Public-Private Partnerships, Innovation Networks, and Regional Development in Southwestern Pennsylvania

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During the last several years, growth in small and mid-sized regions has been primarily a European concern. The continuing importance of culturally-based territorial communities and the ongoing development programmes sponsored by national governments and the European Community in part explain this concern. The need to justify a rationale for integrating peripheral regions into a single European market is also undoubtedly significant.

A particularly interesting attempt in the French-language literature to analyze and explain the environment of regional economic change has centred on the work of GREMI (Groupe de recherche Européen sur les milieux innovateurs) and has focused on the concept of the *local milieu* (local environment). This approach emphasizes the importance of local institutional networks and technical innovation as the basis for regional growth (see Aydalot 1986; Lecoq 1989; Perrin 1990, 1991; Maillat et al. 1990; DeCoster et al. 1991; Planque 1991, n.d.; Camagni n.d.). Its holistic perspective on regional dynamics is reminiscent in many ways of the earlier French school of human geography. This thinking has incorporated some U.S. ideas (Friedmann and Weaver 1979; Piore and Sable 1984; Scott and Storper 1986), but most related North American work has been derivative (Hansen 1990; Saxenian 1990; Gordon 1991).

This article follows in this tradition, asking what the concept of an innovative local milieu can contribute to an understanding of regional economic change in the 2.1 million-inhabitant southwestern Pennsylvania region. This region is made up of seven counties,

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including Allegheny County in which what was the heavy industrial complex at Pittsburgh is located.

Pittsburgh has attracted the attention of public policy makers worldwide because of its supposedly successful transition from a steel manufacturing economy to a high technology-based economy (Kunzmann 1988a, 1988b; Moccia 1990). The city's strategy of encouraging high-tech development through a well-developed system of public-private partnerships is familiar by now to many readers (Stewman and Tarr 1982; Weaver 1987; Ahlbrandt 1991). This article summarizes this literature and asks whether empirically observed changes in the Pittsburgh regional economy can reasonably be attributed in part to the institutional structures and linkages that make up the local milieu.

Public-Private Partnerships in Southwestern Pennsylvania

Historically, two major institutional networks have functionally integrated the Pittsburgh region: (1) the integrated regional industrial complex (in the Isardian sense) associated with ferrous and non-ferrous metals, chemicals, and glass production; and (2) the public-private partnerships built up largely through the Allegheny Conference on Community Development (ACCD) during the 1980s to promote entrepreneurial innovation in the high-tech sector of the economy. The first network, with its industrial input-output linkages and overlapping skilled labour markets, collapsed with the demise of the Pittsburgh steel industry and other heavy manufacturing (Hoerr 1988). The Allegheny Conference's network of linked public-private organizations (Ahlbrandt and Weaver 1987) is the only remaining formally institutionalized superstructure for promoting communication and product and process innovation among Pittsburgh businesses.

The options for local economic development in southwestern Pennsylvania during the 1990s are limited and clearly painful to many community stakeholders, including unionized labour, local merchants, and many locally-based manufacturers (Ahlbrandt and DeAngelis 1987). No longer can the traditional Pittsburgh corporate hierarchy be looked to for incremental decisions, at the margins of their business interests, that meet community needs. It is the business strategies of these very companies—such as United States Steel, Alcoa, and Pittsburgh Plate Glass—in response to changing technologies, production processes, and international competition, which have brought profound dislocations to southwestern Pennsylvania's economy. How can corporate leaders be expected to respond in the civil sphere when immediate company interests and community interests are in conflict?

The Allegheny Conference's response has been to sidestep the issue of massive deindustrialization in Pittsburgh and to support a strategy for regional economic development that relies on high-technology development, local entrepreneurship, physical renewal, and neighbourhood initiatives to rebuild the area's economic base (Lee and Weis 1986). A three-way partnership between the Conference and its supporters, city and county government, and the region's major research universities (University of Pittsburgh and Carnegie-Mellon University) has been formed to provide the physical infrastructure and institutional network needed to underpin high-tech industries (Ahlbrandt 1987). The University of Pittsburgh, now the region's largest employer, is focusing on biotechnology and expanding its large hospital complex. Carnegie-Mellon has targeted computer software development and robotics.

