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Small Cities Blues: Looking for Growth Factors in Small and Medium-Sized Cities

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Abstract

The purpose of this exploratory study is to attempt to identify particular public policies which have the potential to increase the economic viability of smaller metropolitan areas and cities. We identify characteristics associated with smaller metro areas that performed better-than-expected (winners) and worse-than-expected (losers) during the 1990s, given their resources, industrial mix, and location as of 1990. Once these characteristics have been identified, we look for evidence that public policy choices may have promoted and enhanced a metro area's ability to succeed and to regain control of its own economic destiny. Methodologically, we construct a regression model which identifies the small metro areas that achieved higher-than-expected economic prosperity (winners) and the areas that saw lower-than-expected economic prosperity (losers) according to the model. Next, we explore whether indications exist that winners and losers are qualitatively different from other areas in ways that may indicate consequences of policy choices. A cluster analysis is completed to group the metro areas based on changes in a host of social, economic, and demographic variables between 1990 and 2000. We then use contingency table analysis and ANOVA to see if "winning" or "losing," as measured by the error term from the regression, is related to the grouping of metro areas in a way that may indicate the presence of deliberate and replicable government policy.

INTRODUCTION

In today's dynamic global economy, smaller metropolitan areas in the United States have lost much of their economic role and vitality. These areas often are held hostage to decisions made in large company boardrooms (Watts and Kirkham 1999). In particular, in the wake of corporate mergers, many areas are becoming branch plant production locations that, in turn, do not generate a social or civic environment attractive to professional workers. Moreover, because of mergers and closures, these areas often lose key private sector stakeholders who, in the past, would have been major players in creating and implementing public and private policies to bolster the area against the negative impacts of downsizing and relocations of major employers. In short, some question whether these smaller places really have a role in today's global economy (Kelley 1996; Glaeser and Shapiro 2003).

Yet, mayors of all sizes of cities firmly believe that "now, more than ever, the continued vitality of cities and the nation are dependent upon mayors and private sector leaders tackling issues of common concern such as, but not limited to: streamlining government, providing homeland security and public safety, building affordable housing, investing in kids and schools, promoting the arts, culture, and sports, recycling land and preserving open spaces, investing tax cuts in challenged neighborhoods and working families, workforce training, modernizing infrastructure, and increasing access to affordable healthcare."[1]

The purpose of this study is to see whether statistical evidence exists to suggest that particular public policies can increase the economic viability of metropolitan areas and cities. We identify characteristics associated with smaller metro areas that performed better than expected (winners) and worse than expected (losers) during the 1990s given their resources, industrial mix, and location as of 1990. Once these characteristics are identified, we look for evidence that public policy choices may have promoted and enhanced a metro area's ability to succeed and to regain control of its own economic destiny. First, we construct a regression model that we use to forecast the growth of metropolitan areas during the 1990s. Then we identify the small metro areas that achieved higher-than-expected economic prosperity (winners) and the areas that saw lower-than-expected economic prosperity (losers) according to the model. The regression model includes a shift share variable plus a variety of trend and condition variables, all measured as of 1990. The unexplained portion of growth is captured in the error term from the regression.

Next, we explore whether indications exist that winners and losers are qualitatively different from other areas in ways that may indicate consequences of policy choices. We do a variety of statistical tests, using the error term as the dependent variable, to examine this question. Variables used in these tests are all measured for 2000, or as changes in their levels from 1990 to 2000. The

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[1]Betty Flores, Mayor of Laredo, in a letter available at: http://usmayors.org/uscm/buscouncile/default.asp.

first test is a regression that uses city public-finance variables as the regressors. Next a cluster analysis is completed to group the metro areas based on changes in a host of social, economic, and demographic variables between 1990 and 2000. We then use contingency table analysis and ANOVA to see if "winning" or "losing," as measured by the error term from the regression, is related to the grouping of metro areas in a way that may indicate the presence of deliberate and replicable government policy.

We recognize that a metro area's success, of lack thereof, could be as simple as the recent birth of a Fortune 500 company or a series of plant openings or closings (see Barrow and Hall 1995; Palmer 1994; Foust 2003). Yet, some areas may be pursuing policies that are transferable, yield tangible results, and may be key to revitalizing many of our metropolitan areas. This paper is the first step toward our ultimate research goal: to identify these transferable activities.

LITERATURE REVIEW

The Current Economic Environment Facing Small Metropolitan Areas

Case studies have documented the impact of the loss of a major industrial employer on a community (Kirsch 1998; Teaford 1994). Smaller metro areas have fewer resiliencies against economic downturns and plant closings or major downsizings (Siegel and Waxman 2001). The private industry leadership pool disappears. An emotional and civic void is created, and it is likely that most smaller areas lack the economic capacity necessary to weather the shutdown or downsizing of these major employers. The several thousand workers who lose their jobs all at once are not reabsorbed easily or quickly into the local labor market (Moore 1996).

Amenities, particularly cultural entities and events, are supposed to stimulate the growth of cities both large and small (Moses 2001; Fulton and Shigley 2001; Gottleib 1995). Small metro areas may lack growth-facilitating amenities, especially for professional workers. According to Florida (2002), small metro areas are held back not because they lack impressive art museums or major league sports teams, but because of their manufacturing heritage or culture, lack of and intolerance of diversity, and aging population. More and more young professionals see small metro areas as "fly-overs." While, older professionals may see small metro areas as nice places to raise their families; however, they may not be as entrepreneurial as the younger population.

Review of Past Studies

Siegel and Waxman (2001) point to six challenges for small cities: 1) out-of-date infrastructure, 2) dependence on traditional industry, 3) obsolete human capital base, 4) declining regional competitiveness, 5) weakened civic infrastructure and capacity, and 6) limited access to resources. In much of the recent literature on urban growth, the benefits of urban

agglomeration—particularly that of industrial clustering—still hold center stage (Krugman 1998; O hUallachain 1999; Mayer and Greenberg 2001; Camagni 2002; Porter 2000, 2003). This is in contrast to earlier times, when decentralization caused by decreasing transportation and communication costs was considered the norm (Zelinsky 1962). Lovering (1999) discusses the dearth of empirical studies of the causes of urban economic growth.

One of the existing gaps in the research that we hope to fill is that most of the recent work on economic growth and transition in American urban areas has concentrated on large metro areas—those with 1 million or more in population (Glaeser and Shapiro 2003a, b; Berube 2003; Pack 2002; Gottlieb 2001). Very few studies of small metro areas exist and most of them are case studies. (For instance, through a series of interviews with local officials, Mayer and Greenberg (2001) examined 34 small cities that had suffered a major plant closing to see how they fared in the years after the event.) Still, regardless of methodology, almost all studies show that on a number of measurable scales, such as unemployment and poverty rates or population decreases, smaller cities are losing their economic viability in the new global economy (U.S. Department of Housing and Urban Development 1999; Erhlick 2000; Raymond and Pascarella 1987). Moreover, if agglomeration or clustering is an important precursor to growth, smaller areas may be at a disadvantage in their ability to use policy to reshape their economies. Data limitations have been one reason for the paucity of empirical studies of small areas (Smith 1990).

On the other hand, some researchers doubt that a city's size, by itself, is as important as the lack of economic structure and networks that are likely found in larger metropolitan areas (Wojan and Pulver 1995; Gabaix 1999). Bee (2003) also argues that size may not matter, yet finds that the existence of large corporate research and development centers is a key to growth. Small metro areas are unlikely to have such centers. Similarly, in a study of the largest 150 metro areas, Anselin Varga and Acs (1997) find that knowledge spillovers from universities only occur when an area has a dense intellectual infrastructure already in place. For a conflicting view of knowledge spillovers and city growth, see Glaeser et al. (1992).

Unfortunately for small metro areas, evidence on their potential cost advantages for manufacturing activity is mixed. Martin, McHugh and Johnson (1991) speculate that manufacturing is still sensitive enough to locational size advantages that economic development policy can be targeted to specific industries for specific places. Yet, evidence that large firms respond to agglomeration economies abounds. For instance, Shilton and Stanley (1999), in a study of 5,189 headquarters of large U.S. firms, found that 40 percent were located in 20 counties, including California's Orange County (Los Angeles) and Santa Clara County (Silicon Valley). Changes in transportation and telecommunication technology have not led to decentralization of employment

from larger metro areas to smaller ones or non-metro areas; instead, professional and managerial occupations tend to be concentrated in larger metro areas (Cook Kirschner, and Beck 1991).

DEVELOPMENT OF A PREDICTIVE MODEL

In constructing the predictive model for the growth of metro areas between 1990 and 2000, and particularly in the selection of structural variables, we relied heavily on the product cycle theory of economic growth (Markusen 1985). The product cycle model suggests that a region's economic performance depends upon the "product age" of its primary export-base industries. Areas with export- base firms that are producing mature or commodity-grade products or services are expected to grow more slowly than areas with high-profit firms producing more cutting-edge products that face less cost-based competition while enjoying expanding markets. Quite often these high-profit firms are proprietorships and are small in size, employing between 20 and 40 workers. However, they are not the micro-employers (firms employing fewer than 20 workers). In fact, according to the standard product-cycle model, little employment growth can be expected from an area's smallest export-base firms, as they are still testing the marketability of their product or service.

However, Plummer and Taylor (2001a, b) examined and contrasted the performance of six theoretical models of regional economic performance, including the product-cycle model, and found that none of variables they used as proxies for theoretical models explained much of the difference in regional performance, as defined by unemployment rate differentials. Still, the "learning regions" variables did the best, although these may be pointing to the importance of an area's enterprise culture based on a combination of entrepreneurship and a strong human-resource base instead of a formal learning process. Glaeser and Shapiro (2003b) examined population growth trends during the 1970s and 1980s and found that population trends in the 1990s were not significantly different from those of past decades. Still, they also found that an area's weather and human capital assets matter. Because of these two studies, we also used a variable to capture the areas' quality of human capital and climate.

