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Socioeconomic Performance in Metropolitan and Nonmetropolitan Areas during the 1980s

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The socioeconomic gap between metropolitan and nonmetropolitan areas increased during the 1980s. We test three competing explanations for this trend during the 1980s: overdependence on manufacturing, especially in nonmetro labor markets, the emergence of producer services as a catalyst of socioeconomic growth, and federal spending. Using a model that is informed by a variety of perspectives in sociology and economic geography, and commuter zones (CZs) as spatial units of analysis, we estimate the effects of manufacturing concentration, producer service concentration, and federal spending on per capita income, per capita earnings, and private nonfarm employment growth during the 1983–1988 business cycle recovery. The OLS and interaction models show that all three factors help explain why metro areas outperformed nonmetro areas during this time period. The effects of producer service concentration, however, best fit with our expectations. Implications of our findings are discussed.

The socioeconomic gap between metropolitan and nonmetropolitan areas increased during the 1980s, reversing a twenty-year trend of convergence. Metro areas experienced greater growth in population, median family income, and high-income jobs (USDA 1993). The poverty gap between metro and nonmetro areas grew by 6 percent, reversing nonmetro gains of the previous two decades (Falk and Lyson 1993; Lichter and McLaughlin 1995). The literature on socioeconomic development in metro and nonmetro economies points to three explanations for this trend during the 1980s: loss of manufacturing jobs to overseas labor markets, the emergence of producer services as a catalyst of socioeconomic growth, and federal spending policies. The purpose of this article is to test simultaneously to what extent industry structure and variations in federal spending affected income, earnings, and employment growth in metro and nonmetro economies during the 1983–1988 business cycle recovery. We explore the theoretical issues behind these three explanations and test competing hypotheses related to each using regression models that are informed

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by a variety of theoretical perspectives in sociology as well as economic geography. We also employ a spatial unit of analysis developed by Molly S. Killian and Charles Tolbert (1993)—commuter zones—which is more appropriate for such an endeavor.

LITERATURE REVIEW

Industry Structure: Manufacturing

The effects of industrial transformation on local economies is a well-studied topic (Snipp and Bloomquist 1989; Singelmann, Deseran, Mencken and Li 1993; Dicken 1992; Lyson and Tolbert 1996; Lichter and McLaughlin 1995). In many theoretical perspectives, local industry structure is the key factor that determines local economic fortunes. A variety of perspectives, each operating from a different set of assumptions, informs our hypothesis about the different effects of industry structure in general and manufacturing concentration in particular in metro and nonmetro economies during the 1980s. The human ecology perspective views industry structure as a measure of the sustenance base of a local ecosystem. It is a dimension of how local populations interact with their environment for sustenance or survival (Frisbie and Poston 1978; 1976; Nord and Luloff 1993; Murdock, Hoque, and Backman 1993). One of human ecology theory's basic assumptions is that sustenance activity directly affects the carrying capacity of the local ecosystem (Poston 1984). Ecosystems with differentiated or complex sustenance functions have greater potential for growth than ecosystems with simple or singular sustenance activities (Hawley 1986). Moreover, ecosystems with singular sustenance activities are at greater risk of "system shock" when organizational or technological changes cause a contraction in the particular niche from which the system draws sustenance (Kasarda and Irwin 1991).

According to Steve H. Murdock, Md. Nazrul Hoque, and Kenneth Backman (1993), changes in the local ecosystem's carrying capacity in the 1980s were dependent upon the extent to which the sustenance activities of the local economy were linked to international ecosystems. They maintain that different sustenance activities face different levels of national and international competition. Some activities operate in a global or international context, while others compete on a national level. Historically, the United States has dominated trade-oriented sustenance activities, but during the 1980s the United States lost its position of world dominance in some key activities, evidenced by the increase in trade deficits during this period ($100 billion per annum according to Murdock et al. 1993, p. 193).[1] Probably the most appreciated loss of dominance is in the area of low-skill manufacturing (e.g., textiles, apparel, leather products [Dicken 1992; Falk and Lyson 1988; Couto 1994]). The United States has lost its position of dominance because the same tasks can be performed in foreign labor markets for cheaper labor costs. This is extremely problematic for nonmetro economies, that compete with metro economies for manufacturing jobs on the basis of low-wage labor (Hepworth, Green, and Gillespie 1987; Summers 1982). Moreover, nonmetro plants that have not moved overseas have reduced operating costs by replacing workers with technology and machines (Couto 1994; Gaventa 1990). Manufacturing enterprises that remained in metro areas during this period, however, represented high-tech/high-growth spatially dominant industries that potentially led to economic growth (USDA 1993). Some examples of these industries include scientific and laboratory equipment, medical equipment, and computer components (Murdock et al. 1993, p. 197).

These explanations are also consistent with the approach taken by new urban sociologists. Two key assumptions of the new urban sociology are that 1) the world system is one of competitive capitalism, and 2) capital is easily moved, while places are fixed (Smith 1995, p. 440). The imperative of capitalism forces actors (multinational corporations) to exploit new markets and to maximize profits by shifting the means of production (factories, etc.) from place to place in search of lower production costs. The result is the deindustrialization of manufacturing centers in core nations (Smith 1995; Sassen 1991; 1994; Dicken 1992). Rural sociologists argue, however, that nonmetro areas are at greater risk of deindustrialization than metro areas. The comparative advantage of nonmetro economies over metro economies when it comes to manufacturing employment is cheaper labor and production costs (Bloomquist, Gringeri, Tomaskovic-Devey, and Truelove 1993), although these labor costs are not always cheap enough to compete with developing countries. Therefore, nonmetro economies attract mature, labor-intensive manufacturing jobs that are at high risk of being shifted to cheaper labor markets in an increasingly global economy (Summers 1982; Lichter and McLaughlin 1995).

In addition to the shift of production to cheaper labor markets, new urban sociologists argue that the local political elites in nonmetro communities have attempted to build a "pro-business" environment (low wages, low taxes, less strict workers' compensation regulations, etc.) in order to attract jobs (Smith 1995; Falk and Lyson 1988). This argument is also echoed by economic geographers (Markusen and Carlson 1989; Malecki and Nijkamp 1988). The pro-business environment can stagnate socioeconomic growth, because elites work to offer tax incentives and to keep wages low and corporate profits high. These elites are usually community political and business leaders who stand to profit from such a climate. William Falk and Thomas Lyson (1988) report the efforts of some local business elites to stop a union shop Mazda automobile factory from locating in Greenville, South Carolina—because of elites' fear that union wages in that plant would raise overall wages in the local economy. This would have forced other manufacturers in the region to pay more competitive wages, thus diminishing their profits.

Closely related to the new urban sociology, Marxist political economists maintain that the deindustrialization of first-world economies represents a fundamental change in the structure of capitalism, from monopoly capitalism to global capitalism (Ross and Trachte 1990; Dicken 1992; Harvey 1982). According to Robert J. Ross and Kent C. Trachte (1990), prior to the business cycles of the 1970s, the U.S. economy and many other first-world (or core) economies were organized according to the principles of monopoly capitalism, in which large firms with stable product markets, high profits, and good wages dominated the primary economy. During the 1970s, advances in technological information, particularly increased telecommunications capacity, reduced the spatial constraints of managing the investment of capital. This created opportunities for capital to become geographically mobile. In addition, the energy crisis, in conjunction with the toll of foreign competition in key industry markets (automobiles and electronics), led to decreased productivity and overproduction, which caused a downturn in profits among firms in the primary economy. In order to increase profits, many organizations began moving capital (production facilities) out of the old industrial centers and into foreign markets with the right business climate (low levels of labor militancy, low wages, proper infrastructure). Those firms that did not move continue to use the threat of moving as a "lever" to force concessions from labor and local communities (Ross and Trachte 1990). We extend Ross and Trachte's (1990) analysis of the changing structure of capitalism to focus on geo-

graphical differences within the United States. Nonmetro areas, which attract branch manufacturing plants because of lower wages, are at a particular disadvantage under global capitalism. Nonmetro economies in the United States cannot compete with third-world economies where wages rarely exceed $1.00 an hour (Ross and Trachte 1990). Therefore, the acceleration of global capitalism in the 1980s should have had a much greater impact on nonmetro economies, which prior to the period at hand typically attracted labor-intensive manufacturing jobs and tended to be less diversified.