To build up the local milieu's capability to support product and process innovation, the Enterprise Corporation has been set up to assist entrepreneurs. The Conference's marketing arm, the Penn Southwest Association, has helped to establish the Pittsburgh High Technology Council, which in turn has created a CEO Network and CEO Venture Fund to help new high-tech businesses. Another Conference creation, the Regional Industrial Development Corporation, has built suburban light industrial parks and university-based high-tech incubators and is now completing the infrastructure for a university-related high-tech park on the Monongahela River in Pittsburgh, on the old J&L Steel site. The Conference has also played a crucial role in bringing together local foundations and the Pittsburgh Urban Renewal Agency and Department of City Planning with neighbourhood groups to form a Pittsburgh Partnership for Neighborhood Development, aimed primarily at real-estate development and housing (Ahlbrandt 1986; Jezierski 1990).

From one perspective it can be argued that the Allegheny Conference and its partners have clearly been supporting the creation of new businesses that make new commodities through new technologies and new production processes. But from another perspective the vast majority of the Conference's efforts seem to have gone into promoting physical renewal projects, paid for in large part by public money. As observed earlier, the Conference's economic development strategy is silent on the subject of renovating the region's secondary industrial sector along modern lines, as is the City of Pittsburgh's related *Strategy 21* (City of Pittsburgh et al. 1985).

Strategy 21 is the official economic development policy statement of the City of Pittsburgh and Allegheny County. It was formulated in 1985 by these two levels of local government in collaboration with the region's two major universities; it received the blessing of the Alleghe-

ny Conference. *Strategy 21* is designed to create an innovative local milieu, which in turn will create a regional economy based on high-technology research and commercial applications, high-level business administration, related business services, and residentiary activities serving the local population.

In general terms, this plan will:

1. Expand the network of public-private partnerships to plan and implement the region's regeneration.
2. Upgrade regional transport facilities, especially providing a new airport complex (which opened in October 1992) and completing the region's modern freeway system.
3. Provide adequate light-industrial business locations in these transport corridors to attract new corporate investors from outside the region.
4. Continue urban renewal in the central business district, increasing up-scale hotel, convention, and office space.
5. Redevelop the city's traditional wholesale market area, "The Strip" (in the style of Covent Garden in London or Les Halles in Paris), to accommodate the living and recreational demands of Pittsburgh's new "Yuppie" professional-class residents.
6. Clear and redevelop derelict industrial land along the Monongahela and Allegheny rivers, also to be used to meet projected professional-income housing and leisure needs.
7. Upgrade the region's major arterial roads and public rapid transport systems to link these redeveloped areas conveniently with the centre.

Strategy 21 is still, almost a decade later, southwestern Pennsylvania's basic economic development policy statement. More recent documents acknowledge this and reiterate these same themes (for example, Mon Valley Commission 1987; Allegheny Conference 1991; Allegheny County 1991). But are such policies and the resulting programmes adequate to create an innovative local milieu in an old industrial region like the Pittsburgh area?

This question cannot be answered directly without studying in-depth the numerous activities just summarized. Although such studies have not yet been undertaken—they would be difficult at best because of the continuing closed nature of Pittsburgh's community power structure—two indirect indicators of *Strategy 21*'s overall performance can reasonably be inferred: (1) the continuing role of the Allegheny Conference as an actor and opinion leader in the region's economic policy making, and (2) empirical changes in the region's economic situation over the last 20 years.

Role of the Allegheny Conference

To date there have been few major commitments by the Conference's traditional corporate sector partners to reinvesting in Pittsburgh's productive plant. Critics argue that lacking such commitments, the rest of *Strategy 21* is mere window dressing or, worse, public policy making for private purposes (Erickson and Martoni 1987). Knowledgeable insiders believe the Conference is unable to find meaningful support any longer among the necessary corporate stakeholders—their stake in Pittsburgh is now too low to remain involved. Without such consensus and commitment, they argue, the Conference is losing its power to influence the region's future and will eventually fade from the scene.

There are signs that this, in fact, may be happening. Recently a new high-level leadership organization was formed in the region called the Pittsburgh International Initiative. This group brings together representatives of the private sector, government, and civic organizations to work on a new strategy to move the region "forcefully into the international arena" (Allegheny County 1991). Whatever such rhetoric means in terms of concrete activities—to be laid out in the group's "action plan"—it seems a clear signal of forthcoming organizational changes in the structure and focus of the region's public-private partnership network. Furthermore, in April 1992 it was announced that the Allegheny Conference would now be affiliated with the Pittsburgh branch of the Pennsylvania Economy League (Barnes 1992). The ACCD director will manage both operations, with four times as many employees, and the new unit will operate out of the Economy League's larger offices. Reportedly the two groups will work together to update *Strategy 21*.