Description of the Model

Again, the objective of the regression analysis is to identify the key factors that contributed to the growth of small and medium-sized cities during the 1990s. After we construct the model, we use it to identify the metropolitan areas that outperformed or underperformed expectations. Our data set was limited to the 267 metro areas that had populations of 1 million or less in 1990. We performed a Chow test on our regression, using these 267 areas as a subset of the 318 metropolitan areas defined by the Bureau of Economic Analysis for the United States. The Chow test showed that the regression results for smaller areas are significantly different from those for all areas.

Selecting the proper dependent variable in this study was no easy task. An ideal measure would capture increases in the capacity to improve the quality of life within the area as well as improvements in the quality of life. After much debate, we chose as our measure of economic growth the percentage change in personal income for the period 1989 to 1999. We also considered using changes in population, employment, and per capita income. We eliminated population change because population gains can be associated with congestion and increased demand for government services without accompanying increases in revenue, thus diminishing an area's quality of life. Employment growth as a measure of economic performance does not address the issue of the quality of jobs being generated.[2]

As manufacturing has declined, job growth in many urban areas has come primarily in other sectors that typically pay lower wages (U.S. Conference of Mayors 2004). Change in per capita income was not used because we feared it could yield a "false positive" and because it does not reflect the total financial resources that are available to the local government. An area can have an increase in per capita income while at the same time suffering a declining economic or resource base. If the area's economy is both stagnating and highly dependent on one or two high-wage employers, then as unemployed people leave the area, its per capita income can rise. On the other hand, if the same area was growing but the new jobs being created were in small, innovative businesses that paid relatively low wages, its overall per capita income could fall. While total income growth is not a perfect measure, it does reflect an increase in the financial capacity of local governments to address quality of life issues.

The growth of a metropolitan area depends upon its economic structure, human capital resources, quality of life factors, historical trends and, of course, location. The variables used as proxies for each of these factors are discussed below. Descriptive statistics for them are given in Table 1 below.

Structural Variables

We used four variables to estimate the impact of the region's industrial structure on its growth during the 1990s. The first variable is the industrial mix component of a standard shift-share model. The standard shift-share model divides an area's growth into three components: 1) National trend, 2)Industrial mix and 3)Competitive share. National trend captures the portion of an area's growth that can be attributed to the general growth of the national economy during the period. The

[2]We did run the model using the percentage change in employment during the 1990s as the dependent variable. The results were very similar to the model used: the simple correlation between resulting lists of winning and losing metro areas was 0.77.

Table 1 Descriptive Statistics for Variables in Predictive Equation

	Mean	Median	Maximum	Minimum	Standard deviation
Structural variables					
Industrial shift, 1989 to 1999 ($ 000)	−199529	−139075	1144523	−2911987	320667
% businesses employing fewer than 20 workers in 1990	33.3	32.2	54.6	19.2	6.3
% businesses employing between 20 and 49 workers in 1990	20.2	19.7	51.8	13.4	3.4
% chg in proprietors' income, 1980–1990	79.7	75.8	299	7.2	0.379
Human capital variables					
% residents, 25 or older, w/ college education in 1990	19.1	17.5	44	9.5	6.3
Quality of life variables					
Average July temperature (degrees)	56.6	54.8	77.5	36.3	8.5
Annual precipitation (inches)	37.5	38.7	66.3	3	14
Burglaries per 100,000 residents, 1992	2765	1702	17604	98	2883
Larcenies per 100,000 residents, 1992	8384	5718	42616	321	735
Historical trends variables					
Per capita income, 1989	16539	16184	28068	8691	2630
% chg in metro poverty rate, 1979–1989	21.2	19.3	90	−58.5	0.237
% chg in population, 1979–1989	11.5	8	89.8	−14.8	0.155

SOURCE: All data are from U.S. Census 1990 or 1980 except: Industrial shift, calculated from REIS data from the BEA; % business employment, estimates based on data from the 1990 County Business Patterns; climate data from the National Climate Data Center; and crime data from FBI reports.

industrial mix captures that portion of an area's growth that can be attributed to having a higher (or lower) share of the nation's best-performing industries. If an area is lucky to have a high concentration of industries that are enjoying strong national growth then, *regardless of the relative performance of its firms in those industries*, it can expect to do better than if it were stuck with a high concentration of industries that were suffering declining national markets. The final component, Competitive share, captures the area's growth that can be attributed to its firms doing better than their national counterparts.

Mathematically, the three components are defined as follows:

Change in local earnings, 1989 to 1999 =

National trend: $\sum$ Ir89 * (% chg. in total U.S. earnings) +

Industrial mix: $\sum$ Ir89 * (% chg. in I in the U.S. – % chg. in total U.S. earnings) +

Competitive share: $\sum$ Ir89 * (% chg. in Ir89 – % chg. in I in the U.S.)

where r89 = 1989 earnings in industry I in the region.

The Industrial mix variable is not affected by the economic performance of the regions' firms during the 1990s. We expect regions that had a high percentage of their firms in industries that performed well during the 1990s nationwide to have achieved higher growth than those who had a higher percentage of their firms in poorly performing industries.

The next two variables measure firm size in the region. We expect that the short-run growth potential of regions with a high percentage of their business establishments in micro-firms, employing fewer than 20 workers, will be diminished, because these small establishments do not have the resources, products, or services to achieve substantial growth. On the other hand, regions with a high percentage of their establishments employing 20 to 49 workers are more likely to contain firms that can achieve above-average short-term growth.

We included the percent change in the income of the region's proprietors during the 1980s as a proxy for the region's "entrepreneurship" environment as it entered the 1990s. Success breeds success. Finally, we included a dummy variable that tells us if the area is part of a larger consolidated metropolitan areas. Such areas should do better than more isolated areas because of the added size of their local labor forces and economies.

Human Capital

The sole variable used to measure the impact of human capital formation on the region's growth in personal income was the percent of individuals 25 years of age and older in 1990, with

four or more years of college. Starting the decade with a more educated workforce would likely give a metro area a competitive advantage.

Quality of Life Variables

The model includes climate and public safety variables as proxies for the metropolitan area's quality of life. We used the same climate variables as Glaeser and Shapiro (2003b): mean July temperature and the average annual amount of precipitation. Because of data constraints, the public safety variables were measured as of 1992, although this year falls within the forecast period. These variables were taken from the level of reported criminal activity in 1992 (burglary and larceny rates).

Trend Variables

The final set of variables in the model included trend and level variables and regional dummies. Metropolitan areas that achieved positive (or negative) growth during the 1980s were expected to also do well (or poorly) in the 1990s. The trend variables include, 1989 per capita income, percent change in population, and percent change in the poverty rate, with all the change variables measured between 1979 and 1989, or between 1980 and 1990.

RESULTS

The results of our model are shown in Table 2. The model explains 70.1 percent of the variation of the percent change in personal income between 1990 and 2000.

All of the structural variables are significant and hold the expected signs. The industrial composition of a metro area's economy matters. An increase in an area's earned income from 1989 to 1999, attributed to the national performance of its industries (independent of the relative performance of its firms), added to the percentage increase in the area's personal income. Moreover, the size composition of an area's businesses matters. An increase in the percentage of firms in the "takeoff" range of 20 to 49 workers in 1990 is associated with a positive, although statistically insignificant, increase in personal income during the period. On the other hand, areas having a larger percentage of their businesses in micro establishments, employing fewer than 20 workers, reduced the areas' personal income growth. Finally, entrepreneurship capacity also matters. An increase in proprietors' income during the 1980s is associated with an increase in personal income during the 1990s.

Human capital is also important. The education achievement level of residents age 25 and older in 1990 had a significant effect on the personal income of metro areas in the 1990s as well.

Table 2 Economic Performance Predictive Regression

Dependent variable is % change in personal income, 1999 – 2000

	Coefficient	Std. err.	T-stat	P>|t|
Structural				
Industrial shift, 1989 to 1999[a]	0.0161	0.0031	5.13	0
% businesses employing less than 20 people in 1990	−0.0689	0.2121	3.25	0.001
% businesses employing between 20 and 49 people in 1990	0.0484	0.36	1.34	0.18
Chg in proprietor's income, 1980 – 1990	0.2567	0.0268	9.57	0
Human capital				
% of residents, 25 and older, with college education in 1990	0.5762	0.1537	3.75	0
Quality of life				
Average July temperature	−0.0059	0.0015	−3.86	0
Annual precipitation	0.0029	0.0008	3.76	0
Burglaries per 100,000 residents, 1992[a]	−2.1394	0.8829	−2.42	0.016
Larcenies per 100,000 residents, 1992[a]	0.9441	0.342	2.76	0.006
Historical trends				
Per capita income, 1989[a]	−2.0872	-0.3999	−5.22	0
Chg in population, 1979 – 1989	0.7245	0.0835	8.67	0
% chg in metro poverty, 1979 – 1989	−0.0853	0.0427	−2	0.047
Rocky Mountain states	0.2105	0.0425	4.96	0
Mideast states	−0.1521	0.0281	−5.41	0
Northeast states	−0.1469	0.0503	−2.92	0.002
Constant	1.2566	0.145	8.67	0

Note: Number of observations: 267; Adjusted R-squared: 0.701;

[a] multiplied by 1/100000.

An increase in the percent of residents age 25 and older with four or more years of college is associated with increases in the area's personal income.

The model's quality of life climate variables, while significant, have the wrong sign. The reason for this counterintuitive result is most likely that these variables are interacting with the historical trend variables. Population changes in the 1980s were due in part to climate and quality of life considerations, so that some of the impact of these variables is rolled into the impact of the earlier population shift variables. The other surprising result was that per capita income was negatively associated, while the number of larcenies per 100,000 residents in 1992 was positively related with the change in personal income during the 1990s.

