3-12.

ARE CITIES MORE LIKE SUBSTITUTES OR COMPLEMENTS?

One way to approach the issue of whether cities and suburbs are substitutes or complements is simply to see whether metropolitan areas with relatively healthy cities have higher rates of suburban growth relative to metropolitan areas with declining cities. We examine population and income growth over the past three decades in 28 metropolitan areas in the Northeast and North Central regions to see if suburban population growth and income growth are positively correlated with city population and income growth.⁶ A positive correlation would suggest that city and suburban growth are complementary, while no correlation or a negative correlation would suggest that suburbs are essentially independent of the city or that they benefit from city decline.

Simple correlations between city and suburban growth must be interpreted with care, however. Even if city and suburban economies were not interdependent, their economic performance might be correlated, since they are subject to similar external forces. Suppose all metropolitan areas in one region, say the Southwest, were experiencing a higher rate of growth than those in another region, say the Northeast, purely because of regional trends. Then a correlation would arise between city and suburban growth, even if they were not interdependent. The correlation arises because the high growth trend in the Southwest would result in cities and suburbs of that region having higher average growth than those in the Northeast. Thus, we

focus on metropolitan areas in the Northeast and North Central regions that were subject to similar external forces.⁷

Population Growth. City and suburban population growth rates were positively correlated in the 1970s and 1980s, but not in the 1960s.⁸ Suburban population growth is plotted against city population growth for each of the three decades (Figure 2). During the early stages of suburbanization in the 1960s, the negative correlation of -0.57 suggests that suburban growth was substituting for city growth.⁹ City and suburban growth were negatively correlated during this period for several reasons. First, the opportunities for growth were probably greatest in the early years when suburban land was undeveloped and inexpensive. Second, cities were probably too densely populated, given the changes in transportation and communication technology. Finally, the long-run negative consequences of spillovers of urban decline may not yet have manifested themselves.¹⁰

⁷We did analyze a broader sample of 59 MSAs spread throughout the U.S. The findings broadly parallel those presented here. However, city annexation of suburban land was the rule rather than the exception in southern and western MSAs, which greatly complicates the analysis.

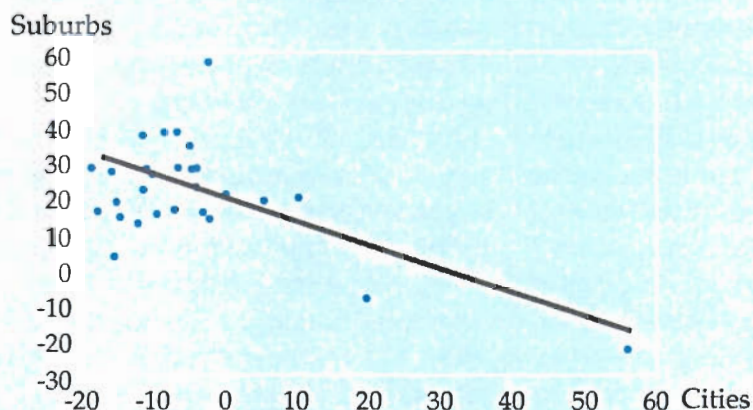
⁸In "Do Metropolitan Areas Mean Anything? A Research Note," *Journal of Regional Science*, 30 (1990), pp. 415-19, Edwin Mills analyzes the correlation between city and suburban population growth indirectly for the 1960s and the 1970s on a much broader sample of 229 metropolitan areas. He found evidence for correlation between city and suburban growth over the 20-year period but did not analyze the decades separately.

⁹Much of the negative correlation between city and suburban population growth in the 1960s is caused by two metropolitan areas with high city growth but low suburban growth. Dropping these cities results in a near zero correlation between city and suburban population growth.