While this latest move can be interpreted in many ways, it appears to be a serious demotion for the Conference. Since 1943 the special spokesperson for Pittsburgh's major corporations, the Allegheny Conference on Community Development is now being combined with a statewide organization that was originally funded by various public transfer monies to do more or less charitable consulting work for hard-pressed units of local government. According to officials of both groups, the major thrust of the merger is "to improve chances to secure state funds for this region and to create a 'recreational assets district'" (Barnes 1992).

The advent of the Pittsburgh International Initiative, the "updating" of *Strategy 21*, and the apparent transformation of the once powerful Allegheny Conference into a recreation district grants-giver sound like a rejection of the directions charted by the Conference in the 1980s. It may be that public-private partnerships and attempts to

build an innovative local milieu are being abandoned for foreign smokestack chasing and exogenous investment to renovate the region's productive plant. While it is too early to accurately assess such regional political realities, an analysis of economic changes in the region over the last two decades might indicate how successful *Strategy 21* has been in moving the region toward an innovative local milieu capable of generating self-sustaining growth.

Regional Economic Change, 1970-1990

For regional scientists the attribution of cause and effect is a daunting problem. Small and mid-sized regions, the "meso-sector" of the space economy, are at best modest-scale open systems, afloat in a world of national and global socioeconomic processes and structures. Normal experimental methods cannot be applied in the meso-sector, and external factors—such as changes in global price structures, technologies, or multinational investment decisions—can simply overwhelm local environmental impacts. Interpretation of causation comes down to tentative generalizations drawn from case studies and the simplest temporal correlation of events and trends. Because there have been no detailed case studies of the policy-created innovation networks of southwestern Pennsylvania, a superficial overview of population, employment, and occupational change during the last two decades will have to suffice.

At the most anecdotal level, Boston-based Corporate Technology Information Services, Inc., recently reported to the Pennsylvania Technology Council that the state ranks third in the country, after California and Massachusetts, in the number of "technology companies," with a total of 2,021 or 6.7 percent of the national total (Ranii 1991). (Pennsylvania ranks fifth in population among American states, with approximately 12 million people.) Of these "technology companies" (of which 90 percent employ less than 1,000 workers), 39 percent are located in the five-county Philadelphia area, 35 percent in "11 southwestern Pennsylvania counties," and 26 percent in Allegheny County (Ranii 1991). These statistics are compiled from a commercial trade directory, retailing at nearly $200, and neither clear definitions of terms nor individual employment records are available.

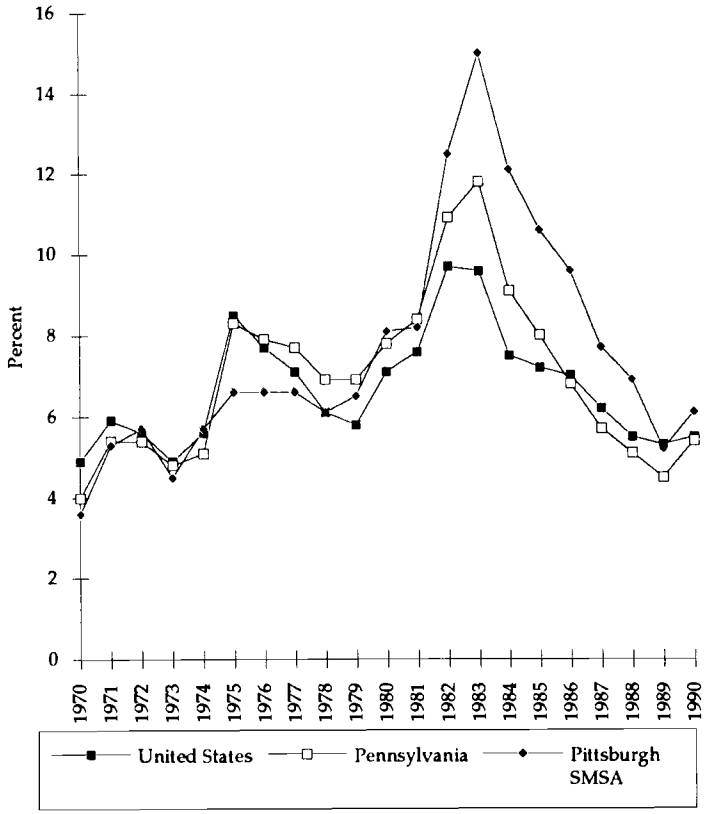
One can reasonably conclude from this information that Pennsylvania is keeping up with the rest of the metropolitan United States in terms of spinning off small "technology-based" firms. Eliminating California with some 5,400 companies reported (18 percent of the U.S. total), Pennsylvania's performance seems similar to those listed for Massachusetts, New York, New Jersey, Connecticut, Texas, and Illinois