Winners and Losers

Table A.1 in the appendix ranks all 267 metro areas in our analysis according the size of the error term associated with the regression in Table 2. The way to interpret this error term is as follows: whereas the model predicted personal income in Laredo, Texas, would increase by 111.2 percent during the 1990s, personal income actually rose by 160.8 percent. In other words, Laredo exceeded the model's forecast of its personal income growth by 49.6 percent. At the other end of the spectrum, personal income in El Paso, Texas was predicted to increase by 118.5 percent but grew by only 86.0 percent.

The results are encouraging since metropolitan areas in similar environments can have strikingly different error values, suggesting that unique public policy actions and economic development events or accidents may have made a difference. For example, even though El Paso, Texas, is the only other main border city in Texas besides Laredo, it did surprisingly poorly. Likewise, although Melbourne-Titusville-Palm Bay, Florida, performed well below expectations, Naples, Florida, strongly exceeded expectations.

Finally, the unique structure of the rankings below must be remembered. The top and lowest ranked metro areas are nothing more than statistical outliers. They do not share any commonality other than that they defied the model's forecast. For example, personal income in Laredo grew by 160.8 percent from 1989 to 1999. However, personal income in Provo–Orem, Utah, grew by a strong 146.9 percent, yet the city is ranked only 253th because the model predicted that it should have grown by 165.0 percent. In fact, the rapidly expanding Provo–Orem area is ranked right below Dothan, Alabama, which grew by only 62.5 percent during the period (the model predicted that personal income in the area would have grown by 80.3 percent).

The next step in the analysis is to attempt to uncover the reasons why some areas did far better or worse than expected.

AN EXPLORATORY ANALYSIS OF POSSIBLE PUBLIC POLICY IMPACTS

Several previous studies suggest that public policy actions on the state and local levels may have limited results, while others conclude that such actions do have positive benefits (Wassmer 1994). Crihfield and Panggabean (1995) studied 282 metro areas from 1960 to 1982 and found that "public policies, and especially public-sector investments, played an insignificant role in metropolitan growth and in convergence of per capital incomes" (p. 157). They concluded that "there is virtually no evidence that local or state infrastructure plays an important role in the growth of metropolitan economies" (p. 160). Similarly, Friedman (1995) could find no best practices for small firm formation. Still, after surveying 65 cities with populations of greater than 250,000 where 71 major cultural buildings had been built in a short time span, Strom (2002) concluded that spending on culture and the arts may help attract knowledge workers. Moreover, Johnson (2002), in his review of case studies, concluded that civic entrepreneurship where local governments create partnerships and alliances with industry and universities can be the key to revival of distressed areas. An example is Tacoma, Washington, where access to broadband communication technology appears to be spurring economic growth.

Disagreement exists regarding the importance of federal policies as well. Markusen and Carlson (1989) say federal policy is vital to any region's sustainability. "If a city lacks the basics for economic viability, what does it have left except some type of massive support by the federal government?" (Irving Baker, quoted in Kelley 1996, p. 36) But what if the federal government has no specific urban policy? Bourne (1991) points out that the trend since the 1980s has been toward political decentralization, fragmentation, deregulation of the private sector, and relocation of functions and responsibilities from the public to the private sphere. This trend has not changed (National League of Cities 2003).

A TEST OF THE IMPORTANCE OF GOVERNMENTAL ACTIVITY

As a first step, a regression was run using the error term from the regression equation in Table 2 as the dependent variable. The independent variables were proxies for changes in the level of governmental activity within the area during the decade of the 1990s and for connections between local governments and the regional economy. Descriptive statistics are given in Table 3.

Quantifying the ability of government policy to affect the economic outcome of a region is difficult. One of the major problems is that every state defines the powers and responsibilities of local governments differently, so policies that may appear to be the same across jurisdictions can be very different in practice. Even within states, policies can appear to be identical, but in actuality be very different in focus and intended outcomes. Yet, in a very general sense, public policy should

Table 3 Descriptive Statistics for Independent Variables in Regression 2

	Mean	Minimum	Maximum	Standard deviation
% chg. all city taxes, 1992–1997	1.33	0	6.158	0.401
% chg. City expenditure, 1992–1997	1.265	0.687	3.036	0.332
% chg. government employment, 1990–2000	1.191	0.84	1.86	0.141
No. of local governments	30.035	1	202	30.421

SOURCE: Census of Governments 1992 and 1997; U.S. Census 2000.

increase an area's capacity to improve its quality of life by increasing resources available to the public sector.

Cities typically are allowed to provide a broader range of services than other local governments and, historically, they have done so. Accordingly, we wanted to focus on the impact of city policy on metro success. Consequently, in this analysis we used the percentage change in the level of all tax collections by cities within the metro area between 1992 and 1997. Tax collections are a function of jurisdictional income or property wealth, yet in this age of initiatives they are also a function of voter approval of governmental action. A positive change in taxes collected would indicate that the city governments have increasing capacity. The next variable is percentage change in city expenditures between 1992 and 1997. Local governments are becoming more creative in locating funding sources besides taxes. Since policy implementation requires funding, more expenditures should be related to more activist policy initiatives. These two variables are aggregated for all cities within each metro area. The last variable in this category tracks the size of government relative to the size of the region as measured by the change in percentage of non-farm income that accrues to those in the state and local governmental sector in the region. Decreases in this percentage might indicate increased efficiencies in service provisions by local governments, less rigidity in the provision of services, or fewer services.

The tighter the connections between local governments, the more probable are economies of scale in service provision and a focus on regional rather than jurisdictional growth. We used two proxies to measure these connections. The first is the number of municipal governments (cities, towns, or villages) in the region. Following Rusk (1999), we hypothesize that the more governments in a region, the more difficult intergovernmental cooperation becomes. The other variable is the percentage change in the number of governmental employees in the region between 1990 and 2000. We hypothesized that those regions that saw an increase over the period in governmental employment would have a more positive view of governmental activity and interactions than other areas.

Regression Results

The results are given in Table 4. The variables measuring change in the level of governmental activity are all significant with the expected signs; however, only 17 percent of variation in the error term was explained by the regression. Nonetheless, the regression offers some evidence that governmental activity is related to regional performance in the 1990s even though it gives us no indication of what local governments did that added to the region's success. The error term from regression 1, indicating the difference between predicted and actual income growth, was both positive and larger for the areas' expenditures, indicating that these are areas that performed better than expected. Tax collections were positive but not significant. At the same time, for areas that outperformed the forecast, employment in all governmental sectors increased significantly over the 1990s. The more local governments in a region, the more likely a region was to have outperformed the forecast. This may reflect an intraregional migration of people and business from high-tax, high-public-activity cities to low-cost, low-service-provision suburbs.

Table 4 Regression 2: Impact of Government on Error in Regression 1

Dependent variable: Winner and loser status (error term from regression 1)

Changes in levels of governmental activity	Coefficient	Std. err.	T-stat	P>|t|
% chg. city expenditure, 1992 to 1997	0.087	0.025	3.56	0
% chg. all city taxes, 1992 to 1997	0.025	0.02	1.256	0.21
% chg. governmental employment, 1990 to 2000	0.269	0.052	5.196	0
No. of local governments	0.001	.0.00 0	2.728	0.007
Constant	−0.485	0.067	−7.186	0
Observations 267Adj.				**R-square 0.174**

CLUSTER ANALYSIS BASED ON CHANGES IN REGIONAL PERFORMANCE DURING THE 1990S

In this section we report on results obtained with a more exploratory technique called cluster analysis. The technique is designed to reveal natural groupings (or clusters) within a data set that would otherwise not be apparent. It sorts the metro areas into groups sharing similar changes in fiscal, social, or demographic characteristics during the 1990s. The analysis creates groups in which group members are as homogeneous as possible, with respect to the means of the variables used in the analysis, while being as distinct as possible from members of other groups, again with respect to the means. The number of clusters is arbitrary, and membership in a cluster can change when variables are added to or subtracted from the analysis, or when the number of clusters is

changed. Still, it is a useful technique for finding similarities in a large data set with a large number of variables. Thirty-five variables are used to determine membership in eight distinct clusters.

Successful policies should change real aspects of the metro area. Accordingly, the variables used to define the clusters correspond to important variables in recent theories of urban economic development. In most of these theories is a role for local governmental or social policy as a stimulant for economic growth, be it the encouragement of industrial clustering or of educational attainment. While most areas pursue economic development, community development, or regional policies because they believe these policies lead to greater prosperity than would otherwise be the case, validating such beliefs is difficult (see Wassmer 1994; Wolman, Ford, and Hill 1994; and Orr and West 2002). Local governmental policies tend to be broad and outcome-oriented and often consist of goals such as "Increase homeownership rates." Outcomes are often multidimensional and difficult to quantify. Thus, the very nature of local policy formulation, articulation, and implementation may make it difficult to recognize a successful policy when examining variables. At the same time, however, it seems reasonable to assume that areas that pursue different policies would be different in multiple, quantifiable ways. Using cluster analysis helps to define homogeneous groups of metro areas that are different in multidimensional ways. After identifying the clusters, we then ask if the metro areas fall into clusters that are related to "winning" and "losing" as measured by the errors from regression 1.

Choice of Cluster Analysis Variables

Unlike the predictive equation in regression 1 that was used to determine metro area "winners" and "losers," this analysis uses variables that are measured after 1990. Variables used in the cluster analysis fall into five general categories: 1) educational policy, 2) demographic and labor force changes, 3) quality of life, 4) governmental action, and 5) change in economic conditions.

The educational variables are the percentage of 18- to 24-year-olds in college in 2000, whether the area could be classified as containing a "university town," a place defined as having at least 15,000 students in a doctoral-granting university or universities, the change in educational attainment of residents as indicated by the change between 1990 and 2000 in the percent of the over-24-year-old population with at least one college degree, and the percent of 16- to 19-year-olds not in school in 2000. The first two measures indicate the availability of educational resources in the area, a key variable in theories of learning regions (Rutten, Boekema, and Kuijpers 2003; Lambooy 2002; Plummer and Taylor 2001b). The change in educational attainment over the decade indicates the attraction and retention of knowledge workers, which again is key in learning region theory. The last variable is a measure of high school drop-out rates. Florida (2002) also highlights the

importance of education or human capital development in spurring growth, although in some cases it is an amenity that brings knowledge workers rather than a root cause of human capital formation.