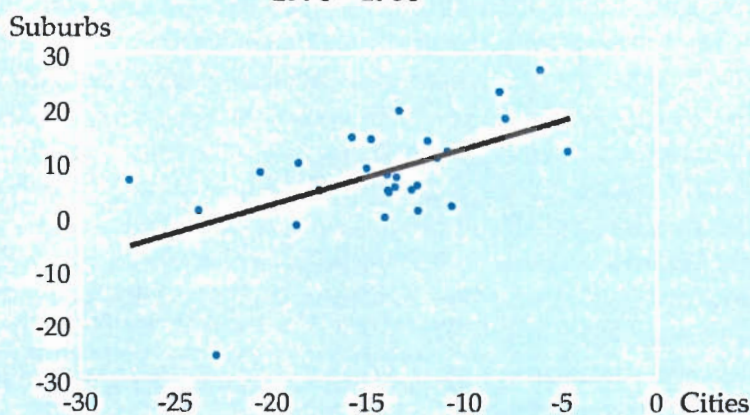
¹⁰Regression analysis suggests that city decline in the 1960s did, in fact, adversely affect suburban growth in the 1970s.

⁶The growth rates for the metropolitan areas, cities, and suburbs are based on the population and income for the MSA geographic areas as currently defined. In some cases, additional counties were added to the suburban part of the metropolitan area. Therefore, adjustments were made in the 1970 and 1960 figures to reflect the geographic areas covered by the current definitions. In this sample, none of the cities annexed suburban land or vice versa during the time period covered.

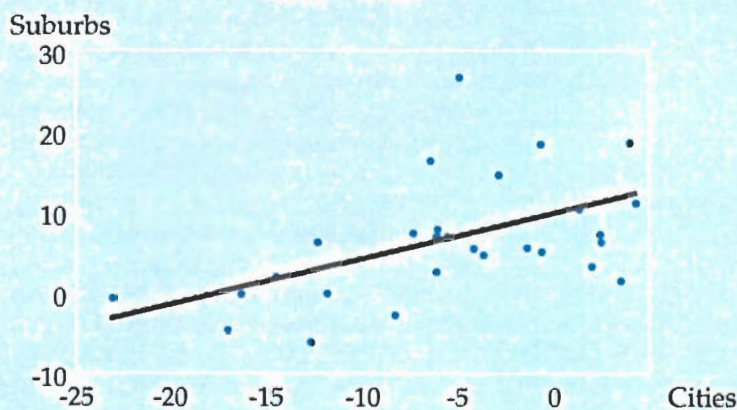
FIGURE 2
Population Growth
1960 - 1970



1970 - 1980



1980 - 1990



In both the 1970s and 1980s, metropolitan areas with relatively high city growth tended also to have relatively high suburban growth. Conversely, those with low city growth also tended to have low suburban growth. The correlation between city and suburban growth was 0.57 in the 1970s and 0.51 in the 1980s. The positive correlation in these two decades suggests that city growth was complementary to suburban growth during this period.¹¹

The finding that the correlation between city and suburban population growth was strongly positive in the 1970s and 1980s but negative in the 1960s runs counter to many people's expectations. One reason for the high correlation between city and suburban population growth in the 1970s

¹¹In addition to the positive correlations, fixed-effects regression analysis, which allows for different trend growth rates across metropolitan areas, suggests that city growth complements suburban growth.

and 1980s is that suburbanization became increasingly difficult as development drove up land and public infrastructure costs and as congestion became a problem in the suburbs as well as the city. Continued suburban growth has become increasingly dependent on the overall desirability of the region, rather than simply the lower cost associated with moving into undeveloped and uncongested areas. Metropolitan areas not plagued with the problems associated with declining cities appear to have had more robust suburban growth in the 1970s and 1980s.