(Ranii 1991). Southwestern Pennsylvania, depending on how it is defined (anywhere from Allegheny County to some 11 counties), has between 15 percent and 25 percent of the state's population and from 26 percent to 35 percent of high-tech startups. Using the same rough type of calculations, this suggests a firm count for the "Greater Pittsburgh Region" of between 500 and 700 companies, employing an indeterminate number of people. Without some acceptable working definition of a "technology company" and empirical employment counts, however, these statistics are of very little value. They might generously be interpreted as suggesting that the Pittsburgh region today has something more than its fair share of new small technology-based firms. How much of this concentration is related to the region's historical economic base, its location on national east-west and north-south transport corridors, the work of its major research universities, a few lead investments, mere chance, and public-private partnership networks is not known from the available information.

Turning to more general aggregate-level statistics, it appears that the population level in the Pittsburgh SMSA fell from 2.4 million in 1970 to 2.1 million in 1990—a loss of about 13 percent accounted for by a minor exodus—while at the same time the corresponding levels for the state remained stable (actually grew by 0.7 percent) and for the nation increased by over 20 percent. The pace of the fall, however, increased from the seventies, when it reflected the slow attrition of manufacturing jobs, to the eighties (-7.4 percent), when it resulted from a complete collapse of the heavy manufacturing sector during the mid-1980s.

Total annual unemployment trends in Pittsburgh reinforce the picture given by population changes and tie outmigration to the employment trends of the mid-1980s (see Figure 1). Throughout the 1970s Pittsburgh-region and Pennsylvania unemployment statistics followed closely the national pattern, both in magnitude and trend. In the early 1980s the state and region experienced national unemployment trends but more severely. During the second half of the 1980s Pennsylvania fell back below the national average while moving apace, but the Pittsburgh region continued about a point above the state and national averages. This suggests that southwestern Pennsylvania's unemployment trends are structurally as well as cyclically caused and that residual unemployment in the region can be accounted for in part by a weakened economic base. In other words, whatever Pittsburgh's local milieu and new industrial mix, they now support a smaller population at a higher rate of unemployment than they did 10 or 20 years ago.

An analysis of sectoral employment and occupational change over the last two decades helps to interpret the above population and



Sources: For U.S. and Pennsylvania data, 1970-1988: U.S. Bureau of the Census, *Statistical Abstract of the U.S.* For U.S. and Pennsylvania data, 1989-1990: U.S. Bureau of Labor Statistics, *Employment and Earnings*. For Pittsburgh SMSA data, 1970-1979: Commonwealth of Pennsylvania, Office of Economic Policy, Planning and Research, *Pennsylvania Abstract, 1971-1980*. For Pittsburgh SMSA data, 1980-1990: U.S. Bureau of Labor Statistics, *Geographical Profile of Employment and Unemployment, 1980-1990*.

Note: 1986-1990 data are based on Pittsburgh-Beaver Valley CMSA.

FIGURE 1 Unemployment rate, 1970-1990

unemployment trends. According to Table 1—where it appears that total employment continued nevertheless to grow in the Pittsburgh census region during both decades, although less rapidly than at the state and especially the national levels—manufacturing experienced a huge loss in both census periods: -13.3 percent in 1970-1980 and -32.1 percent in 1980-1990[1] compared with 5.2 percent growth and a -6.2 percent loss at the national level. During the 1970s construction, trade,

1. The corresponding state figures were –13.1 percent and –15.5 percent for the two periods.

TABLE 1 Employment by Industry in the Pittsburgh SMSA, 1970-1990

	1970		1980		1990	
Industry	No.	%	No.	%	No.	%
Agric. etc.	6,300	0.7	5,200	0.6	9,000	0.9
Mining	8,900	1.0	10,400	1.1	10,000	1.0
Construction	42,800	4.9	45,800	4.9	65,000	6.5
Manufacturing	278,300	32.0	241,400	25.7	164,000	16.4
TCPU	59,400	6.8	60,000	6.4	74,000	7.4
Trade	177,500	20.4	209,200	22.3	209,000	20.8
FIRE	37,900	4.4	45,900	4.9	62,000	6.2
Services	149,500	17.2	194,800	20.8	305,000	30.4
Government	110,300	12.7	125,800	13.4	105,000	10.5
Total	870,900	100.0	938,500	100.0	1,003,000	100.0

Sources: For 1970 and 1980 data: U.S. Bureau of Labor Statistics, *Employment and Earnings*. For 1990 data: U.S. Bureau of Labor Statistics, *Geographic Profile of Employment and Unemployment, 1990*.