Proponents of the global restructuring perspective in rural sociology maintain that global restructuring of industry and production had a negative impact on nonmetro communities during the 1980s (Lichter and McLaughlin 1995; Brown and Hirschl 1995; Kassab, Luloff, and Schmidt 1995; Bloomquist et al. 1993; Falk and Lyson 1993). Historically, manufacturing concentration has had a positive effect on employment and wages in a local economy (Dicken 1992). Manufacturing plants are large employers and generally pay high wages (Brown and Hirschl 1995; Snipp and Bloomquist 1989). However, since nonmetro economies have been most successful at attracting labor-intensive branch plants or mature manufacturing establishments during the 1970s and 1980s (Lichter and McLaughlin 1995; Fuguitt, Brown, and Beale 1989; Summers 1982), the further globalization of labor-intensive manufacturing activities during the 1980s led to a negative effect of manufacturing on socioeconomic growth in nonmetro economies.

Four key conceptual schools of thought in sociology on macro-socioeconomic change in metro and nonmetro economies lead to a single conclusion about socioeconomic performance in metro and nonmetro economies during the 1980s: Manufacturing concentration had different effects in metro and nonmetro economies. Nonmetro economies were more likely to be characterized by mature labor-intensive manufacturing enterprises during the early 1980s; the further integration of the U.S. economy into the global economy (as evidenced by the increased trade deficits during this period) meant the loss of these jobs during the 1980s, with a subsequent negative impact on socioeconomic growth. However, in metro economies, manufacturing concentration had the positive effect on socioeconomic growth that it has historically had, because the manufacturing enterprises located in metropolitan areas since the decentralization of manufacturing in the 1960s and 1970s are spatially dominant enterprises in the global system (Lichter and McLaughlin 1995; Frey and Speare 1988; Goe 1994; Murdock et al. 1993). The first general hypothesis tested in this study is:

> *Hypothesis 1*: Manufacturing concentration at the beginning of the 1980s had a positive effect on socioeconomic growth in metro areas during the 1980s and a negative effect on socioeconomic growth in nonmetro areas.

Industry Structure: Producer Services

In light of the industrial transformation away from manufacturing toward services, there has been a recent focus on the potential role that services (producer business services in particular) can play in metro and nonmetro economic development (Hansen 1994). Producer services grew by 50 percent during the 1980s in metro economies (Goe 1994; Sassen 1994). As with manufacturing, a variety of perspectives, from a number of disciplines, views the emergence of producer services as a catalyst of employment and economic growth contributing to the widening gap between metro and nonmetro areas during the

1980s. Human ecologists maintain that producer business services provide integrative functions for local multinational corporations, local government agencies, and local manufacturing establishments, which helps locales achieve a greater position of dominance in a hierarchy of urban systems (Goe 1994; Frisbie and Kasarda 1988). Moreover, human ecologists maintain that producer services are more likely to lead to economic development in urban areas for several reasons. First, producer service establishments are generally private firms that employ a larger proportion of highly skilled employees. Second, producer services increase productivity through coordination and integration of services for the local manufacturing base, thus allowing the local manufacturing base to achieve a greater position of dominance (Goe 1994). Third, producer services allow multinational corporations to better control the geographical distribution of capital and achieve favorable positions in nonlocal trade exchanges. Fourth, some human ecologists (although certainly not all) argue that the producer service sector also creates wealth in a local economy by exporting services to other areas (Irwin and Kasarda 1991; Lincoln 1978; See also Goe 1994; Hansen 1994).

New urban sociologists (and economic geographers) maintain that producer services play a vital coordination role in global capitalism (Goe 1994; Dicken 1992). Saskia Sassen (1991; 1994; Sassen-Koob 1987) argues that producer services are the dominant force of economic growth in metro areas for a very fundamental reason: Global dispersion of production activities creates the need for centralization of management functions. The emergence of global capitalism and a global economy has created a change in the structure, complexity, and geographical dispersion of many firms. In turn, this change has created an unprecedented demand for specialized business and producer services that were consumed by corporate clients during the 1980s (Logan and Molotch 1987; Daniels 1985; 1996). One reason for the emergence of producer services as a dominant growth force is the globalization of manufacturing. Peter Dicken (1992) and Saskia Sassen (1991; 1994) argue that the shift of manufacturing production to overseas labor markets created the centralization of producer and business services near the headquarters of multinational corporations in the United States and other Western nations. Managing the global production and distribution process is quite complex, creating a demand for specialized accounting, telecommunications, legal, and financial services. Moreover, the specialized nature of these services means that it is more profitable for firms to seek them outside the firm, rather than internalize them (Goe 1994; 1991).

Urban areas benefit from the emergence of producer services as an engine of economic growth because purchasers of these services are located in large cities (Sassen 1994; 1991; Daniels 1996). Many of the services required by multinational corporations (MNCs) are highly specialized and require simultaneous information from multiple sources. Moreover, these services often require face-to-face interactions with client firms (Sassen 1994, p. 107; see also Irwin and Kasarda 1991). Sassen (1994, p. 66) argues that at the current stage of technological development, telecommunications technology cannot guarantee immediate and simultaneous access to the needed expertise for particular corporate needs (see also Glasmeier and Howland 1995). Therefore, these services locate in centralized areas, near the top-level headquarters of multinational firms, the purchasers of these services. Furthermore, the growth of producer services in urban centers also stems from an increased demand for these services from non-MNCs (Logan and Molotch 1987; Daniels 1985). According to Sassen (1994), all industry sectors (manufacturing, mining, retail, public utilities, etc.) are purchasing more services (accounting, legal, financial, advertis-

ing, consulting, etc.) from external firms (see also Singelmann 1978). Nigel Thrift (1987, p. 208) argues that these services are vital to day-to-day operation of most firms and that a global system of capitalism could not exist without them. The concentration of these services in urban areas creates what Sassen terms a corporate service sector complex in the metro U.S. areas. This leads to economic growth for metro areas because these services tend to employ a large proportion of highly skilled, highly compensated workers. In addition, Peter Daniels (1985) notes that these services make local organizations more competitive, thus strengthening the local economic base.

While human ecologists and new urban sociologists point to a strong urban bias in the effects of producer service growth, some rural sociologists and economic geographers maintain that increases in communication technology (satellites, fiber optics, internet) could allow producer services to decentralize from major metro areas to take advantage of other important ecological amenities that are typically found in nonmetro areas (lower taxes, lower property values, lower crime rates). In addition, the new technology could allow firms to maintain the same level of service to clients in metro areas (Bradshaw and Blakely 1979; Kasarda and Irwin 1991). As a result, rural areas could benefit from the increased role of services in general and producer services in particular. Some studies show that there is potential for nonmetro areas to export service functions to metro and other nonmetro areas (Porterfield and Pulver 1991; Harrington, Macpherson, and Lombard 1991). However, these tend to be rural counties adjacent to major metropolitan areas (Glasmeier and Howland 1995). Moreover, D. Dillman and D. Beck (1986) argue that nonmetro communities lack the telecommunications hardware to support the high-tech communications technology necessary to establish and maintain such links with other geographical areas. Also, tasks involved in service production are less easy to standardize and routinize (Singelmann and Mencken 1992), and this is particularly true for producer service production. Therefore, as the new urban sociologists argue, producer service transactions may still need face-to-face interactions, thus requiring certain functions to be spatially located near markets (i.e., near clients in metro areas [Irwin and Kasarda 1991; Sassen 1991; 1994]).

Advocates of the service spatial division of labor model note, however, that certain producer service tasks can be standardized and routinized (e.g., data entry) and "back-officed" to nonmetro areas to take advantage of low-skilled labor (Glasmeier and Howland 1995; Hepworth et al. 1987; Couto 1994; Fuguitt et al. 1989). Yet, Glen Fuguitt and his colleagues (1989) contend that producer service firms will not decentralize because many nonmetro communities do not have a labor force with basic mathematical and literacy skills to perform these functions. There is recent evidence from Appalachia (Maggard 1994; Couto 1994) to suggest that producer services do back-office routinized tasks. The problem for these communities, though, is that these back-officed services do not represent the high-quality producer service jobs that are capable of generating economic growth. The conclusion drawn from Amy Glasmeier and Marie Howland's (1995) work is that "back-officed" services have limited capacity to generate economic growth in nonmetro areas, particularly in those areas not functionally integrated into metropolitan economies.

As with manufacturing, a variety of perspectives in sociology, rural sociology and economic geography proposes that producer services were an important growth sector in metro economies in the 1980s. We argue that as producer services play an ever more prominent role in local economic development (as in the 1980s [Goe 1994; Glasmeier and Howland 1995; Sassen 1994; 1991; Dicken 1992]), nonmetro areas will fall further behind

metro areas, because nonmetro areas do not attract the types of producer service jobs that can generate economic growth. The second general hypothesis tested in this study is:

> *Hypothesis 2*: Producer service concentration had a positive effect on socioeconomic growth in metro economies and little effect in nonmetro economies during the 1980s.