To show the relationship among city, suburban, and metropolitan population growth, we have ranked the sample of metropolitan areas by metropolitan area population growth rates in the 1980s. Metropolitan area growth rates and rankings along with the suburban and city growth rates and rankings are shown in Figure 3. As the positive correlation would suggest, most metropolitan areas that have rapidly declining cities also have declining or slowly growing suburban areas, while the reverse is true for rapidly growing metropolitan areas.¹² The average growth rate of the 10 metropolitan

areas with the greatest city decline was -2.3 percent, compared with the sample average of 3.2 percent, indicating that urban decline is not

¹²The rankings also indicate that common factors across cities and their suburbs may be important. The top three cities in terms of decline—Pittsburgh, Youngstown, and Gary—were all adversely affected by national trends in the steel industry.

FIGURE 3
Population Growth Rates
1980 - 1990

MSA	MSA Growth		Suburban Growth		City Growth	
	Rate	Rank	Rate	Rank	Rate	Rank
Pittsburgh	-7.31	28	-6.02	28	-12.76	24
Youngstown	-7.30	27	-4.56	27	-17.12	27
Gary	-5.94	26	-0.59	25	-23.24	28
Buffalo	4.62	25	-2.61	26	-8.31	21
Cleveland	-3.57	24	0.04	23	-11.89	22
Newark, DE	-2.92	23	-0.05	24	-16.41	26
Detroit	-2.36	22	2.12	21	-14.56	25
Toledo	-0.44	21	7.23	11	-6.12	17
Akron	-0.42	20	2.80	20	-6.13	18
Chicago	0.16	19	7.56	9	-7.37	20
Milwaukee	2.52	18	5.79	15	-1.40	10
Syracuse	2.63	17	4.89	18	-3.67	12
St. Louis	2.82	16	6.41	14	-12.39	23
Philadelphia	2.98	15	8.02	8	-6.08	16
Rochester	3.21	14	5.66	16	-4.18	13
New York	3.29	13	1.74	22	3.55	3
Boston	3.30	12	3.54	19	2.01	6
Cincinnati	3.65	11	7.14	12	-5.55	15
Albany	4.60	10	5.32	17	-0.63	8
Providence	5.83	9	6.57	13	2.50	4
Hartford	6.85	8	7.51	10	2.45	5
Indianapolis	7.14	7	11.36	6	4.33	1
Allentown	8.06	6	10.59	7	1.34	7
Baltimore	8.31	5	16.52	4	-6.46	19
Kansas City	9.27	4	14.79	5	-2.88	11
Grand Rapids	14.41	3	18.92	2	4.00	2
Minneapolis	15.30	2	18.66	3	-0.69	9
Washington, D.C.	20.69	1	26.95	1	-4.94	14
AVERAGE	3.22		6.65		-5.45	

being offset by growth in the remainder of the region.

While the rankings in Figure 3 do not show an ironclad link between central city population decline and slow suburban growth, exceptions to this rule are relatively uncommon. Baltimore (which ranked fifth overall, fourth in suburban growth, and 19th in city growth) was the only metropolitan area with greater than average city decline and a suburban growth rate among the top 10. Detroit, contrary to the claims by the *Inquirer*, does not boast robust growth in the suburbs. Overall, the Detroit area ranked 22nd in population growth, with a decline of 2.4 percent. Suburban growth, at 2.1 percent, was very low, while the city suffered a decline of 14.6 percent. In terms of population growth, the Detroit metropolitan area is not an example of robust suburban growth coexisting with severe urban decline. In fact, Detroit's suburban growth ranked 21st among our sample of 28 Northeast and North Central metropolitan areas.

The Third Federal Reserve District's largest metropolitan area, Philadelphia, was squarely in the middle of the pack in terms of population growth, growing 3.0 percent and ranking 15th. The city of Philadelphia declined by 6.1 percent, for a rank of 16th, and the suburbs grew by 8.0 percent, ranking them eighth in population growth.¹³ The Philadelphia suburban growth rate is relatively high because it started from a low base compared with the size of the city of Philadelphia. Hence, the suburban growth rate did not improve the ranking of the entire metropolitan area as much as one might expect.