Note: Agric. etc.: agriculture, forestry, and fisheries; TCPU: transportation, communication, and other public utilities; FIRE: finance, insurance, and real estate.

FIRE (finance, insurance, and real estate), services, and government were the non-primary sector gainers in the Pittsburgh region. But, as might be expected, by the 1980s trade had fallen off, a trend that continues into the 1990s (Bangs and Singh 1992). So had government employment, as many local governments literally went out of business with the loss of the area's economic base. For the last 10 years in Pittsburgh, the urban sector winners have been construction, transportation, FIRE, and services (Tables 1 and 2). When the Pittsburgh region is compared with the state and nation, transportation is the real anomaly in the Pittsburgh area. But this is explained by the growth of Pittsburgh's fifth largest employer, USAir, which employs 46,000 (Wade 1992) out of the 74,000 employees in the transportation, communications, and other public utilities sector. Construction grew more in both the Commonwealth of Pennsylvania and the Pittsburgh region during the 1980s than it did in the United States as a whole, largely because of urban renewal and suburban development to accommodate the needs of the changing economy and labour market.

The most important comparisons of 1980s sectoral employment change for this analysis concern the FIRE and services sectors. It would probably be in these two sectors—aside from manufacturing—that one would expect to find "high-tech" employment growth. And while they are indeed leading growth sectors, services grew at about the same rate as that for the state and modestly faster than that for the country as a whole. FIRE actually grew slower in Pittsburgh than in Pennsylvania and recorded approximately the same modest lead over the nation as a whole as in services.

TABLE 2 Change in Employment by Industry over 1970-1980 and 1980-1990 in the Pittsburgh SMSA, Pennsylvania, and United States

Industry	1970-1980			1980-1990		
	Pittsb. SMSA	Penn-sylvania	United States	Pittsb. SMSA	Penn-sylvania	United States
Agric. etc.	-17.5	0.4	1.6	73.1	3.1	9.4
Mining	16.9	24.1	64.5	73.1	3.1	9.4
Construction	7.0	-1.0	24.5	41.9	55.7	15.0
Manufacturing	-13.3	-13.1	5.2	-32.1	-15.5	-6.2
TCPU	1.0	-1.6	14.2	23.3	12.4	13.0
Trade	17.9	21.0	36.8	-0.1	5.6	25.8
FIRE	21.1	24.7	41.6	35.1	38.9	30.6
Services	30.3	37.1	49.3	56.6	55.6	51.3
Government	14.1	16.9	28.8	-16.5	-6.7	13.3
Total	7.8	9.4	27.1	6.9	12.5	20.8

Sources: For 1970 and 1980 data: U.S. Bureau of Labor Statistics, *Employment and Earnings*. For 1990 data: U.S. Bureau of Labor Statistics, *Geographic Profile of Employment and Unemployment, 1990*.

Note: Agric. etc.: agriculture, forestry, and fisheries; TCPU: transportation, communication, and other public utilities; FIRE: finance, insurance, and real estate.

How should one interpret this type of performance in view of Pittsburgh's well-publicized innovation network of public-private partnerships? While no direct cause-and-effect can be argued (as in the first part of this section with small high-tech businesses), the Pittsburgh region is moving along at about the same rate as the state of Pennsylvania and the nation as a whole. Is this the hallmark of an "innovative local milieu"? On the one hand, it could be argued that Pittsburgh, with its outmoded, crumbling industrial base, had further to go, and that the Allegheny Conference and *Strategy 21* played an important role in allowing it to keep up. On the other hand, it could be argued just as credibly that Pittsburgh started out with major advantages over most of the rest of the United States, with all its industrial know-how, headquarters functions, and the university-related hospitals and computer programming and robotics capabilities. It is hard to say which perspective is most compelling. If anything, these two sets of forces may well balance each other out, and it may be that, so far, Pittsburgh has generated little in the way of a special innovation network that stimulates growth at a faster pace than the United States average.