Demographic and labor force changes within the metro areas are captured by eight variables. The change between 1990 and 2000 in the percentage of the population that is Hispanic and the change over the same time period in the percent of the population that is African American are included. Minority population growth, particularly that of Asians and Hispanics, is related to strong population growth in many of the nation's metropolitan areas (Singer 2004; Berube 2003). The percentage change between 1990 and 2000 in the population is also included. Aspects of labor demand and supply are captured by the other six variables in this category. The tightness of the labor force indicates strong labor demand and is measured by the percent of women with young children in the labor force in 2000, the overall unemployment rate in 2000, the percentage change between 1990 and 2000 in employment, the metro poverty rate in 2000, and the percentage change in the poverty rate between 1990 and 2000.

The income-related quality of life variables are measured as changes from 1990 to 2000, while the crime-related quality of life variables are measured as changes from 1992 to 2000. The income-related variables are change in the median mortgage rate, change in median income, change in median income in the suburban part of the metro area, and change in the number of households with incomes above the 80^{th} percentile of national income. The crime variables are change in the burglary rate and change in the murder rate. These variables reflect social stability as well as social opportunity in the region. They are related to profit cycle theory, in which the life cycle of firms drives regional growth and decline (see Markusen 1985). They may also be related to community asset building, a policy that links low-income and other residents to economic opportunity (Kazis and Miller 2001).

Many authors believe that the presence of public sector infrastructure and high levels of government spending are key to an area's viability in this age of footloose industry (Markusen, Lee and DiGiovanna 1999). The extent of governmental activity in the area is measured by the number of municipal governments, the percentage change between 1990 and 2000 in total governmental employment in the region, and if the area contains the state capital. Several proxies for changes in the fiscal capacity and actions of city governments are used. These are changes between 1992 and 1997 in state aid, property tax revenues, sales tax revenues, miscellaneous taxes, long term debt, and public expenditures in cities. Leaders in many municipalities often believe a change in the tax base or increased expenditures on infrastructure or programs will lead to economic growth.

The last group of variables measure economic conditions and opportunities within the area. The percent change in export sales between 1993 and 1997 shows the region's connection to the global economy. Two variables, change in Fortune 500 firm revenue between 1990 and 2000 and

the revenues of the Fortune 1000 firms (net of the Fortune 500 revenues) in 2000, indicate the region's dependence on large firms – important in theories of enterprise segmentation (Plummer and Taylor 2001a) and the previously mentioned product cycle theory. Changes in the manufacturing base of the area are measured by the percentage changes in the location quotient of manufacturing between 1979 and 1999 and between 1989 and 1999. Changes in the overall productive capacity of a region are captured in the competitive shift variable which measures how an area's firms are doing relative to their national counterparts.

Table 5 shows the cluster definitions and the variable means. The names of the cities in each cluster are given in Table A.2. The starred means are significantly different from the group mean (shown in the column labeled "Combined Metro Areas"), which is determined by taking simultaneous 95 (%) confidence intervals for the mean of each group. An overview of group characteristics is given below.

Group 1: Old economy places in slow decline (65 metro areas)

As the industrial structures of these areas changed, these places seemed to lack the breadth of resources to counteract private sector losses. These areas saw significantly less growth in Fortune 500 firm revenue; fewer second-tier Fortune 1000 firms, and the smallest twenty-year trend in the manufacturing location quotient of all clusters. Falling median incomes, loss of high-income people, and little immigration of minority groups characterize these areas. Included in this group were cities like Allentown, Pennsylvania; and Flint, Michigan.

Group 2: Private sector dependent places (79 metro areas)

These areas lacked significant university facilities or state capitals. Not surprisingly, they had significantly higher high school drop-out rates than other areas as a whole, and lower percentages of young adults in college. They had a metro poverty rate that was significantly higher than that of all groups combined. Their industrial base was shrinking, as measured by the negative change in Fortune 500 revenue between 1990 and 2000 and a significantly low amount of Fortune 1000 firm revenue. When the private sector shrank, public sector institutions were not available to help buffer the impacts of the changed local economy. Jackson, Tennessee; and Fayetteville, North Carolina, are included in this group.

Group 3: Sprawling places (34 metro areas)

These areas have the most fragmented local government, having on average 68.5 governments compared to overall group mean of 29.9. Median income change for both the metro

Table 5: Cluster Definitions and Variable Means and Standard Deviations

	Old economy places in slow decline (n=65)	Private sector dependent places (n=79)	Sprawling places (n=34)	Company towns left behind (n=11)	College towns leaking grads (n=28)	Company towns left behind but still socially stable (n=8)	Growing new economy places (n=28)	Growing university/ government/ business complexes (n=14)	Combined metro areas (n=267
% chg. export sales, 1993- 1997	1.603 0.631	1.537* 0.450	1.508 0.529	1.655 0.514	2.882 2.602	1.494 0.462	1.732 0.906	1.674 0.705	1.722 1.079
% moms in labor force, 2000	65.397 4.555	62.547* 4.658	65.500 3.279	64.418 5.188	64.032 5.862	63.413 6.138	72.686* 4.899	57.171* 7.565	64.657 5.898
Unemployment rate, 2000	5.905 1.375	6.800* 2.247	5.159* 0.839	5.545 1.325	6.325 1.539	5.762 1.027	4.586* 1.232	6.050 2.792	5.969 1.846
% 16- to 19-yr.-olds not in school, 2000	8.563 2.164	10.819* 2.731	8.721 2.143	12.645 5.201	6.450* 3.279	6.250* 1.804	6.950* 3.225	11.964 4.187	9.137 3.373
% 18- to 24 -yr.-olds in college, 2000	32.195* 9.116	29.077* 11.463	39.571 10.573	27.882 12.031	61.971* 16.006	37.888 17.283	36.721 11.960	36.386 14.281	36.022 15.149
Poverty rate, 2000	0.117* 0.033	0.153* 0.042	0.109* 0.025	0.137 0.035	0.174* 0.045	0.130 0.043	0.106* 0.028	0.178 0.118	0.136 0.050
Competitive shift, 1990-2000	−498,803* 488,857	121,787 537,262	−770,925 1,724,469	−70,047 210,678	232,288 397,086	−219,076 593,487	264,979 286,480	3,612,373 4,184,005	48,543 1,497,404
% chg. employ-ment, 1990-2000	1.131* 0.069	1.287* 0.109	1.197* 0.098	1.164* 0.064	1.312* 0.089	1.234 0.095	1.295 0.080	1.618 0.149	1.252 0.145
Number of municipal governments	29.462 24.753	18.063* 12.524	68.500* 48.036	19.636 11.690	16.036* 12.761	24.375 43.500	36.000 26.742	31.643 17.046	29.895 29.994
% chg. location quotient mfg. firms, 1990 -2000	-0.010 0.144	0.025 0.161	0.040 0.185	0.041 0.246	0.078 0.124	-0.011 0.136	0.102 0.147	0.042 0.096	0.032 0.158
Chg. Fortune 500 firm revenue, 1990 -2000	939.758* 4,333.730	-159.425* 6,596.828	6,358.500 16,187.223	429.764* 1,425.365	2,540.864 9,297.354	-94.700* 267.852	1,151.443 3,766.301	25,883.050 69,453.463	2,750.546 18,157.962
Revenues of Fortune 501 - 1000 firms, 2000	295.908* 829.651	335.258* 925.479	2,583.582* 2,818.582	.000 .000	202.564 664.007	1,107.988 3,133.862	766.954 1290.449	2,127.571 2,175.067	746.658 1,671.993

Table 5 (Continued)

	Old economy places in slow decline (n=65)	Private sector dependent places (n=79)	Sprawling places (n=34)	Company towns left behind (n=11)	College towns leaking grads (n=28)	Company towns left behind but still socially stable (n=8)	Growing new economy places (n=28)	Growing university/ government/ business complexes (n=14)	Combined metro areas (n=267
% chg, total gov. employment, 1990-2000	1.111* 0.101	1.230 0.131	1.124* 0.086	1.197 0.099	1.231 0.139	1.187 0.135	1.185 0.067	1.441* 0.215	1.191 0.141
% chg, Hispanic population, 1990-2000	1.751* 0.519	2.242 1.078	2.096 0.785	5.585 3.520	2.214 1.224	1.857 0.815	2.489 1.019	3.256 2.473	2.306 1.451
% chg. population, 1990-2000	1.049* 0.059	1.167* 0.097	1.099 0.076	1.063 0.073	1.163 0.074	1.120 0.072	1.139 0.064	1.441* 0.153	1.135 0.119
% chg. location quotient mfg. 1970-2000	1.005* 0.238	1.173 0.300	1.028 0.161	1.176 0.293	1.304* 0.275	0.933 0.219	1.233 0.222	1.238 0.313	1.130 0.278
% chg. median mortgage value, 1990-2000	1.427 0.080	1.451 0.108	1.424 0.105	1.463 0.064	1.459 0.093	1.390 0.075	1.493 0.097	1.496 0.103	1.448 0.098
% chg. educational attainment, 1990-2000	118.879 6.933	117.365 9.486	119.524 6.058	120.678 7.261	115.054* 6.059	120.369 9.900	123.787* 8.361	121.837 5.057	118.901 8.038
% chg. African American popula-tion, 1990-2000	1.207* 0.237	1.222* 0.273	1.199* 0.160	1.100* 0.187	1.219* 0.174	1.220 0.215	1.989* 0.933	2.351 1.773	1.350 0.632
% chg. median income, 1990-2000	1.370* 0.052	1.452* 0.062	1.385* 0.063	1.421 0.030	1.437 0.050	1.407 0.053	1.475* 0.046	1.552* 0.098	1.427 0.075
% chg. suburban median income, 1990-2000	1.387* 0.056	1.484 0.082	1.406* 0.063	1.451 0.056	1.500* 0.069	1.465 0.077	1.530* 0.054	1.570 0.133	1.459 0.091