Income. We examined another measure of the health of a metropolitan area, growth in real per capita income, which is likely to be as

important to the regional economy as population growth. We examined the correlation between per capita income growth in suburban areas and central cities. Suburban income growth is plotted against city income growth in the 1960s, 1970s, and 1980s in Figure 4. The pattern is similar to the population findings: there was little correlation between suburban and city income growth in the 1960s, but there was a positive correlation of 0.70 in the 1970s and a very high correlation of 0.91 in the 1980s.¹⁴

Metropolitan area income growth rates for the 1980s are ranked in ascending order in Figure 5. Clearly, in the 1980s, metropolitan areas with high city income growth were very likely to have high suburban income growth, while those with slow city income growth were likely to have low suburban income growth. The Detroit metropolitan area, for example, ranked 19th in per capita income growth, growing by only 1.2 percent over seven years. This is well below the sample average growth of 5.7 percent. Detroit suburban income grew by only 0.4 percent (a rank of 22), while the city income fell by 0.6 percent (a rank of 23).¹⁵ Although suburban Detroit income growth was anemic relative to other suburbs, it was large enough to make the suburbs appear increasingly prosperous when compared with the city of Detroit.

Turning to the Philadelphia metropolitan area, we find that it ranks eighth in overall income growth, growing 12.0 percent. The strong suburban growth of 13.1 percent also ranked eighth among suburban areas. Growth

¹⁴The positive correlations evident in the last two decades occurred despite the fact that high income people moved to the suburbs faster than low income people, which would tend to cause a negative correlation.

¹⁵The metropolitan percent growth is not simply an average of the growth rate of suburbs and city because some lower income people can move from the city to the suburbs, lowering the suburban growth rate but leaving the metropolitan rate unchanged.

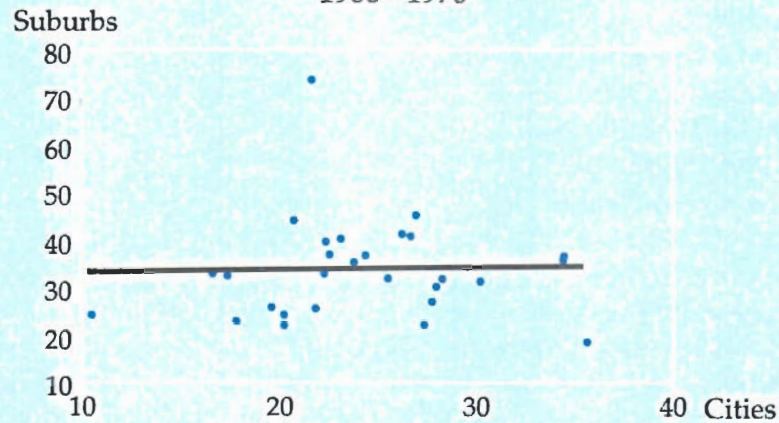
¹³Note that even though Philadelphia suburban population growth ranked eighth, its 8.02 percent growth was within a percentage point of the 12th-ranked city.

in income in the city was lower, at 5.6 percent, but this growth rate was sufficient to rank the city ninth in income growth. Philadelphia is a good example of the general case, in which suburbs with rapid income growth tend to also have cities with relatively strong income growth. Interestingly, even though Philadelphia income growth was strong relative to other cities, income growth in the city was weak relative to the growth in its suburbs.