Federal Disparity

Much of the previous research on the effects of federal spending on local economic well-being has been done by geographers, planners, and economists. The primary focus of this research has been on regional variation in federal spending and how this variation creates regional differences in economic growth. One consistent theme in this literature is that regional differences in federal spending on infrastructure (water projects, bridges, dams, highways, interstates) create regional differences in economic growth (Markusen 1994; Glickman and Glasmeier 1989; Malecki and Nijkamp 1988; Rephann and Isserman 1994). Military spending has had an important impact on regional and local economic growth during and since World War II (Markusen, Hall, Campbell and Deitrick 1991; Hooks 1994). For example, Gerald D. Nash (1985) shows that the federal government spent Forty billion dollars in the western United States during World War II, creating new jobs in aerospace and electronics manufacturing and in natural resource extraction industries. New jobs in these industries had multiplier effects on manufacturing supply services and retail/personal services, leading to even further population growth and urbanization. Federal investments in the local economies in the western United States during the war established western economies (particularly Los Angeles, San Francisco, and Seattle) as the economic pacesetters in the postwar period.

Others maintain that regional variation in defense spending during the 1970s and 1980s affected regional variation in socioeconomic growth during this period (Markusen 1987; 1994; Markusen et al. 1991; Glickman and Glasmeier 1989; Markusen and Carlson 1989; Malecki and Nijkamp 1988; Mehay and Solnick 1990). States in the "gunbelt" received a disproportionate share of defense contracts and spending (Markusen 1994, p. 5). Areas that particularly benefited include Boston (Route 128 corridor), Newport News, Virginia, Huntsville, Alabama, Houston and San Antonio Texas, Los Angeles, the Silicon Valley region, and Seattle, Washington. In addition, southern and western states held a greater proportion of military bases, received 50 percent of all military payroll money garnered, and 50 percent of all Pentagon research and development funds (Gottdiener 1994, p. 258).[2]

In sociological research, the effects of government finance on local economic conditions have been primarily the domain of the new urban sociology (Smith 1995; Gottdiener and Feagin 1988; Gottdiener 1994). One of the key assumptions of the new urban sociology is that the state plays a critical role in affecting the flow of capital (the state disparity hypothesis [Smith 1995, pp. 440–1; Gottdiener and Feagin 1988, pp. 172–74; Gottdiener 1994]). The federal government has the power to make substantial economic investment and divestment in communities. Proponents of the state disparity hypothesis contend that federal funding policies create spatial variation in economic performance. From 1945 through the 1970s, federal spending favored large cities (Castells 1988; Markusen 1987). According to John H. Mollenkopf (1983), since World War II, one-third of all manufacturing jobs created in the high-tech electronics and computer industry sectors (primarily in the suburbs of large cities) were the direct result of federal defense spending. Los Angeles

County alone received $13.8 billion in defense prime contracts in 1984, while $124 billion in defense contracts went to firms in metro areas in 1984 (Markusen 1994, p. 6).

Falk and Lyson (1993) contend that the socioeconomic spatial disparities in the 1980s were created partly by the transfer of dollars from successful nonmetro development programs to defense contracts (see also Castells 1988; Markusen 1994). During the 1980s, over $8 billion were cut from nonmetro development programs, such as FMHA business loans, Economic Development Administration, Community Development block grants, and over $6 billion in general revenue sharing (Falk and Lyson 1993, p. 268). The funding cuts to these programs and the reallocation of these dollars to defense contractors negatively impacted nonmetro economies while creating job growth in the suburbs of large cities. In addition to the financial strains created by cuts to nonmetro development programs, Lyson (1989) argues that the funding cuts also removed federal leadership from such programs. We argue that federal spending (not including transfer payments) helped metro economies during the economic expansion of the 1980s (given defense budget increases), while providing no real benefit to nonmetro areas (given the cuts in money and leadership to rural development programs documented by Falk and Lyson [1993]). The third general hypothesis in this study concerns this effect:

> *Hypothesis 3*: Federal funding had a positive effect on socioeconomic growth in metro economies during the 1980s and no effect in nonmetro economies.

While the various bodies of literature address these three important issues independently, we recognize that all factors were operating simultaneously during the 1980s and, as such, propose to treat these three hypotheses as competing hypotheses. The advantage is that we are able to discern which of the three factors (manufacturing concentration, producer service concentration, or federal spending) most readily accounts for the reemergence of the metro-nonmetro gap, while still elaborating on the net effects of each.

ANALYSIS

The analysis estimates the effects of industry structure measures (manufacturing and producer service concentration) and federal spending on socioeconomic performance in metro and nonmetro economies during the 1980s. There were two well-defined business cycles during the 1980s: a recession in 1980–1982 and a recovery in 1983–1988 (U.S. Bureau of Commerce 1992). We argue that the metro/nonmetro disparities documented during the 1980s were a function of how local economies responded to the 1983–1988 recovery. The recession in 1979–1982 was one of the worst post-depression downturns (USDA 1993), having negative effects on both metro and nonmetro economies (Singelmann et al. 1993). The 1983–1988 recovery was a period of extensive economic expansion but, for reasons hypothesized above, metropolitan areas benefited to a greater extent.

Data

Local commuter zone areas (CZs), a concept developed by Killian and Tolbert (1993), are the unit of analysis in the present study. CZs are clusters of counties based on commute-to-work patterns from the 1980 census. These units transcend administratively

determined geographical borders, and they better reflect the overall economic climate of an area than do counties. Communities are functionally integrated social systems and are the basic unit of analysis in ecological research (Kasarda and Irwin 1991; Hawley 1986). CZs are a more appropriate unit of analysis (i.e., better represent communities), given that they are clusters of counties based on commute-to-work patterns. These commute-to-work patterns measure the extent to which economies of adjacent counties are functionally integrated, and they reduce problems of spatial autocorrelation. We define nonmetro CZs as those not containing a Metropolitan Statistical Area (MSA) county (see Killian and Tolbert 1993). Killian and Tolbert (1993) have identified 778 commuter zones in the United States.

Data for this project are from the County Statistics File (COSTAT-4) prepared by the U.S. Bureau of the Census. This file contains a wide range of longitudinal measures from a variety of data sources. For many variables, COSTAT-4 lists annual information for 1975–1988. The COSTAT-4 file presents data in aggregate form at the county level. We reconstructed the commuter zones by aggregating the individual counties to the 778 commuter zones identified by Killian and Tolbert (1993), using PROC SUMMARY in SAS.[3]

Socioeconomic Performance Measures

Socioeconomic performance is the conceptual dependent variable in this analysis and is measured with three indicators: private nonfarm employment growth, per capita income growth, and per capita earnings growth. We chose these three variables because they are closely tied to other measures of social conditions (poverty, median family income, etc. [Lichter and McLaughlin 1995; Couto 1994; Mencken 1997]). Unfortunately, many of these other measures (poverty, median family income, etc) are available only during census years. Therefore, growth rates would have to be computed for ten-year cycles, which does not allow us to break the analysis into business cycles. This is problematic because previous research (Singelmann et al. 1993; Kasarda and Irwin 1991) shows that many variables have different effects on socioeconomic growth rates in recoveries and recessions. Therefore, we decided to estimate the effects of our key predictor variables on the growth rates of earnings, income, and employment—for which data are available on an annual basis.

We compute the growth rate (GR) for each indicator for the 1983-1988 recovery based on the following formula that computes growth rates as the difference between the natural log of indicator levels at two different time points (Jackman 1980):

$$GR(XT_2 - XT_1) = \ln(XT_2) - \ln(XT_1)$$

where XT_1 = the indicator level at Time 1 (1983); XT_2 = the indicator level at Time 2 (1988).

Variables

The independent variables are measured at (or near) the beginning of the 1983–1988 business cycle to test the relative level of a measure at the beginning of the cycle on the growth rates in the dependent variables across the cycle. This is an adaptation of growth rate models used by population ecologists (e.g., Frisbie and Poston 1978), where the growth rate of

a dependent variable is predicted by the relative levels of independent variables at the beginning of a particular time period. "Manufacturing concentration" is measured in 1983 as a percentage of total labor force employed in manufacturing. "Federal spending" is measured by computing total federal spending (military, R&D grants, payroll, etc., but not transfer payments) in 1983 per capita in each CZ. "Producer service concentration" is measured by the percentage of the labor force employed in finance, insurance, and real estate, one of the largest producer service categories (the financial sector plays a very important role in Sassen's models).