Table 5 (Continued)

	Old economy places in slow decline (n=65)	Private sector dependent places (n=79)	Sprawling places (n=34)	Company towns left behind (n=11)	College towns leaking grads (n=28)	Company towns left behind but still socially stable (n=8)	Growing new economy places (n=28)	Growing university/ government/ business complexes (n=14)	Combined metro areas (n=267
% chg. in no. households above 80th percentile national income, 1990-2000	1.044* 0.102	1.269* 0.152	1.113* 0.130	1.144* 0.044	1.259 0.097	1.191 0.158	1.295* 0.120	1.712* 0.214	1.212 0.201
% chg. city sales tax revenue, 1992-1997	0.958* 1.167	1.435 0.749	1.204 0.822	1.227 1.222	1.007* 0.606	5.873 9.349	1.378 0.453	1.662 0.571	1.375 1.919
% chg. city property tax revenue 1992-1997	1.208 0.265	1.223 0.237	1.146* 0.193	1.821 2.221	1.308 0.213	1.816 1.141	1.340 0.215	1.340 0.254	1.279 0.544
% chg. state aid to cities, 1992-1997	1.596 0.775	1.508 0.910	1.396* 0.402	1.633 0.579	1.591 1.454	5.658 6.407	1.354 0.644	2.166 2.759	1.672 1.628
% chg. metro poverty rate, 1990-2000	0.993* 0.122	0.909 0.114	0.966 0.128	0.945 0.088	0.921 0.083	0.985 0.112	0.837 0.081	0.866* 0.095	0.932 0.120
% chg murder rate, 1992-2000	1.277* 1.754	0.923* 0.734	0.912* 0.477	19.342 44.333	0.752* 0.581	0.930* 0.661	2.544 7.288	1.113* 0.757	1.929 9.675
% chg. burglary rate, 1992-2000	0.896* 0.319	1.070 0.449	0.940 0.351	1.113 0.597	0.882 0.495	1.263 1.516	1.132 0.303	1.112 0.502	1.008 0.480
% chg. city longterm debt 1992-1997	1.434 1.545	1.361* 0.748	1.210* 0.423	1.090* 0.480	1.223* 0.646	14.916 28.559	1.344* 0.602	1.217* 0.571	1.731 5.266
% chg. city expenditures, 1992-1997	1.184* 0.174	1.294 0.338	1.204 0.153	1.197 0.225	1.190 0.212	2.004 0.873	1.242 0.229	1.455 0.516	1.265 0.332
% chg. misc. city revenues, 1992-1997	1.273 0.368	1.285 0.355	1.184* 0.074	2.277 2.135	1.308 0.309	2.724 1.625	1.240 0.305	1.484 0.489	1.361 0.672

Table 5 (Continued)

	Old economy places in slow decline (n=65)	Private sector dependent places (n=79)	Sprawling places (n=34)	Company towns left behind (n=11)	College towns leaking grads (n=28)	Company towns left behind but still socially stable (n=8)	Growing new economy places (n=28)	Growing university/ government/ business complexes (n=14)	Combined metro areas (n=267
% university towns, 2000	0.000*	0.000*	0.824*	0.000*	100.000*	0.375	0.107	0.643*	0.266
% state capitals, 2000	0.150	0.000*	0.294*	0.091	0.036	0.000*	0.464*	0.214	0.109

Note: * indicates a mean that is significantly different from the overall mean using simultaneous 95% confidence intervals.
SOURCE: U.S. Census 1990 and 2000; Census of Governments 1992 and 1997; FBI crime data; Forbes Fortune 500,

and the suburban places within the area was among the lowest. Employment grew little over the decade, yet the unemployment rate in 2000 was among the lowest. Thirty of these places were either a state capital or a university place, so changes in the private economy were buffered by the presence of a large alternative employer. Kalamazoo, Michigan; and Burlington, Vermont, are among these places.

Group 4: Company towns left behind (11 metro areas)

These metro areas were primarily characterized by a loss of Fortune 500 firm revenue, low employment growth over the decade of the 1990s, and no Fortune 1000 firms. Benton Harbor, Michigan; and Charleston, West Virginia, are included in this group.

Group 5: College places leaking graduates (28 metro areas)

This group had the highest percentages of 18- to 24-year-olds in college (62 percent, compared to the total average of 36.02 percent) and the lowest high school drop-out rate. High employment growth and compact local government also characterizes this group. Yet the 2000 unemployment rate was significantly higher for this group than for all areas combined. Population change was similar to the overall mean, but the change in educational attainment for young adults was below that of the overall mean. These are places of opportunity for the pursuit of higher education but are not particularly strong magnets for college graduates. Terre Haute, Indiana; and Champaign-Urbana, Illinois, are among these areas.

Group 6: Company towns left behind but still socially stable (8 metro areas)

This group saw Fortune 500 revenues shrinking over the decade. Yet, high school drop-out rates were among the lowest, as were murder rates. All other variables were at the mean values for all areas. Lubbock, Texas, is in this group.

Group 7: Growing new economy places (28 metro areas)

About half of these places were state capitals. These places had the highest percentage of young mothers in the labor force, low poverty rates in 2000, and had relatively low high school drop-out rates. Labor was in demand in these areas. Moreover, the change in educational attainment for young adults was the highest for this group. The Hispanic population grew at trend, but African-American population growth was above trend. All income variables were higher than the overall mean.

Group 8: Growing university/government/business complexes (14 metro areas)

Something big was happening in these places. Government employment grew faster than for other areas, many were university places or state capitals. Fewer young mothers were in the workforce, yet median income grew significantly more than for the overall mean, and these areas saw the highest mean growth in higher-income families than other areas. They may be examples of Bourne's "few resource-based centers, typically small" that became sites of new mega-projects (Bourne 1991). WalMart headquarters' home area, Fayetteville-Springdale-Rogers, Arkansas, is in this group, as is the heart of the research triangle, Raleigh-Durham-Chapel Hill, North Carolina.

DOES A RELATIONSHIP EXIST BETWEEN CLUSTER MEMBERSHIP AND WINNING OR LOSING?

Now we turn to an exploration of the relationship between cluster membership and a region being a "winner" or "loser" with respect to its change in personal income over the decade, as determined in regression 1. As a first step, an analysis of variance was performed using the error from regression 1 as the dependent variable and cluster membership as the factor. The means are shown in Table 6. The F- statistic from the ANOVA was 9.472, with a p-value of 0.0001, which indicates that at least one mean differed from the rest. A post hoc test was run to determine which means were significantly different from one another. The last column in Table 6 shows which of the cluster means differ significantly. For example, the performance of areas in the "Old economy places in slow decline" cluster was significantly worse than those in the "Growing new economy places" and the "Growing university/government/business complexes," with performance being measured as the unexpected percentage change in personal income over the decade. A negative mean value in column 2 indicates that these areas tended to experience income growth below what would have been expected given the forecast equation. Positive values indicate that the cluster mean is weighted toward the "winners"—areas that did better than expected.

To examine the behavior of the most extreme winners and losers, two categorical variables were created. These variables divide the 267 areas into three categories. The first category, "On trend," contains the bulk of the metro areas and is defined as those whose forecasted growth was closest to their actual growth according to the regression. The second category, "Loser," contains those areas whose actual growth fell farthest below the forecasted growth. And the third category, "Winner," contains those metro areas whose actual growth most exceeded the forecasted amount. The first categorical variable is determined by whether an area's forecasted growth is two or more standard deviations away from the mean (in Table A.1). In this variable, 254 metro areas are in the "On trend" category since they fall within two standard deviations of the mean, four are in the "Loser" category because they fell at least two standard deviations below the mean, and nine are in

the "Winner" category because they are more than two standard deviations above the mean. The second categorical variable is based on the top and bottom deciles, so 27 observations are in the "Loser" category and 27 are in the "Winner" category. Contingency table analysis was performed

Table 6 Error Means for the Different Clusters

Clusters of metro areas	Mean	Std. deviation	Clusters with significantly different means
1. Old economy places in slow decline	−0.03384	0.10436	7 and 8
2. Private sector dependent places	0.001351	0.1221951	8
3. Sprawling places	−0.01794	0.1040715	7 and 8
4. Company towns left behind	−0.03754	0.0970144	7 and 8
5. College towns leaking grads	−0.04487	0.0928241	7 and 8
6. Company towns left behind but still socially stable	0.005554	0.163375	8
7. Growing new economy places	0.044563	0.0957577	1, 3, 4, and 8
8. Growing university/ government/business complexes	0.219972	0.1958616	1, 2, 3, 4, 5, 6, and 7
Total	0	0.1281688	

with these two categorical variables to determine if cluster membership was dependent on the categorical variable.

Table 7 shows the contingency table analysis for the first categorical variable. The Count cell for each cluster shows the actual number of observations that fell into each cell. For example, all members of the second cluster, "Sprawling places," fell in the "On trend" category. The Expected count shows how many observations would fall into each cell if the two variables in the contingency analysis were independent. For instance, 0.5 of the "Losers" and 1.1 of the "Winners" should have been in this category. The losers fell into three of the eight clusters, while the winners fell into four of the clusters. Only the second group, "Private sector dependent places" contained both winners and losers.