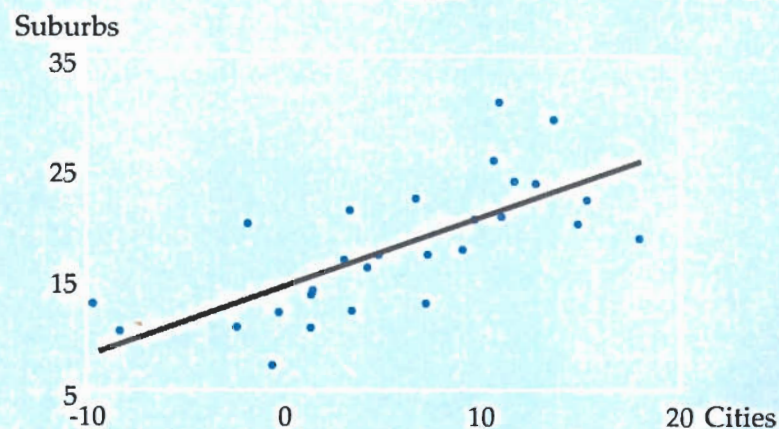
The high rank correlation confirms that it is unlikely that a metropolitan area's suburban economic performance, as measured by income growth, is strong relative to other suburban areas if the metropolitan area has declining central city incomes. With the divergence in suburban and city incomes, however, residents are likely to perceive that the suburban economy is healthy because suburban income levels and growth rates are so much higher than those of their city neighbors. This disparity masks the dif-

FIGURE 4
Income Growth

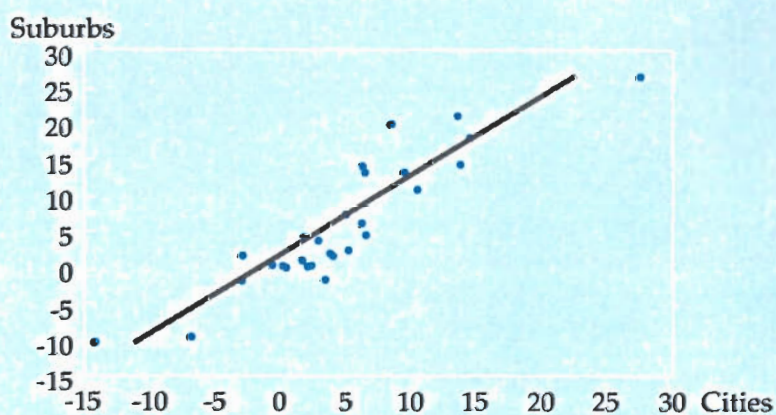
1960 - 1970



1970 - 1980



1980 - 1987



ferences in suburban income growth across metropolitan areas with growing and declining cities.

Employment. Changes in per capita income affect the relative prosperity of city dwellers and suburbanites. Shifts in population reflect the choices of workers in their evaluation of places to live. Employment, on the other hand, is a good indicator of the desirability of a community from the firm's point of view. We examined employment growth in cities and suburbs during the period from 1976 to 1986 and once again found evidence of complementarity. The correlation between city and suburban employment growth was 0.7 during the period. While high correlation between city and suburban growth in employment, income, and population does

not prove that city and suburban growth are complementary, it is uncommon to find suburbs that are experiencing robust growth while the central city is in severe decline. Other research based on data in the Philadelphia area, however, does provide direct evidence of one link between the city and suburban economy. Suburban house values tend to fluctuate with