In the analysis, we regress the socioeconomic growth rates (per worker earnings, per capita income, nonfarm employment) on the three conceptual variables (above), a dummy variable for nonmetro status (nonmetro = 1), and a lag term to capture the low base effect of using growth rates as dependent variables.[4] The hypotheses posit differential effects of these concepts in metro and nonmetro economies. Therefore, we include three interaction variables to test whether or not federal spending, producer service concentration, and manufacturing concentration had different effects in metro and nonmetro economies and to determine which of the three interaction effects contribute the most to the increasing gap in performance between metro and nonmetro areas. We also include a number of control variables in the analysis to establish the robustness of the effects. The control variables are taken largely from John D. Kasarda and Michael D. Irwin's (1991) model of employment growth, which incorporates key elements of human ecology and the new urban sociology. We control for education level of the local economy (percentage of adults with greater than high school education, 1980); percentage of population black, 1980; population size (natural log of population, 1980); population density, 1980; property taxes per capita (1982); and region of the country (South).

We control for these effects because we are making an implicit argument that industry mix affected employment-related changes during the 1983–1988 business cycle (nonfarm employment, per capita earnings, and per capita income). However, the model presented by Kasarda and Irwin (1991) shows that both structure and agency place characteristics (what they label competitive effects) affect employment-related changes in local economies, net of the effects of industry mix. They demonstrate that places can have positive employment growth despite a poor industry mix, based on these place characteristics (such as the age and condition of industry structure, population density, education level, etc.) that help to attract jobs, particularly in declining industries. Therefore, it is important for this analysis to control for these effects in order to better understand the socioeconomic changes related to industry structure and federal spending. By controlling for these competitive effects, we control for those socioeconomic changes that stem from the place effects documented by Kasarda and Irwin (1991). While we anticipate that these competitive effects will vary by metro/nonmetro areas, we do not detect significant multicollinearity.[5]

The analysis also controls for primary industry sector dependence (e.g., agriculture, forestry, mining). The 1980s were a tough time for all three industries, and these tough times may have unevenly impacted nonmetro economies. For examples, areas dependent on coal mining suffered during the oil glut of the mid-1980s, when the price of oil fell to below $20.00 a barrel, creating sharp declines in the demand for domestically produced coal (Couto 1994; Maggard 1994). Sally W. Maggard (1994) shows that official unemployment averaged over 25 percent in West Virginia coal counties during this period. According to Linda M. Lobao and Katherine Meyer (1995), agricultural communities

(particularly in the Midwest) suffered an economic crisis during the 1980s, brought on by a decrease in foreign demand for U.S. products abroad, the Soviet grain embargo, rising interest rates, and declining land values. While the present analysis focuses on the conceptual issues concerning the effects of manufacturing, producer service concentration, and federal spending, it is important to control for the possible confounding effects related to primary sector dependence.

RESULTS

Descriptive Results

Table 1 presents descriptive statistics and difference of means tests for key variables. The results presented in Table 1 underscore the metro/nonmetro differences in socioeconomic performance during this time period. At the beginning of the business cycle, metro CZs had, on average, significantly higher levels of nonfarm employment, per capita income, and per capita earnings. Per capita income in nonmetro CZs was 87 percent of per capita income in metro CZs in 1983, while per capita earnings in nonmetro CZs was 77 percent of per capita earnings in 1983. The difference of means tests between the growth rates in metro and nonmetro CZs shows that there were no differences in per capita income and per capita earnings growth but a very large difference in the private nonfarm employment growth rates (9.9 vs. 17.1). While there were no differences in earnings and income

TABLE 1. DIFFERENCE OF MEANS TEST AND DESCRIPTIVE STATISTICS

	1983	1988	Growth Rate	T-Value
Per Capita Earnings				
Metro	7577.9	10167.9	29.4	−1.4
Nonmetro	5860.5	7990.4	30.4	
Per Capita Income				
Metro	10833.4	14457.9	28.4	0.32
Nonmetro	9518.8	12619.5	28.1	
Nonfarm Employment				
Metro	124343	147266	17.1	6.8***
Nonmetro	6922	7677	9	
Manufacturing Concentration				
Metro	25.1%			4.9***
Nonmetro	20.4%			
Producer Service Concentration				
Metro	6.4%			7.7***
Nonmetro	5.1%			
Per Capita Federal Funding				
Metro	3000.12			4.9***
Nonmetro	2369.4			

Notes: *p < .05, **p < .01, ***p < .001

growth rates, the gap in actual dollars increased in 1983–1988. In 1983, the gap in per capita income was $1,364, on average. In 1988, the gap in per capita income increased to $1,838—an increase of 35 percent. The same holds for earnings. The 1983 gap in per capita earnings was $1,717, on average. The gap grew to $2,177 in 1988, an increase of 26 percent. Despite the fact that the growth rates in earnings and income were the same for both time periods, the lower base of earnings and income in nonmetro CZs in 1983 means that earnings and income fell further behind in actual dollars during the recovery.

Regression Results

The OLS regression results are presented in Table 2. The OLS (no interaction terms) analysis establishes a baseline effect for all three variables of interest. The OLS analysis shows that manufacturing concentration is a significant positive predictor of all three measures of socioeconomic growth. The manufacturing sector generally has better paying jobs (compared to services), and manufacturing plants generally employ relatively large numbers of employees. Therefore, it is reasonable to expect that areas with a greater concentration of manufacturing employment will have higher income, earnings and job growth rates. Producer service concentration has no effect on any of the measures of socioeconomic growth during the 1983–1988 recovery, but these results change dramatically once interaction terms are included in the model (see below). However, the OLS analysis shows that federal spending per capita has a positive effect on per capita earnings and nonfarm employment growth.

The results with the interaction terms included are presented in Table 3. Hypothesis 1 posits that manufacturing concentration had different effects in metro and nonmetro economies during the 1980s. This hypothesis is partially supported. Manufacturing concentration had a strong, positive effect on all three dependent variables in metro CZs. For every 1 percent increase in manufacturing concentration, per capita earnings increased by 36 percent ($b = .361$) in metro CZs, and per capita income increased by 27.7 percent ($b = .277$). Manufacturing concentration also had positive effects on nonfarm employment growth in metro economies during the 1983–1988 recovery. The interaction terms represent the metro/nonmetro difference in slope for each of the three variables of interest. Two of the interaction terms are significant. The effects of manufacturing concentration on per capita earnings (nonmetro: $b = .121$ vs. metro: $b = .361$) and per capita income (nonmetro: $b = .07$ vs. metro $b = .277$) are significantly less in nonmetro economies. The effects for nonmetro CZs are computed by subtracting the interaction effect ($b = -.239$ for earnings; $b = -.205$ for income) from the effect for manufacturing 1983. There are no significant differences in slopes between metro and nonmetro economies for nonfarm employment growth.

These differences show that manufacturing concentration helped per capita income and earnings grow at a faster rate in metro CZs but it did not have the predicted negative effect in nonmetro CZs (Hypothesis 1). These metro/nonmetro differences are important. Earnings and income grew at a much greater rate (over 20 percent) in metro economies as a result of manufacturing employment concentration. This finding may reflect the qualitative difference in manufacturing jobs in metro and nonmetro areas suggested by human ecologists and proponents of the industrial restructuring perspective in rural sociology. Metro areas have spatially dominant, high-growth manufacturing enterprises, and nonmetro areas have declining or mature manufacturing enterprises, where earnings are relatively static.

TABLE 2. THE OLS EFFECTS OF MANUFACTURING CONCENTRATION, PRODUCER SERVICE CONCENTRATION AND FEDERAL SPENDING ON SOCIOECONOMIC GROWTH RATES 1983–1988 (N = 778)

	Per Capita Earnings Gr		Nonfarm Employ Gr		Per Capita Income Gr	
Variables	Unstd	Std	Unstd	Std	Unstd	Std
Intercept	0.658211	0***	−0.366179	0***	1.2049870***	0***
Manuf. 1983	0.155398	0.174397***	0.312052	0.3116684***	0.109394	0.2031475***
Prod.Ser. 1983	−0.013499	−0.002217	0.289307	0.0422882	−0.069529	−0.018896
Fed.Spend 1983	0.007676	0.1111229**	0.005849	0.075352*	0.002037	0.0487969
Nonmetro	−0.025099	−0.090386	−0.003129	−0.010028	−0.014788	−0.088121
Control Vars						
Lag Term	−2.18E-05	−0.359581***	−0.121423	−1.476176***	−0.087172	−0.211984***
Pop 1980 (ln)	−0.020167	−0.239928***	0.136607	1.4464125***	−0.011234	−0.221156
Farm, Mining 1983	−0.356177	−0.321284***	−0.451302	−0.362297***	−0.220762	−0.329513***
%Black 1980	0.123101	0.115259***	−0.083126	−0.069267**	0.069382	0.1074947**
Pop Density 1980	0.0000837	0.1525006***	−1.86E-07	−0.000302***	0.0000529	0.1595294***
Prop tax 1982	0.000152	0.2434739***	−3.61E-05	−0.051369***	0.0000861	0.2276365***
Educ 1980	−0.128462	−0.078556	0.373558	0.2033006***	−0.0785	−0.079433
South	−0.02757	−0.101682*	0.002891	0.0094886	−0.005611	−0.034244
R-square		0.312***		0.3404***		0.2616***
Adj R-sq		0.301***		0.3297***		0.2497***