Typically, a Chi-square test is performed to test for the independence of variables in a contingency table. However, when more than 20 percent of the cells have an expected value of less than 5, the Chi- square statistic is biased. Therefore, independence of the cluster membership from the winner and loser categories was tested with the Goodman and Kruskal tau instead (Goodman and Kruskal 1972). It shows the relative decrease in the proportion of incorrect predictions for one variable when conditioning the prediction on the other variable's value. The tau value is normally distributed. The results indicate that membership in a cluster category is significantly associated

with winner-loser status. The eta statistic shows the strength of the association between the two variables (similar to a correlation coefficient, r). The correlation is 0.458.

The result of the contingency table analysis for the decile-based winner-loser variable is given in Table 8.

Table 7 Association between Cluster Membership and Smaller "Winner – Loser" Variable

		Winners and losers at least two std. dev. from the mean			
		On trend	Loser	Winner	Total
1. Old economy places in slow decline	Count	64	1	0	65
	Expected count	61.8	1	2.2	65
2. Private sector dependent places	Count	76	2	1	79
	Expected count	75.2	1.2	2.7	79
3. Sprawling places	Count	34	0	0	34
	Expected count	32.3	0.5	1.1	34
4. Company towns left behind	Count	11	0	1	11
	Expected count	10.5	0.2	0.4	11
5. College towns leaking grads	Count	27	1	0	28
	Expected count	26.6	0.4	0.9	28
6. Company towns left behind but still socially stable	Count	7	0	1	8
	Expected count	7.6	0.1	0.3	8
7. Growing new economy places	Count	27	0	1	28
	Expected count	26.6	0.4	0.9	28
8. Growing university/gov't/ business Complexes	Count	8	0	6	14
	Expected count	13.3	0.2	0.5	14
Total	Count	254	4	9	267

Goodman and Kruskal tau	Value	Asymp. Std. error	Approx. significance (p value)
Cluster membership is dependent	0.019	0.096	0
Error category is dependent	0.024	0.009	0
Eta statistic	0.458		

The same pattern of association holds for this contingency table as well. Cluster membership is related to winner-loser status. In this case, the eta statistic is 0.324. The tau is also significantly different from zero. Those metropolitan areas that grew more than expected were overrepresented in the "university/government/business complexes" and the "Growing new economy places," and underrepresented in all the other clusters except for the "private sector dependent" places.

CONCLUSIONS, POLICY IMPLICATIONS, AND FUTURE RESEARCH

Wilbur Thompson once said, "Show me your industries and I'll show you your future." Our first regression supports his statement since 70.1 percent of the change in income growth between

1990 and 2000 in the 267 metro areas was explained by factors that existed in the region in 1990 or before. There is no doubt that economics plays a determining role.

However, the last sections do give some hint that other factors may nudge some areas onto a different growth path, from which regions can change expected outcomes even if their industrial mix is less than ideal. Did metro areas outperform the forecast through luck or deliberate policy? We have not answered that particular question, yet we believe the preceding sections do offer some evidence that deliberate policy choices may have an impact. The cluster analysis gives a possible guide to more in-depth case-study analysis of members of particular clusters. Several questions emerge, perhaps the most important being whether policy had a role in determining membership in the eighth cluster, or whether areas were lucky to have universities, state capitals, or large firms to fall back on as the economy changed. Firms that did worse than trend were more spread out among the different cluster groups than were the firms that did better. Does this spread indicate any significant policy differences? In sum, while still exploratory, the analysis in this section suggests that deliberate policy may have led to the growth differentials of these metro areas.

Table 8 Association between Cluster Membership and Expanded Winner-Loser Variable

		Top and bottom 10 percentile based winner - loser variable			
		On trend	Loser	Winner	Total
1. Old economy places in Slow decline	Count	55	7	3	65
	Expected count	51.6.2	6.8	6.6	65
2. Private sector dependent places	Count	60	10	9	79
	Expected count	62.7	8.3	8	79
3. Sprawling places	Count	29	4	1	34
	Expected count	27	3.6	3.4	34
4. Company towns left behind	Count	10	1	0	11
	Expected count	8.7	1.2	1.1	11
5. College towns leaking grads	Count	26	2	0	28
	Expected count	22.2	2.9	2.8	28
6. Company towns left behind but still socially stable	Count	5	2	1	8
	Expected count	6.4	0.8	0.8	8
7. Growing new economy places	Count	23	1	4	28
	Expected count	22.2	2.9	2.8	28
8. Growing university/gov'/ business complexes	Count	4	1	9	14
	Expected count	11.1	1.5	1.4	14
Total		212	28	27	267

Goodman and Kruskal tau	Value	Asymp. std. error	Approx. significance (p value)
Cluster membership is dependent	0.01	0.039	0
Error category is dependent	0.019	0.007	0
Eta statistic	0.324		

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DATA APPENDIX

Table A.1 Winners and Losers from Regression 1

Rank	Metropolitan area	Actual chg. in income, 1990-2000 (%)	Predicted (%)	Error (%)
1	Laredo, TX	160.8	111.2	49.6
2	Fayetteville-Springdale-Rogers, AR	129	86.2	42.8
3	Boise City, ID	155.2	115.2	40.1
4	Naples, FL	164.7	126.9	37.7
5	Austin-San Marcos, TX	192.1	157.2	34.9
6	Raleigh-Durham-Chapel Hill, NC	133.6	100	33.6
7	Barnstable-Yarmouth, MA	99.6	71	28.6
8	Wilmington, NC	130.2	102.5	27.7
9	Sioux Falls, SD	120.4	92.7	27.6
10	Las Vegas, NV-AZ	197.5	173.1	24.5
11	Houma, LA	90.2	66	24.2
12	Casper, WY	81.7	57.5	24.2
13	Victoria, TX	92.9	70.2	22.6
14	Reno, NV	120.4	98.8	21.7
15	Medford-Ashland, OR	95.5	74.3	21.2
16	Richland-Kennewick-Pasco, WA	97.7	77.5	20.3
17	McAllen-Edinburg-Mission, TX	131.7	112.2	19.5
18	Fayetteville, NC	85.9	66.8	19.1
19	Brownville-Harlingen-San Benito, TX	114.1	95.3	18.8
20	Santa Fe, NM	109.2	90.4	18.8
21	Santa Cruz-Watsonville, CA	116.3	98.1	18.2
22	Kenosha, WI	90	71.9	18.1
23	Appleton-Oshkosh-Neenah, WI	90.7	73.5	17.2
24	GrandRapids-Muskegon-Holland, MI	90.7	74	16.7
25	Biloxi-Gulfport-Pascagoula, MS	99.3	82.8	16.5
26	Gary, IN	69.3	54	15.3
27	Clarksville-Hopkinsville, TN—KY	98.6	83.4	15.2
28	Lake Charles, LA	79	64	15
29	Louisville, KY-IN	83	68.6	14.4
30	Harrisburg-Lebanon-Carlisle, PA	66.4	52.2	14.2
31	Wausau, WI	92.1	78	14.1
32	Wichita, KS	73.8	60.1	13.7
33	Kankakee, IL	72.2	58.6	13.6
34	Hagerstown, MD	63	49.5	13.5
35	Fort Collins-Loveland, CO	141.9	128.3	13.5
36	Sherman-Denison, TX	77.8	64.3	13.5
37	Wichita Falls, TX	69.3	55.9	13.3
38	Bellingham, WA	103.8	90.6	13.1
39	Racine, WI	70.9	57.8	13.1
40	Joplin, MO	89.4	76.4	13
41	Lexington, KY	94.4	81.7	12.7

Table A.1 (Continued)

Rank	Metropolitan area	Actual chg. in income, 1990-2000 (%)	Predicted (%)	Error (%)
42	Cumberland, MD-WV	48.1	35.4	12.7
43	Grand Junction, CO	115.5	102.9	12.7
44	Hickory-Morganton-Lenoir, NC	82.5	70.2	12.4
45	Green Bay, WI	95.3	83.1	12.2
46	Greenville, NC	106.2	94.2	12
47	Jonesboro, AR	95.1	83.2	11.9
48	Johnstown, PA	50.3	38.5	11.8
49	Trenton, NJ	78.1	66.6	11.5
50	Boulder-Longmont, CO	147.8	136.4	11.3
51	Enid, OK	48.8	37.6	11.2
52	Dover, DE	73	62.3	10.6
53	Ann Arbor, MI	98.6	89	9.6
54	Rapid City, SD	82.2	72.7	9.5
55	Wilmington-Newark, DE-MD	78.5	69	9.5
56	Sharon, PA	55.5	46.2	9.3
57	Kokomo, IN	68.5	59.3	9.2
58	Cedar Rapids, IA	89.4	80.5	8.9
59	Bremerton, WA	95.5	86.7	8.8
60	Jackson, TN	108.1	99.5	8.6
61	Sioux City, IA-NE	71.5	63.4	8.1
62	Burlington, VT	79.2	71.2	8
63	Gainesville, FL	84.1	76.2	7.9
64	Myrtle Beach, SC	129.2	121.3	7.8
65	Bismarck, ND	86.8	79.1	7.7
66	Reading, PA	60	52.4	7.7
67	St. Cloud, MN	90.9	83.3	7.6
68	Baton Rouge, LA	83.6	76.3	7.4
69	Jacksonville, FL	92.2	84.9	7.3
70	Greeley, CO	119.1	112	7.1
71	Florence, SC	93.9	87.6	6.3
72	Tulsa, OK	85.9	79.7	6.1
73	Peoria-Pekin, IL	62.9	56.8	6
74	Knoxville, TN	88.7	82.8	6
75	Janesville-Beloit, WI	71	65	5.9
76	Salem, OR	94.3	88.4	5.9
77	Madison, WI	104.9	99.3	5.7
78	Tacoma, WA	94.3	88.7	5.7
79	Owensboro, KY	71.6	66.1	5.5
80	Yakima, WA	85.3	80	5.4
81	Shreveport-Bossier City, LA	66.5	61.3	5.3
82	Allentown-Bethlehem-Easton, PA	66.3	61.2	5.1
83	Santa Rosa, CA	96.2	91.1	5.1

Table A.1 (Continued)