FIGURE 5
Income Growth Rates
1980 - 1987

MSA	MSA Growth Rate	MSA Rank	Suburban Growth Rate	Suburban Rank	City Growth Rate	City Rank
Gary	-10.78	28	-10.05	28	-14.83	28
Youngstown	-8.31	27	-9.26	27	-7.55	27
Cleveland	-1.24	26	-1.62	26	-3.75	26
Pittsburgh	-0.74	25	-1.47	25	2.59	16
Toledo	-0.17	24	0.49	20	-1.45	24
Milwaukee	0.48	23	1.81	17	-3.69	25
Chicago	0.50	22	0.19	24	-0.39	22
Akron	0.63	21	0.32	23	1.23	19
Grand Rapids	1.15	20	0.47	21	1.52	18
Detroit	1.20	19	0.40	22	-0.65	23
Buffalo	1.71	18	1.15	19	0.83	21
Kansas City	2.03	17	1.80	18	3.19	14
Rochester	2.60	16	2.10	16	2.93	15
Indianapolis	2.89	15	3.86	14	2.04	17
Cincinnati	3.21	14	2.56	15	4.34	12
Allentown	3.86	13	4.36	13	1.01	20
St. Louis	5.69	12	4.62	12	5.68	8
Minneapolis	6.54	11	6.25	11	5.38	11
Syracuse	7.12	10	7.42	10	4.15	13
Albany	10.72	9	10.82	9	9.61	5
Philadelphia	11.95	8	13.14	8	5.60	9
Washington, D.C.	12.94	7	14.02	6	5.42	10
Providence	13.56	6	14.27	5	12.89	3
Baltimore	13.64	5	13.18	7	8.62	6
New York	14.25	4	17.94	4	13.61	2
Newark, DE	18.59	3	19.86	3	7.65	7
Hartford	20.11	2	20.99	2	12.69	4
Boston	25.58	1	26.44	1	26.59	1
AVERAGE	5.70		5.93		3.76	

the fortunes of the city (see *A Clear Link: Central City Employment Growth and Suburban House Values*, p. 32).

CONCLUSION

In summary, city and suburban population, per capita real income, and employment growth in 28 MSAs in the Northeast and North Central

regions are positively correlated, suggesting that cities and suburbs are complements. Decline in central cities is likely to be associated with slow-growing suburbs. Even if the most acute problems associated with urban decline do not arise in the suburbs, central city decline is likely to be a long-run, slow drain on the economic and social vitality of the region.

The long-run, gradual nature of the negative effects of urban decline make it difficult to observe, let alone mobilize support for policies to prevent urban decline. In particular, the negative impact may be unrecognized by suburban residents because the suburb is performing so much better than its declining central city counterpart. However, suburbs in metropolitan areas with declining cities are likely to be performing poorly when compared with other metropolitan areas with healthy cities. Thus,

suburban residents may perceive themselves as relatively better off when compared with their city neighbors, even though their house values are adversely affected by the city decline.

From a policy perspective, the evidence of complementarity suggests that both city and suburb could improve their welfare through cooperative actions to arrest urban decline. These actions might include regional financing of social service programs, regional efforts to improve educational opportunities for children in poor-quality school districts, and the elimination of large differences in local tax rates, especially taxes on mobile factors such as labor. Policies that require cooperation to achieve long-run objectives, however, may be difficult to forge, since there are likely to be short-run benefits for suburban areas from central city decline.

Central City Employment Growth and Suburban House Values

If complementarity is important, the relative health of the city should have an impact on suburban housing markets. Expanding opportunities in the central city should increase the value of properties that are highly accessible to the central city.^a To bring the issue of city and suburban complementarity into sharper focus, we examined the relationship between employment growth in the city and house prices in the suburbs.

Using data on nearly 60,000 house sales in Montgomery County, a suburb of Philadelphia, we measured how much more people were willing to pay for a house with good access to downtown Philadelphia compared with similar houses with poor downtown access.^b We measured this "accessibility premium" for each year from 1970 to 1988 and found that the premium is closely related to the level of growth in employment in the city of Philadelphia.