Notes: ***p < .001, **p < .01, *p < .05

One reason for the lesser effects of manufacturing concentration in nonmetro CZs could stem from the earnings and income stagnation. Manufacturing concentration is good for a local economy because other businesses that provide supplies, financial capital ans so on are created (Hansen 1994; Begg 1993; Kirn, Conway, and Beyers 1990). In addition, Ian Begg (1993) states that some employment in a local economy is dependent upon income generated in other sectors of the local economy. Thus, as earnings grow in manufacturing, the residents employed by the manufacturing plants will have more money to spend in the local economy. This creates employment opportunities for others in the area. However, if earnings and income are growing at slower rates in nonmetro areas, then local employees will have less income to spend in the local economy, thus creating fewer multiplier effects and an overall widening in the socioeconomic gap.

The results suggest that our initial conceptualization of the manufacturing concentration effects need modification. Based on the literature, we hypothesized that manufacturing concentration at the beginning of the 1983 business cycle recovery would have a negative effect on socioeconomic growth in nonmetro CZs. This was based on Murdock and his colleagues' (1993) and Dicken's (1992) analyses of international trade deficits and on the types of jobs that U.S. economies have lost to overseas labor markets—mature

TABLE 3. THE INTERACTION EFFECTS OF MANUFACTURING CONCENTRATION, PRODUCER SERVICE CONCENTRATION AND FEDERAL SPENDING ON SOCIOECONOMIC GROWTH RATES, 1983–1988 (N = 778)

	Earnings		Employment		Income	
Variables	Unstd	Std	Unstd	Std	Unstd	Std
Intercept	0.535	0***	−0.341	0***	1.04	0***
Manuf 1983	0.361	0.405***	0.246	0.246***	0.277	0.514***
Prod. Ser. 1983	1.492	0.245***	0.935	0.136	0.778	0.211***
Fed. Spend 1983	0.008	0.128**	0.008	0.104*	0.005	0.122**
Nonmetro	0.154	0.554***	0.031	0.102	0.115	0.689***
Interaction Vars						
Manuf*Nonmetro	−0.239	−0.3***	0.097	0.109	−0.205	−0.326***
Prodser*Nonmetro	−1.91	−0.437***	−0.952	−0.19**	−1.07	−0.403***
Federal*Nonmetro	−0.003	−0.047	−0.005	−0.059	−0.006	−0.141**
Control Vars						
Lag Term	−2.175E-05	−0.359***	−0.121	−0.47***	−0.079	−0.192***
Pop 1980 (ln)	−0.021	−0.255***	0.133	0.41***	−0.012	−0.236***
Farm, Mining 1983	−0.362	−0.326***	−0.445	−0.357***	−0.231	−0.345***
%Black 1980	0.111	0.103 *	−0.096	−0.081*	0.063	0.098
Pop Dens 1980	0.0001	0.112 *	−6.51E-06	−0.01	0.0001	0.118*
Prop. Tax 1982	0.0001	0.231 *	−3.7E-05	−0.05	0.0001	0.203*
Educ 1980	−0.146	−0.08	0.345	0.188***	−0.092	−0.093
South	−0.026	−0.097*	−0.002	−0.006	−0.003	−0.022
R-square		0.327***		0.348***		0.283***
Adj R-sq		0.314***		0.335***		0.269***

Notes: ***p < .001, **p < .01, *p < .05.

manufacturing jobs that are more likely to be found in nonmetro economies (Summers 1982). Manufacturing concentration, however, had positive (although diminished) effects on socioeconomic growth in nonmetro CZs. While the analysis failed to demonstrate a negative effect of manufacturing concentration in nonmetro CZs, the relative effects of manufacturing concentration could help explain why the earnings and income gap between metro and nonmetro areas widened during the 1980s. Metro CZs had higher levels of per capita income and per capita earnings at the end of the 1983–1988 recovery (Table 1). Manufacturing had a positive significant effect on the growth rates of both earnings and income and a significantly greater effect on per capita income and earnings growth rates in metro CZs. Metro CZs had significantly higher levels of manufacturing concentration in 1983 (25 percent vs. 20 percent [Table 1]). Therefore, with similar growth rates but higher levels of manufacturing concentration in metro CZs, the gap in per capita earnings and income will widen over a five-year period. Consequently, while manufacturing concentration did not have the negative effects predicted, it is a concept that can still help to explain the widening metro/nonmetro gap in income and earnings during the 1980s.

Hypothesis 2 predicts that producer service concentration had a positive effect on socioeconomic growth in metro CZs and no effect in nonmetro CZs. The results show some support for this hypothesis. The effects of producer service concentration can best be seen in the interaction models. The results in Table 3 show that producer service concentration had a positive effect on per capita income, per capita earnings, and nonfarm employment growth in metro CZs. All three interaction terms are significant and negative, showing that the slopes for producer service concentration are significantly less (in fact, negative) in nonmetro CZs. For example, for every 1 percent increase in producer service concentration in metro CZs, nonfarm employment grew by 93 percent in metro CZs, but producer service concentration had no effect in nonmetro CZs (b = −.01 percent). The effects for earnings and income are fundamentally different in metro and nonmetro CZs. For every 1 percent increase in producer service concentration in metro CZs, per capita earnings and per capita income increase by 149 percent (b = 1.49) and 93 percent (b = .93), respectively. However, in nonmetro CZs, these effects are negative, where earnings decreased by 42 percent (b = −.42), and income by 30 percent (b = −.30).

The reason for the different metro/nonmetro effects stems from the different types of producer service jobs in metro and nonmetro CZs. In urban areas, these are typically high wage jobs in organizations that provide integration and coordination functions for multinational corporations and urban manufacturing enterprises (Goe 1994; Sassen 1994; 1991; Dicken 1992). In rural areas, producer service jobs are the "back-officed" variety, low wage, low benefit jobs located in rural areas to take advantage of cheap labor (Maggard 1994; Glasmeier and Howland 1995). The negative effects of producer service concentration in nonmetro Czs were unexpected—we expected that producer service concentration would have no real effect in nonmetro areas. These negative effects may reflect the relative importance of other industry sectors. The greater the concentration of producer services—especially the back-officed variety found in nonmetro areas—the lower the concentration of employment in another sector (such as manufacturing). This analysis shows that the emergence of producer services as a force of local socioeconomic growth created unequal growth patterns in metro and nonmetro CZs during the 1980s. As the U.S. economy depends more and more on producer services for higher wage job growth, a trend predicted by geographers, economists, and sociologists (Glasmeier and Howland 1995; Goe

1994; Hansen 1994; Sassen 1994), the consequences could be continued divergence between metro and nonmetro CZs.

Hypothesis 3 predicts that federal spending had a greater effect on socioeconomic growth in metro CZs in the 1980s than in nonmetro CZs, given spending shifts from rural development programs to defense spending and the further dismantling of the federal rural development programs (Falk and Lyson 1993; Lyson 1989; Nash 1985). The OLS analysis shows that federal spending had a positive effect on two of the three indicators of socioeconomic growth (Table 2). For every additional dollar (per capita) of nontransfer federal spending in a CZ, per capita earnings grew by .7 percent and nonfarm employment by .5 percent. These findings support previous research on the positive effects of federal spending on local socioeconomic conditions (Markusen 1987; Mollenkopf 1983; Falk and Lyson 1993; Mencken 1996).