Rank	Metropolitan area	Actual chg. in income, 1990-2000 (%)	Predicted (%)	Error (%)
84	Waterloo-Cedar Falls, IA	58.9	54	4.9
85	Springfield, MO	103.3	98.4	4.8
86	Monmouth-Ocean, NJ	75.2	71.3	3.9
87	Rocky Mount, NC	75	71.1	3.9
88	Greenville-Spartanburg-Anderson, SC	88.4	84.6	3.8
89	Fargo-Moorhead, ND-MN	96.9	93.3	3.7
90	Fort Smith, AR-OK	87.4	83.9	3.5
91	Pensacola, FL	83	79.7	3.3
92	Davenport-Moline-Rock Island, IA-IL	58.4	55.3	3.2
93	Des Moines, IA	88.7	85.5	3.1
94	Killeen-Temple, TX	95.5	92.3	3.1
95	Albuquerque, NM	96.6	93.5	3.1
96	Altoona, PA	68.3	65.4	2.8
97	Fort Walton Beach, FL	99	96.3	2.7
98	Lafayette, LA	92.1	89.6	2.5
99	Columbia, MO	103.9	101.4	2.5
100	Asheville, NC	92.2	89.7	2.5
101	Mobile, AL	85.6	83.1	2.5
102	Erie, PA	57.8	55.3	2.5
103	Longview-Marshall, TX	74	71.5	2.5
104	Youngstown-Warren, OH	46.4	43.9	2.4
105	Spokane, WA	90.2	88.1	2
106	Corvallis, OR	97.8	95.9	1.9
107	Scranton-Wilkes-Barre-Hazleton, PA	50.3	48.5	1.8
108	Dutchess County, NY	54.9	53.2	1.8
109	Augusta-Aiken, GA-SC	70.9	69.3	1.6
110	Dubuque, IA	65.3	63.8	1.5
111	Lawton, OK	49.2	47.7	1.4
112	Lincoln, NE	99.6	98.3	1.3
113	Macon, GA	76	74.7	1.3
114	Lancaster, PA	70.2	68.9	1.3
115	Huntington-Ashland, WV-KY-OH	54.3	53.2	1.2
116	York, PA	61.2	60.1	1.1
117	Springfield, IL	68.6	67.7	0.9
118	Columbus, GA-AL	75.6	74.7	0.9
119	Pueblo, CO	88.4	87.6	0.8
120	Williamsport, PA	49.8	49.1	0.7
121	Goldsboro, NC	80.3	79.7	0.6
122	Montgomery, AL	76.2	75.7	0.4
123	Vallejo-Fairfield-Napa, CA	88.2	87.8	0.4
124	Rockford, IL	66.1	65.9	0.2
125	Charlottesville, VA	99.2	99.1	0.1

Table A.1 (Continued)

Rank	Metropolitan area	Actual chg. in income, 1990-2000 (%)	Predicted (%)	Error (%)
126	Corpus Christi, TX	81.3	81.5	−0.2
127	Sheboygan, WI	76.9	77.2	−0.3
128	Evansville-Henderson, IN-KY	73.5	74	−0.5
129	Saginaw-Bay City-Midland, MI	60.5	61.3	−0.8
130	Providence-Fall River-Warwick, RI-MA	51.3	52.1	−0.8
131	Portland, ME	69.8	70.9	−1.1
132	Bloomington, IN	86.8	88	−1.2
133	Jackson, MS	91.1	92.3	−1.2
134	Yuma, AZ	89.9	91.2	−1.3
135	Charleston-North Charleston, SC	83.5	85	−1.5
136	Hattiesburg, MS	91.4	92.9	−1.5
137	Brazoria, TX	99.2	100.7	−1.5
138	Alexandria, LA	62.3	63.8	−1.5
139	Albany, GA	75.1	76.7	−1.6
140	Tallahassee, FL	97.1	98.8	−1.7
141	Amarillo, TX	77.3	79.1	−1.7
142	Lakeland-Winter Haven, FL	84.4	86.1	−1.7
143	Eau Claire, WI	88.3	90.2	−1.9
144	Bloomington-Normal, IL	102.6	104.7	−2.1
145	Tyler, TX	95	97.1	−2.1
146	Springfield, MA	48	50.2	−2.2
147	Oklahoma City, OK	72.5	74.8	−2.2
148	Columbia, SC	90.6	92.9	−2.3
149	Savannah, GA	82.4	84.7	−2.4
150	Topeka, KS	61	63.5	−2.4
151	Las Cruces, NM	93.2	95.8	−2.7
152	Newburgh, NY—PA	63.3	66	−2.7
153	Charleston, WV	66.4	69.1	−2.7
154	Lafayette, IN	83.7	86.5	−2.8
155	Monroe, LA	75.8	78.7	−2.8
156	Duluth-Superior, MN-WI	71.1	73.9	−2.8
157	Fort Pierce-Port St. Lucie, FL	93.7	96.7	−3
158	Tuscaloosa, AL	81.2	84.3	−3.2
159	Lawrence, KS	99.7	102.9	−3.2
160	Decatur, AL	74.1	77.6	−3.5
161	Athens, GA	93.4	97.4	−4
162	Omaha, NE-IA	97.8	101.8	−4.1
163	Yuba City, CA	74.9	79.4	−4.5
164	Little Rock-North Little Rock, AR	89.6	94	−4.5
165	La Crosse, WI-MN	77.2	81.7	−4.5
166	Johnson City-Kingsport-Bristol, TN-VA	72.2	76.7	−4.6
167	Hamilton-Middletown, OH	87.2	91.8	−4.6

Table A.1 (Continued)

Rank	Metropolitan area	Actual chg. in income, 1990-2000 (%)	Predicted (%)	Error (%)
168	Elmira, NY	53.3	58	−4.7
169	Eugene-Springfield, OR	84.5	89.4	−4.8
170	Olympia, WA	104.5	109.4	−4.9
171	Terre Haute, IN	59.7	64.7	−5
172	Decatur, IL	54.3	59.3	−5
173	Birmingham, AL	83.6	88.7	−5.1
174	Beaumont--Port Arthur, TX	65.8	71	−5.2
175	Parkersburg-Marietta, WV—OH	58.2	63.5	−5.2
176	Lubbock, TX	77.1	82.4	−5.3
177	Bangor, ME	52.5	58	−5.5
178	Elkhart-Goshen, IN	80	85.6	−5.6
179	Danville, VA	49	54.7	−5.7
180	Fort Wayne, IN	68.8	74.7	−5.9
181	Texarkana, TX-Texarkana, AR	64.8	70.9	−6.1
182	Lewiston-Auburn, ME	46.2	52.4	−6.1
183	Wheeling, WV-OH	48.3	54.5	−6.1
184	Ocala, FL	103.9	110.5	−6.6
185	Rochester, MN	98.3	105	−6.7
186	Pine Bluff, AR	47.8	54.8	−6.9
187	Lima, OH	56	63.1	−7.1
188	Visalia-Tulare-Porterville, CA	77	84.2	−7.2
189	Chattanooga, TN-GA	78	85.2	−7.3
190	Nashville, TN	113.2	120.6	−7.4
191	Sarasota-Bradenton, FL	80.8	88.4	−7.5
192	Richmond-Petersburg, VA	74.3	81.9	−7.6
193	Sumter, SC	79.7	87.3	−7.6
194	Roanoke, VA	67	74.9	−7.8
195	Albany-Schenectady-Troy, NY	57.7	65.7	−8
196	Flagstaff, AZ—UT	106.3	114.5	−8.2
197	Jamestown, NY	43.2	51.5	−8.3
198	Colorado Springs, CO	118.3	126.9	−8.6
199	Dayton-Springfield, OH	56.6	65.3	−8.7
200	Missoula, MT	99.9	108.8	−8.9
201	San Angelo, TX	69.2	78.1	−8.9
202	Santa Barbara-Santa Maria-Lompoc, CA	59.4	68.5	−9.1
203	Muncie, IN	57.9	67.2	−9.2
204	Fresno, CA	77.2	86.5	−9.3
205	Florence, AL	61.6	70.9	−9.3
206	Redding, CA	72.9	82.3	−9.4
207	Akron, OH	69.8	79.3	−9.4
208	Tucson, AZ	92.7	102.1	−9.5
209	Daytona Beach, FL	80.6	90.1	−9.5

Table A.1 (Continued)

Rank	Metropolitan area	Actual chg. in income, 1990-2000 (%)	Predicted (%)	Error (%)
210	Utica-Rome, NY	42.3	52	−9.7
211	Glens Falls, NY	56.1	65.9	−9.7
212	Yolo, CA	83.3	93.3	−9.9
213	South Bend, IN	72.8	82.7	−10
214	Jackson, MI	64.4	74.5	−10
215	Vineland-Millville-Bridgeton, NJ	49.4	59.5	−10
216	Toledo, OH	51.8	62	−10
217	Canton-Massillon, OH	58.7	69	−10
218	New London-Norwich, CT—RI	53.7	64	−10
219	Pittsfield, MA	50	60.5	−11
220	Benton Harbor, MI	63.7	74.3	−11
221	Bryan-College Station, TX	102.7	113.5	−11
222	Syracuse, NY	46.9	57.9	−11
223	Bakersfield, CA	70.7	81.7	−11
224	Billings, MT	80.7	91.9	−11
225	State College, PA	74	85.2	−11
226	Lynchburg, VA	65.5	77	−11
227	Huntsville, AL	77.9	89.7	−12
228	Iowa City, IA	97.4	109.5	−12
229	Honolulu, HI	45.4	57.7	−12
230	Stockton-Lodi, CA	75.1	88	−13
231	Atlantic-Cape May, NJ	52	65	−13
232	Ventura, CA	73.3	86.4	−13
233	Steubenville-Weirton, OH—WV	36.8	50	−13
234	Odessa-Midland, TX	68	81.6	−14
235	Abilene, TX	64.4	78.1	−14
236	San Luis Obispo-Atascadero-Paso Robles, CA	80.7	94.7	−14
237	Mansfield, OH	48.1	62.1	−14
238	Gadsden, AL	56	70.2	−14
239	Galveston-Texas City, TX	84.3	99	−15
240	Panama City, FL	87.6	102.5	−15
241	St. Joseph, MO	64.4	79.7	−15
242	Waco, TX	83.3	98.7	−15
243	Anniston, AL	42.9	58.7	−16
244	Jersey City, NJ	63.2	78.9	−16
245	Chico-Paradise, CA	71.5	87.6	−16
246	Modesto, CA	82.6	99	−16
247	Flint, MI	52.9	69.4	−16
248	Lansing-East Lansing, MI	63.9	80.8	−17
249	Kalamazoo-Battle Creek, MI	60.3	77.5	−17
250	Binghamton, NY	34.4	51.8	−17
251	Salinas, CA	66.9	84.5	−18