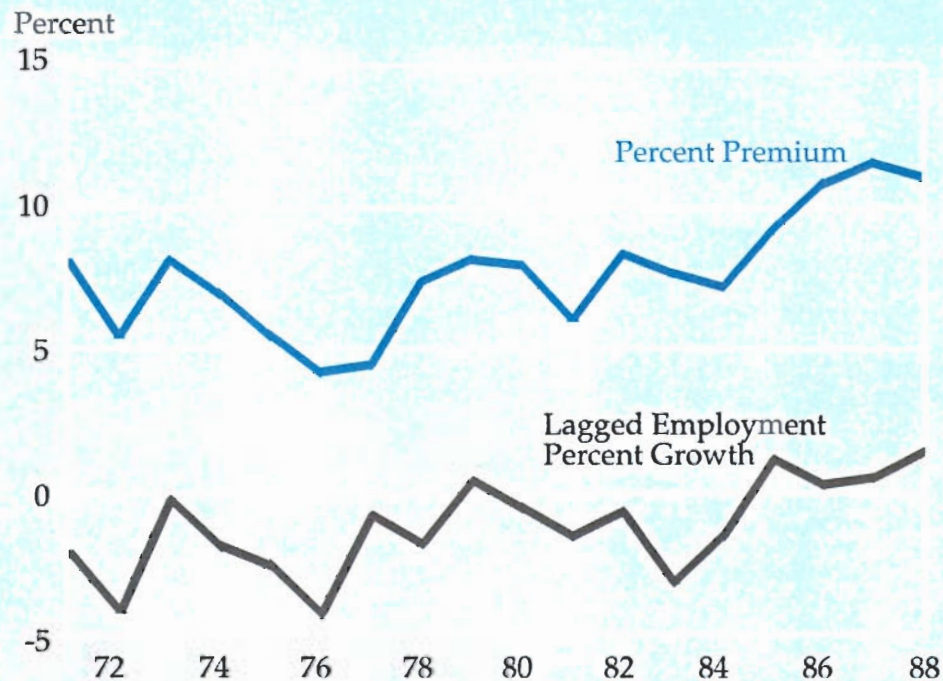
The figure shows the estimated premium (as a percent of house value) that residents pay to live in a neighborhood with commuter train service to downtown Philadelphia together with employment growth in the city.^c In general, when Philadelphia employment grew, an increase in the value of city-accessible suburban housing followed. Conversely, when employment fell, the premium paid for accessibility fell. Coincident with an employment decline of 18 percent from 1970 to 1977, the premium fell from more than \$12,500 to a little more than \$5500.^d In the subsequent seven years, the premium was relatively stable,

^aIn "Transportation, Sorting and House Values," *ARUEUA Journal*, 19 (1991), pp. 117-37, Richard Voith finds that the aggregate value of accessibility premiums can be very large. He estimates that the aggregate value of the premium for train accessibility to downtown Philadelphia was almost \$1.5 billion in 1980. An easily readable summary of this study is in the July/August (1991) *Business Review*, in an article entitled "Does Access to Center City Still Matter?"

^bFor a description of this study, see Richard Voith, "Changing Capitalization of CBD-Oriented Transportation Systems: Evidence from Philadelphia, 1970-1988," *Journal of Urban Economics* (forthcoming). This study is also available as Federal Reserve Bank of Philadelphia Working Paper 91-19.

^cRegression analysis indicates that 55 percent of the movement in the premium can be explained by employment growth alone. The findings presented here are for train accessibility, but the same qualitative results hold for accessibility by car as well.

^dFigures are in 1990 constant dollars.



averaging \$8930. City employment declined less rapidly, 7.7 percent, but the central business district (CBD), the major area of employment for suburban commuters, enjoyed relative success during this period.⁶

The final four years we examined, 1984-1988, witnessed dramatic growth in the premium for city accessibility, increasing from \$8400 in 1984 to \$20,500 in 1988. This period was marked by overall city employment growth and rapid growth in the CBD. The increased premium for city accessibility occurred despite dramatic suburban employment growth during this period and despite the perception reflected in the *Inquirer's* editorial that events in the city do not affect the suburbs. The link between suburban house values and city employment is one important aspect of the complementarity between cities and suburbs.

⁶See Anita Summers and Peter Linneman, "Patterns and Processes of Urban Employment Decentralization in the U.S., 1976-1986," Wharton Real Estate Center Working Paper 75 (1990), University of Pennsylvania. They find that employment in the Philadelphia CBD grew in the period from 1976 to 1980 and again from 1980 to 1986.