However, the interaction term for federal spending effects (federal by nonmetro) show some support for our hypothesis (that federal funding has a greater effect in metro CZs, compared to nonmetro CZs). The interaction analysis shows that the effects of federal spending on per capita income growth are significant for all three dependent variables in metro CZs, once the effects of the other interaction terms are partialed out. The higher the rate of federal spending per capita, the greater the rate of earnings, income, and private nonfarm job growth. However, the effects of federal spending were not significantly different in nonmetro CZs, with the exception of per capita income growth, where the difference in slopes represent a .6 percent difference in growth rates for each additional per capita dollar of federal spending. While only one of the interaction terms was significant, the results suggest that federal spending can explain the widening socioeconomic gap between metro and nonmetro economies during the 1980s. Metro CZs had significantly higher levels of per capita federal funding than nonmetro areas in 1983 (Table 1). On average, metro CZs received $3,000 per capita in 1983, significantly more than the $2,369 per capita value for nonmetro CZs. Given that federal funding affects earnings and employment growth in nonmetro areas at the same rate as in metro areas, nonmetro areas will fall behind metro areas over time, because metro areas receive higher levels of funding. Metro areas also started out at higher levels of per capita earnings, income, and nonfarm employment. If the same growth rate is applied to the higher (metro) and lower (nonmetro) earnings and employment values at the beginning of the 1983–1988 business cycle, it will produce an even greater metro/nonmetro gap at the end of the cycle. Therefore, while federal spending had some positive effect on socioeconomic growth in nonmetro CZs, the higher levels of federal funding, coupled with the higher levels of earnings and employment in metro areas at the beginning of the recovery, means that federal spending led to an increase in the gap in levels of income, earnings, and employment during this period.

Competing Effects

Treating all three hypotheses as competing hypotheses, the analysis shows that producer services created more disparity between metro/nonmetro CZs during the 1980s than did manufacturing or federal spending. The standardized coefficients for all interaction variables show that the interaction effect between nonmetro status and producer services contributes the most to variance explained in all three models. For example, this interaction accounts for 16 percent of the variance in per capita income growth, 19 percent of the variance in per capita earnings growth, and 4 percent of the variance in private nonfarm

employment growth. However, manufacturing is not far behind. The interaction terms for manufacturing concentration explain 10 percent of the variance in per capita income growth, 9 percent of the variance in per capita earnings growth, and 1percent of the variance in private nonfarm employment growth. In addition, manufacturing had significantly greater effects within metro CZs, but when the interaction effects are compared within models (which are the differences in effects for metro/nonmetro CZS), producer services emerge as the factor that best accounts for socioeconomic growth rates. While federal spending is an important determinant of socioeconomic growth and played some role in the increasing socioeconomic gap during the 1980s, it did not contribute as much as the other factors.

Control Effects

While the analysis focuses primarily on the issues of industry structure and federal spending, we also controlled for place effects (or competitive effects), because we wanted to clarify better the relationship between manufacturing, producer services, and federal spending and socioeconomic change. However, research by Kasarda and Irwin (1991) shows that these place characteristics can affect employment growth (and by extension employment-related growth), net of the effects of industry structure. The results for these measures (Tables 2 and 3) show the importance of controlling for mining or farming dependence. Places with a greater concentration in these industries fared significantly worse on all three dependent variables. By controlling for these negative effects, we get a clearer picture of how manufacturing concentration, producer service concentration, and federal spending affect these socioeconomic growth measures. However, the effects for other control variables are less clear. For example, population of CZ has a net negative effect on earnings and income growth. Places with larger populations tend to have higher earnings and incomes, so it is possible that this measure may usurp some of the "low base effect" not captured by the lag term. The property taxes variable has an anticipated negative effect on employment growth (net of all the other measures), but a positive effect on earnings and income growth. But this may demonstrate the endogeneity of this place measure. Places with greater earnings and income will probably have higher property values and taxes. What this analysis shows is that the findings for place effects are less intuitive when the measures of interest are included (manufacturing, producer services, federal spending).[6] This is probably because the variables of interest are related to the place measures (but not collinear). Moreover, it is important to control for these effects, given their potential net influence on employment change and related issues.

We also explored possible interaction effects with the control variables by nonmetro status. Most of the control variables have statistically the same effect in metro and nonmetro areas. The major exception is population density. This variable has a negative effect in metro areas on all three measures of well-being. This is an expected finding in ecological research: greater density represents congested social systems with limited room for expansion. In nonmetro areas, this variable has a positive effect on all three measures of well-being. It could be that this variable helps to capture the effects of larger nonmetro areas (although a measure of population size is included in the model). It may also represent more developed social systems in nonmetro CZs, or social systems that are better integrated and not as geographically dispersed. These results are not included in the tables, but are available from the authors upon request.

DISCUSSION

Throughout the 1990s, studies have documented the reemergence of a socioeconomic gap between metro and nonmetro economies in the 1980s (USDA 1993; Singelmann and Deseran 1993; Falk and Lyson 1993; Lichter and McLaughlin 1995; Couto 1994). We tested three competing explanations for the reemergence of this gap—the effects of manufacturing concentration, the emergence of producer services as a catalyst of socioeconomic growth, and federal disparity in spending—with rigorous controls included. To our knowledge, this is one of the first studies to investigate these three factors simultaneously. Our contention that these three factors led to different effects in metro and nonmetro CZs is partially supported. Manufacturing concentration had a greater effect on per capita income and per capita earnings in metro CZs. Producer services had a positive effect on all three indicators in metro CZs and a negative effect on earnings and income growth in nonmetro CZs. While only one metro/nonmetro difference was detected for federal spending effects, we found that federal spending is an important predictor of socioeconomic growth in both metro and nonmetro CZs and that metro CZs received greater per capita federal funding, which translates into more jobs and greater earnings and income over the business cycle.

Although the results show some support for the three hypotheses, the variables also produced unexpected effects. Perhaps the biggest surprise is the effect of manufacturing concentration. We predicted that manufacturing concentration had a negative effect on socioeconomic growth during the 1983–1988 business cycle in nonmetro economies because of shifting manufacturing jobs overseas. Murdock and his colleagues (1993) show that trade deficits increased dramatically during this period (primarily from 1984–1988), which is a sign of further decline of labor-intensive manufacturing in the United States. We anticipated that nonmetro communities would lose manufacturing jobs during this period and that this would translate into poor socioeconomic growth. Our analysis shows that manufacturing still had significant, positive effects on socioeconomic growth in nonmetro areas during this period. One reason may be that despite losing manufacturing jobs to overseas labor markets, nonmetro areas continued to attract manufacturing jobs that were decentralizing from metro areas (USDA 1993). Therefore, the anticipated negative effects of manufacturing concentration may have materialized in the subsequent recession (1989–1992). Had these effects materialized in the subsequent recession, they would probably not have impacted the 1990 census data, from which the metro/nonmetro disparities have been documented (USDA 1993; Falk and Lyson 1993).

The results for federal spending partially fit with our expectations that federal funding is more important for metro CZs. The same level of funding does not generate different socioeconomic growth rates in metro and nonmetro commuter zones (interaction terms not significant), but the higher levels of federal funding in metro CZs translate into a wider gap at the end of the business cycle. These findings also underscore Falk and Lyson's concern about reductions in rural development programs during the 1980s. Our regression models predict that reductions in nontransfer federal spending in the 1980s would decrease income, earnings and employment growth. Falk and Lyson show that substantial monies were eliminated from rural development programs. Although per capita spending has the same effect in metro and nonmetro communities, if nonmetro communities are getting less money, then they will fall further behind. This analysis also suggests that government spending has positive effects on local economies. However,

what is needed is research that better disentangles the effects of federal spending into non-transfer spending categories (research/development, grants/awards, defense, etc.). These issues are beyond the scope of this analysis, but such an endeavor would produce practical policy implications.

The federal spending results also show that federal spending plays an important role in local social system change. This finding is at odds with the claims of ecologists that federal spending has no direct effect on socioeconomic change (Kasarda and Irwin 1991). Our analysis shows that agency may matter. The ability of politicians to manipulate the spatial distribution of federal funds can affect the socioeconomic well-being of metro and nonmetro communities, net of the effects of ecological structure. However, most of the theoretical development of the state disparity hypothesis in the new urban sociology has focused on urbanization and the effects of federal spending changes on the socioeconomic well-being of cities (Castells 1988; Mollenkopf 1983). More attention should be given to nonmetro areas. In addition, there is room to integrate the role of federal spending into the human ecology approach (Hooks 1994). Federal spending can directly affect the ecological structure of communities, especially conditions of infrastructure (roads, water systems, telecommunications, etc.). Federal dollars can be integrated into ecological models as an external resource that makes local social systems more competitive through upgraded infrastructure or that increases the effectiveness of new and/or existing technologies (telecommunications hardware). In addition, federal funding in the form of research and development can create new technologies that increase the productivity of local social systems and make them spatially dominant in a hierarchy of exchange (such as high-tech Route 128 near Boston). While federal spending has been the domain of the new urban sociology, like other constructs from the new urban sociology, it is not completely incompatible with some of the basic ideas in human ecology (Smith 1995).