Table A.1 (Continued)

Rank	Metropolitan area	Actual chg. in income, 1990-2000 (%)	Predicted (%)	Error (%)
252	Dothan, AL	62.5	80.3	−18
253	Provo-Orem, UT	146.9	165	−18
254	Anchorage, AK	65.1	83.4	−18
255	Cheyenne, WY	80.2	99.8	−20
256	Pocatello, ID	81.2	100.9	−20
257	Champaign-Urbana, IL	64	84.3	−20
258	Grand Forks, ND—MN	56	76.7	−21
259	Fort Myers-Cape Coral, FL	83.7	104.4	−21
260	Jacksonville, NC	64	85.3	−21
261	West Palm Beach-Boca Raton, FL	98.5	120.8	−22
262	Merced, CA	61	84.1	−23
263	Great Falls, MT	56.2	79.7	−24
264	Melbourne-Titusville-Palm Bay, FL	75.4	101.3	−26
265	Punta Gorda, FL	86.7	116.8	−30
266	Auburn-Opelika, AL	80.9	112	−31
267	El Paso, TX	86	118.5	−32

Table A.2 Metro Areas in Each Cluster

GROUP 1: Old economy places in slow decline (n=65)
Allentown-Bethlehem-Easton, PA
Anniston, AL
Atlantic-Cape May, NJ
Bangor, ME
Billings, MT
Binghamton, NY
Canton-Massillon, OH
Casper, WY
Charleston-North Charleston, SC
Cumberland, MD-WV
Danville, VA
Davenport-Moline-Rock Island, IA-IL
Decatur, IL
Dothan, AL
Dutchess County, NY
Elmira, NY
Enid, OK
Erie, PA
Evansville-Henderson, IN-KY
Flint, MI
Fort Wayne, IN
Gary, IN
Glens Falls, NY
Great Falls, MT
Hagerstown, MD
Huntington-Ashland, WV-KY-OH
Jackson, MI
Jamestown, NY
Jersey City, NJ
Johnson City-Kingsport-Bristol, TN-VA
Johnstown, PA
Lancaster, PA
Lewiston-Auburn, ME
Lima, OH
Lynchburg, VA
Macon, GA
Mansfield, OH
Melbourne-Titusville-Palm Bay, FL
New London-Norwich, CT-RI
Newburgh, NY-PA
Odessa-Midland, TX
Parkersburg-Marietta, WV-OH
Peoria-Pekin, IL
Pittsfield, MA
Portland, ME
Racine, WI
Reading, PA
Redding, CA
Roanoke, VA
Saginaw-Bay City-Midland, MI
San Angelo, TX
Santa Cruz-Watsonville, CA
Sharon, PA
South Bend, IN
Steubenville-Weirton, OH-WV
Texarkana, TX-Texarkana, AR
Trenton, NJ
Utica-Rome, NY
Vallejo-Fairfield-Napa, CA
Ventura, CA
Vineland-Millville-Bridgeton, NJ
Wheeling, WV-OH
Wichita Falls, TX
Williamsport, PA
York, PA

GROUP 2: Private sector dependent places (n=79)
Abilene, TX
Albany, GA
Alexandria, LA
Amarillo, TX
Asheville, NC
Auburn-Opelika, AL
Bakersfield, CA
Beaumont-Port Arthur, TX
Bellingham, WA
Biloxi-Gulfport-Pascagoula, MS
Brazoria, TX
Bremerton, WA
Chattanooga, TN-GA
Chico-Paradise, CA
Clarksville-Hopkinsville, TN-KY
Colorado Springs, CO
Columbus, GA-AL
Corpus Christi, TX
Daytona Beach, FL
Fayetteville, NC
Fort Myers-Cape Coral, FL
Fort Pierce-Port St. Lucie, FL
Fort Smith, AR-OK
Fort Walton Beach, FL
Fresno, CA
Galveston-Texas City, TX
Goldsboro, NC
Grand Junction, CO
Hamilton-Middletown, OH
Hattiesburg, MS
Houma, LA
Jackson, TN
Joplin, MO
Kankakee, IL
Killeen-Temple, TX
Kokomo, IN
Lake Charles, LA
Lakeland-Winter Haven, FL
Lawton, OK
Longview-Marshall, TX
Medford-Ashland, OR
Merced, CA
Missoula, MT
Mobile, AL
Modesto, CA
Monroe, LA
Myrtle Beach, SC
Ocala, FL

Table A.2 (Continued)

Owensboro, KY
Panama City, FL
Pensacola, FL
Pine Bluff, AR
Pueblo, CO
Punta Gorda, FL
Rapid City, SD
Reno, NV
Richland-Kennewick-Pasco, WA
Rockford, IL
Salinas, CA
Santa Rosa, CA
Sarasota-Bradenton, FL
Savannah, GA
Sherman-Denison, TX
Shreveport-Bossier City, LA
Sioux City, IA-NE
Spokane, WA
Springfield, MO
St. Joseph, MO
Stockton-Lodi, CA
Sumter, SC
Tacoma, WA
Tyler, TX
Victoria, TX
Visalia-Tulare-Porterville, CA
Waco, TX
Wilmington, NC
Yakima, WA
Yuba City, CA
Yuma, AZ

GROUP 3: Sprawling places (n=34)
Akron, OH
Albany-Schenectady-Troy, NY
Anchorage, AK
Ann Arbor, MI
Baton Rouge, LA
Birmingham, AL
Burlington, VT
Columbia, SC
Dayton-Springfield, OH
Grand Rapids-Muskegon-Holland, MI
Greenville-Spartanburg-Anderson, SC
Harrisburg-Lebanon-Carlisle, PA
Honolulu, HI
Huntsville, AL
Jacksonville, FL
Kalamazoo-Battle Creek, MI
Knoxville, TN
Lansing-East Lansing, MI
Louisville, KY-IN
Oklahoma City, OK
Omaha, NE-IA
Providence RI
Richmond-Petersburg, VA
Santa Barbara-Santa Maria-Lompoc, CA
Scranton-Wilkes-Barre-Hazleton, PA
Springfield, MA
Syracuse, NY
Toledo, OH
Topeka, KS
Tulsa, OK
West Palm Beach-Boca Raton, FL
Wichita, KS
Wilmington-Newark, DE-MD
Youngstown-Warren, OH

GROUP 4: Company towns left behind (n=11)
Altoona, PA
Benton Harbor, MI
Charleston, WV
Decatur, AL
Elkhart-Goshen, IN
Florence, AL
Florence, SC
Gadsden, AL
Grand Forks, ND-MN
Hickory-Morganton-Lenoir, NC
Rocky Mount, NC

GROUP 5: College towns leaking grads (n=28)
Albuquerque, NM
Athens, GA
Bloomington, IN
Bloomington-Normal, IL
Bryan-College Station, TX
Champaign-Urbana, IL
Charlottesville, VA
Columbia, MO
Corvallis, OR
El Paso, TX
Eugene-Springfield, OR
Flagstaff, AZ-UT
Gainesville, FL
Greenville, NC
Iowa City, IA
Lafayette, IN
Lafayette, LA
Las Cruces, NM
Lawrence, KS
Lexington, KY
Muncie, IN
San Luis Obispo-Atascadero-Paso Robles, CA
State College, PA
Tallahassee, FL
Terre Haute, IN
Tucson, AZ
Tuscaloosa, AL
Yolo, CA

GROUP 6: Company towns left behind but still socially stable (n=8)
Augusta-Aiken, GA-SC
Barnstable-Yarmouth, MA
Jacksonville, NC

Table A.2 (Continued)

Jonesboro, AR
Lubbock, TX
Monmouth-Ocean, NJ
Pocatello, ID
Waterloo-Cedar Falls, IA

GROUP 7: Growing new economy places (n=28)
Appleton-Oshkosh-Neenah, WI
Bismarck, ND
Cedar Rapids, IA
Cheyenne, WY
Des Moines, IA
Dover, DE
Dubuque, IA
Duluth-Superior, MN-WI
Eau Claire, WI
Fargo-Moorhead, ND-MN
Green Bay, WI
Jackson, MS
Janesville-Beloit, WI
Kenosha, WI
La Crosse, WI-MN
Lincoln, NE
Little Rock-North Little Rock, AR
Madison, WI
Montgomery, AL
Olympia, WA
Rochester, MN
Salem, OR
Santa Fe, NM
Sheboygan, WI
Sioux Falls, SD
Springfield, IL
St. Cloud, MN
Wausau, WI

GROUP 8: Growing university/gov't/business complexes (n=14)
Austin-San Marcos, TX
Boise City, ID
Boulder-Longmont, CO
Brownsville-Harlingen-San Benito, TX
Fayetteville-Springdale-Rogers, AR
Fort Collins-Loveland, CO
Greeley, CO
Laredo, TX
Las Vegas, NV-AZ
McAllen-Edinburg-Mission, TX
Naples, FL
Nashville, TN
Provo-Orem, UT
Raleigh-Durham-Chapel Hill, NC