The analysis of producer service concentration fits our expectations. Producer service concentration had a positive effect on employment, income, and earnings growth in metro economies and a negative or no effect in nonmetro economies. Producer services are hard to standardize and routinize; therefore, it is imperative that producer service firms locate close to clients—which are typically multinational corporations or large manufacturing enterprises (Sassen 1994; 1991; Dicken 1992). This precludes producer service firms from decentralizing to nonmetro economies and taking advantage of nonmetro amenities (low taxes, cheap labor, etc.). Therefore, metro economies benefit more from producer service concentration than nonmetro economies, which typically attract back-officed routinized work. Corporations will back-office low-skill routinized tasks (data entry/processing, telemarketing, check processing, bookkeeping, etc.) to take advantage of low-wage workers in nonmetro economies (Maggard 1994; Glasmeier and Howland 1995). Therefore, nonmetro areas get low-quality producer service jobs, while metro areas get high-quality producer service jobs. This analysis suggests that, as the economy becomes more dependent on producer business services for quality socioeconomic growth, nonmetro areas will fall further behind. The negative effects of producer service concentration on per capita income and earnings growth in nonmetro CZs may reflect the quality of jobs argument. Nonmetro CZs overconcentrated in back-officed producer service jobs had significantly lower per capita income growth rates. The greater the percentage of jobs in this sector, the lower the percentage of jobs in other, better income generating sectors.

This analysis shows a direct link between producer service concentration and socioeconomic growth during the 1983–1988 business cycle recovery and, more importantly, that this factor is the most important determinant of earnings, income and nonfarm job growth during the 1980s. These effects are probably somewhat conservative. First, while finance, insurance and real estate (FIRE) is one of the largest producer service categories, it is not the only important category. Other business services, engineering, technical consulting services, and legal services are not included in this analysis. These categories play important roles in coordinating and processing information in complex economies, and they all employ a large proportion of high wage workers (Sassen 1994; 1991; Begg 1993; Kirn et al. 1990). The exclusion of some of these other categories probably reduces the effects of producer services in this analysis. Second, the indirect effects of producer service concentration are not modeled in this analysis. Many different perspectives maintain that producer services provide coordination and integration services to make other entities more competitive in a system of urban spatial competition. Therefore, producer service concentration may also be responsible for much of the socioeconomic success related to manufacturing in metro economies.

These results have implications for future research. The primary area of future investigation should be on the long-term implications of producer service concentration. One way to investigate this is to examine the effects of producer service concentration in subsequent business cycles (e.g., 1989–1992). As the U.S. economy becomes more immersed in the global economy and depends more and more on services for economic growth, there is a potential (based on this analysis) for an even greater gap between metro and nonmetro areas. These effects need to be tested for business cycles during the 1990s and beyond. Another area that needs attention is the role that producer services play in creating variations in performance among metro economies. Sassen (1994; 1991) implies that producer service concentration might also explain why certain metro areas outperformed other metro areas. This needs to be investigated and, if possible, linked to the emergence of a hierarchy of urban systems in the United States. In addition, research on the effects of producer services in other (probably Western) nations is needed. Did the globalization of the world economy and the emergence of producer services lead to a metro/nonmetro (or possibly regional) gap in socioeconomic performance in other nations? Or is it primarily a U.S. phenomenon? This is an interesting hypothesis and, given the logic of this analysis, we would expect to see that producer services helped urban areas in other nations expand during this period of globalization. We also need to better analyze the indirect effects of producer service concentration on local socioeconomic growth via other industry sectors. The literature in sociology and geography suggests that producer services make local manufacturing more productive. Our analysis shows that manufacturing still had very important effects during this business cycle. The interrelations between producer services and manufacturing need to be better explored. Finally, this research shows important effects of federal spending in metro and nonmetro CZS. We maintain that this is an exciting avenue of new research. The measures used in this analysis were aggregate per capita measures. However, we know that priorities in federal spending vary with time (and administrations). Therefore, we believe that it is important to disaggregate the effects of federal spending into appropriate categories (research and development, defense, grants, etc.) and explore the variation in effects among these categories.

The purpose of this analysis was to test three competing explanations of metro/nonmetro divergence in socioeconomic growth in the 1980s, using an analytical model that is theoretically grounded. Our analysis shows that manufacturing concentration, producer service concentration, and federal spending are all important factors in explaining why the earnings, income, and employment gap between metro and nonmetro areas increased during the 1980s. Given the link between these three measures and other measures of socioeconomic well-being (poverty, income inequality, etc.), we maintain that these three factors can help explain the increasing gap in these measures as well.

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NOTES

1. The $100 billion per year increase occured in 1984–1988.
2. Analysis of defense contract data for this period shows that metro areas received three times the defense contracts (per capita) than nonmetro areas. However, military bases are slightly more likely to be located in rural areas (Markusen 1994).
3. Details on this procedure are available from the authors.
4. The lag terms are the dependent variables in 1982. For example, the lag term for the growth in per capita income between 1983–1988 is per capita income in 1982 (a natural log measure).
5. We are concerned with multicollinearity in the analysis. We examined zero-order correlations (none above .60), and standard measures of multicollinearity in SAS (variance inflation indices and condition indices). Our efforts failed to detect major problems. Some evidence suggested multicollinearity between South and percentage of blacks, but the zero-order correlation between these variables is .59. We decided to leave both measures in the model, given that neither is central to the research hypotheses. Zero-order correlations are available upon request from the authors.
6. The control variables have different effects when the measures for manufacturing, producer services and federal spending are removed from the analysis. These additional results are available upon request.

REFERENCES

Begg, Iain. 1993. "The Service Sector in Regional Development." *Regional Studies* 27:817–825.

Bloomquist, Leonard, Christina Gringeri, Donald Tomaskovic-Devey and Cynthia Truelove. 1993. "Work Structures and Rural Poverty." Pp 68–105 in *Persistent Poverty in Rural America,* edited by the Rural Sociological Society Task Force on Persistent Rural Poverty. Boulder, CO: Westview Press.

Bradshaw, Ted, and Edward Blakely. 1979. *Rural Communities in Advanced Industrial Society* New York: Praeger.

Brown, David, and Thomas A. Hirschl. 1995. "Household Poverty in Rural and Metropolitan Core Areas of the United States." *Rural Sociology* 60:44–66.

Castells, Manuel. 1988 "High Technology and Urban Dynamics in the United States." Pp. 85–110. in M. Dogan and J. D. Kasarda (eds.), *The Metropolis Era.* Vol. 1. *A World of Giant Cities.* Beverly Hills: Sage

Couto, Richard A. 1994. *An American Challenge.* Dubuque, IA: Kendall/Hunt.
Daniels, Peter. 1985. *Service Industries.* London: Methuen.
——— 1996. *The Global Economy in Transition.* Harlow, UK: Longman.
Dicken, Peter. 1992. *Global Shift* 2d ed. New York: Guilford Press.
Dillman, D., and D. Beck. 1986. "The Past Is Not the Future: Urban Quality of Life as We Approach the 21st Century." *Urban Resources* 3:43–47.
Falk, William and Thomas Lyson. 1988 *High Tech, Low Tech, No Tech.* Albany: State University of New York Press.
———.1993. "Restructuring Local Labor Markets." Pp. 257–278 in *Inequalities in Labor Market Areas*, edited by Singelman and Deseran.
Frey, William, and Alden Speare. 1988. *Regional and Metropolitan Growth and Decline in the United States.* New York: Russell Sage Foundation.
Frisbie, W. Parker and John D. Kasarda. 1988. "Spatial Processes." Pp. 629–666 in *Handbook of Sociology*, edited by Neil J. Smelser. Newbury Park, CA: Sage.
Frisbie, W. Parker, and Dudley L. Poston. 1976. "The Structure of Sustenance Organization and Population Change in Nonmetropolitan America." *Rural Sociology* 41:354–370.
———. 1978. "Sustenance Differentiation and Population Redistribution." *Social Forces* 57: 42–56.
Fuguitt, Glen, David Brown, and Calvin Beale. 1989. *Rural and Small Town America.* New York: Russell Sage Foundation.
Gaventa, John. 1990. "From the Mountains to the *Maquiladoras*: A Case Study of Capital Flight and Its Impact on Workers." Pp 85–95 in *Communities in Economic Crisis: Appalachia and the South*, edited by John Gaventa, Barbara Ellen Smith, and Alex Willingham. Philadelphia: Temple University Press.
Glasmeier, Amy, and Marie Howland. 1995. *From Combines to Computers.* Albany: State University of New York Press.
Glickman, Norman, and Amy Glasmeier. 1989. "The International Economy and the American South." Pp. 60–80 in *Deindustrialization and Regional Economic Transformation*, edited by L. Rodwin and H. Sazanami. Boston: Unwin Hyman.
Goe, Richard 1991. "The Growth of Producer Services Industries." *Growth and Change* 22:118–41.
———. 1994 "The Producer Services Sector and Development within the Deindustrializing Urban Community." *Social Forces* 72:971–1009.
Gottdiener, Mark. 1994. *Social Production of Urban Space*, Austin: University of Texas Press.
Gottdiener, Mark, and Joe Feagin. 1988. "The Paradigm Shift in Urban Sociology." *Urban Affairs Quarterly* 24:163–187.
Hansen, Niles. 1994. "The Strategic Role of Producer Services in Regional Development." *International Regional Science Review* 16:187–196.
Harrington, James, Alan Macpherson, and John Lombard. 1991. "Interregional Trade in Producer Services." *Growth and Change* 22:75–94.
Harvey, David. 1982. *The Limits to Capital.* Blackwell: Basil.
Hawley, Amos. 1986. *Human Ecology: A Theoretical Essay.* Chicago: University of Chicago Press.
Hepworth, Mark, A. Green, and A. Gillespie. 1987. "The Spatial Division of Information Labor in Great Britain." *Environment and Planning A* 19:793–806.
Hooks, Gregory. 1994. "Regional Processes in the Hegemonic Nation: Political, Economic and Military Influences on the Use of Geographic Space." *American Sociological Review* 59:746–772.
Irwin, Michael D., and John D. Kasarda. 1991. "Air Passenger Linkages and Employment Growth in U.S. Metropolitan Areas." *American Sociological Review* 56:524–537.
Jackman, Robert W. 1980. "A Note on the Measurement of Growth Rates in Cross-National Research." *American Journal of Sociology* 86:604–617.
Kasarda, John D. and Michael D. Irwin. 1991. "National Business Cycles and Community Competition for Jobs." *Social Forces* 69:733–761.

Kassab, Kathy, A. E. Luloff, and Fred Schmidt. 1995. "The Changing Impact of Industry, Household Structure, and Residence on Household Well-Being." *Rural Sociology* 60:67–90.

Killian, Molly S., and Charles Tolbert. 1993. "Mapping Social and Economic Space." Pp. 69–82 in *Inequalities in Labor Market Areas*, edited by Singelmann and Deseran.

Kirn, Thomas J., Richard Conway Jr., and William Beyers. 1990. "Producer Services Development and the Role of Telecommunications: A Case Study in Rural Washington." *Growth and Change* 21:33–50.

Lichter, Daniel T., and Diane K. McLaughlin. 1995. "Changing Economic Opportunities, Family Structure, and Poverty in Rural Areas." *Rural Sociology* 60:688–706.

Lincoln, James. 1978. "The Urban Distribution of Headquarters and Branch Plants in Manufacturing." *Demography* 15:213–222.

Lobao, Linda M., and Katherine Meyer. 1995. "Economic Decline, Gender, and Labor Flexibility in Family-Based Enterprises: Midwestern Farming in the 1980s." *Social Forces* 74:575–608.

Logan, John, and Harvey Molotch. 1987. *Urban Fortunes.* Berkeley: University of California Press.

Lyson, Thomas A. 1989. *Two Sides of the Sunbelt.* New York: Praeger Press.

Lyson, Thomas A. and Charles Tolbert, Jr. 1996. "Small Manufacturing and Civic Welfare in U.S. Nonmetropolitan Counties: A Regional Comparison." *Environment and Planning A* 28:1779–1794.

Maggard, Sally W. 1994. "From Farm to Coal Camp to Back Office and McDonald's: Living in the Midst of Appalachia's Latest Transformation." *Journal of Appalachian Studies Association* 6:14–38.

Malecki, Edward, and Peter Nijkamp. 1988. "Military Spending and U.S. Defense Spending." *Environment and Planning C* 1:31–44.

Markusen, Ann 1987 *Regions: The Economics and Politics of Territory.* Totowa, NJ: Rowman and Littlefield.

———. 1994. "American Federalism and Regional Policy." *International Regional Science Review* 16:3–16.

Markusen, Ann. and Virginia Carlson. 1989. "Deindustrialization in the American Midwest: Causes and Responses." Pp. 29–59. in *Deindustrialization and Regional Economic Transformation* edited by L. Rodwin and H. Sazanami. Boston: Unwin Hyman.

Markusen, Ann, Peter Hall, Scott Campbell, and Sabina Deitrick. 1991. *The Rise of the Gunbelt: The Military Remapping of Industrial America.* New York: Oxford University Press.

Mehay, S., and L. Solnick. 1990. "Defense Spending and State Economies." *Journal of Regional Science* 4:477–487.

Mencken, F. Carson. 1996. "Income and Employment Change in Appalachia during the 1983–88 Business Cycle Recovery: Locating Differential Effects in North, Central and South Appalachia." *Journal of Appalachian Studies* 2(1):77–86.

——— 1997. "Regional Differences in Socioeconomic Well-Being in Appalachia." *Sociological Focus* 30:79–97.

Mollenkopf, John H. 1983. *The Contested City.* Princeton, NJ: Princeton University Press.

Murdock, Steve H., Md. Nazrul Hoque, and Kenneth Backman. 1993. "Determinants of 1980–1990 Net Migration in Texas Counties." *Rural Sociology* 758:190–209.

Nash, Gerald D. 1985. *The American West Transformed.* Bloomington: Indiana University Press.

Nord, Mark, and Al Luloff. 1993. "Socioeconomic Heterogeneity of Mining-Dependent Counties." *Rural Sociology* 58:492–500.

Porterfield, Shirley, and Glen C. Pulver. 1991. "Services Producers, Exports and the Generation of Economic Growth." *International Regional Science Review* 14(1):75–94.

Poston, Dudley L. 1984. "Regional Ecology: A Macroscopic Analysis of Sustenance Organization." Pp. 323–382. in *Sociological Human Ecology*, edited by Michael Micklin and Harvey M. Choldin. Boulder, CO: Westview Press.

Rephann, Terance, and Andrew Isserman. 1994. "New Highways as Economic Development Tools." *Regional Science and Urban Economics* 24:723–751.

Ross, Robert J., and Kent C. Trachte. 1990. *Global Capitalism: The New Leviathan.* Albany: State University of New York Press.

Sassen, Saskia. 1991. *The Global City: New York, London, Tokyo.* Princeton, NJ: Princeton University Press.

———. 1994. *Cities in a World Economy.* Newbury Park, CA: Pine Forge.

Sassen-Koob, Saskia. 1987. "Issues of Core and Periphery: Labour Migration and Global Restructuring." Pp. 60–87 in *Global Restructuring and Territorial Development,* edited by J. Henderson and M. Castells. London: Sage.

Singelmann, Joachim. 1978. *From Agriculture to Services.* Beverly Hills, CA: Sage.

Singelmann, Joachim and Forrest A. Deseran, eds. 1993. *Inequalities in Labor Market Areas.* Boulder, CO: Westview Press.

Singelmann, Joachim, Forrest A. Deseran, F. Carson Mencken, and Jiang H. Li. 1993. "What Drives Labor Market Growth?" Pp. 125–142 in *Inequalities in Labor Market Areas,* edited by Singelmann and Deseran

Singelmann, Joachim and F. Carson Mencken. 1992. "Job Autonomy and Industrial Sector in Five Advanced Industrial Nations." *Social Science Quarterly* 73:829–843.

Smith, David A. 1995. "The New Urban Sociology Meets the Old: Rereading Some Classical Human Ecology." *Urban Affairs Review* 30:432–457.

Snipp, C. Matthew, and Leonard E. Bloomquist. 1989. "Sociology and Labor Market Structure." Pp. 1–28 in *Research in Rural Sociology and Development* edited by W. W. Falk and Th. A. Lyson, Greenwich, CT: JAI Press.

Summers, Gene F. 1982. "Industrialization." Pp. 164–174 in *Rural Society in the U.S.* edited by D. Dillman and D. Hobbs, Boulder, CO: Westview Press.

Thrift, Nigel. 1987. "The Fixers: The Urban Geography of International Commercial Capitalism." Pp. 203–233 in *Global Restructuring and Territorial Development,* edited by J. Henderson and M. Castells. London: Sage.

U.S. Bureau of Commerce. 1992. *Statistical Abstracts of the United States, 1992.* Washington, DC: U.S. GPO.

U.S. Department of Agriculture (USDA). 1993 *Rural Conditions and Trends* 4:3. Economic Research Service, U.S. Department of Agriculture.

Wilson, William Julius. 1987. *The Truly Disadvantaged: The Inner City, the Underclass, and Public Policy.* Chicago: University of Chicago Press.