Finally, as for occupational changes, it would not be useful to go over the same general ground just covered for industrial sectors. While these are cross-classifications, many industries have notable concentrations of specific types of workers (Table 3). As shown in Table 4, in the most recent decade the only Pittsburgh non-primary occupations that showed strong growth were: professional and kindred workers (12 percent), managers and administrators (63.8 percent), sales workers

TABLE 3 Employment by Occupation in the Pittsburgh SMSA, 1970-1980 and 1980-1990

Occupation	1970		1980		1990	
	No.	%	No.	%	No.	%
Professional, technical, and kindred workers	137,307	15.8	152,638	16.3	171,000	17.0
Managers and administrators, except farm	63,328	7.3	89,142	9.5	146,000	14.6
Sales workers	69,185	7.9	95,542	10.2	124,000	12.4
Clerical and kindred workers	157,898	18.1	165,520	17.6	166,000	16.6
Craftsmen and kindred workers	134,845	15.5	122,197	13.0	104,000	10.4
Operatives, except transport	111,059	12.8	97,307	10.4	59,000	5.9
Transport equipment operatives	34,437	4.0	32,763	3.5	48,000	4.8
Labourers, except farm	47,325	5.4	51,426	5.5	47,000	4.7
Farm workers	4,444	0.5	5,505	0.6	10,000	1.0
Service workers, including private households	111,074	12.8	126,314	13.5	128,000	12.8
Total	870,902	100.0	938,473	100.0	1,003,000	100.0

Sources: For 1970 and 1980 data: U.S. Bureau of the Census, *Census of Population, 1970 and 1980*. For 1990 data: U.S. Bureau of Labor Statistics, *Geographic Profile of Employment and Unemployment, 1990*.

(29.8 percent), and transport equipment operatives (46.5 percent). Between them they made up 49 percent of the Pittsburgh region's paid work force.[2]

The unique case of transport workers was just discussed. Sales workers are not directly related to this analysis, but they reflect the collapse of manufacturing and the decrease in trade referred to earlier. This leaves three relevant categories of occupations: clerical and kindred workers; managers and administrators, except farm; and professional, technical, and kindred workers. The number of clerical workers in Pittsburgh has hardly changed for 20 years; they have hovered at 160,000 for three censuses, and their proportion of the work force has actually fallen by a point and a half, reflecting automation

2. If the stagnant clerical and kindred workers (0.3 percent growth, 16.6 percent of the work force) and services workers (-0.7 percent growth and 12.8 percent of the work force) are added in, this makes up over three-fourths of all working people in southwestern Pennsylvania.

TABLE 4 Percentage Change in Employment by Occupation over 1970-1980 and 1980-1990 in the Pittsburgh SMSA, Pennsylvania, and United States

Occupation	1970-1980			1980-1990		
	Pittsb. SMSA	Penn-sylvania	United States	Pittsb. SMSA	Penn-sylvania	United States
Professional, technical, and kindred workers	11.2	18.7	31.0	12.0	24.9	31.1
Managers and administrators, except farm	40.8	39.3	58.7	63.8	49.1	46.4
Sales workers	38.1	44.6	79.7	29.8	34.5	45.4
Clerical and kindred workers	4.8	7.4	22.3	0.3	8.1	10.6
Craftsmen and kindred workers	–9.4	–2.4	18.4	–14.9	4.0	8.3
Operatives, except transport	–12.4	–26.5	–3.1	–39.4	–24.1	–8.4
Transport equipment operatives	–4.9	35.0	11.1	46.5	2.6	9.1
Labourers, except farm	8.7	24.6	27.8	–8.6	–0.9	11.4
Farm workers	23.9	17.3	17.7	81.7	18.9	21.2
Service workers, including private households	13.7	15.4	28.6	1.3	14.7	24.8
Total	7.8	9.4	27.1	6.9	12.5	20.8

Sources: For 1970 and 1980 data: U.S. Bureau of the Census, *Census of Population, 1970 and 1980.* For 1990 data: U.S. Bureau of Labor Statistics, *Geographic Profile of Employment and Unemployment, 1990.*

and plant closures. New, high tech-related industries and other activities have not been able to keep this group expanding at even a fraction of the national rate. The one really bright spot in Pittsburgh is the growth of managers and administrators, which equaled 64 percent during the 1980s, almost 20 points above the national average. But was this high tech-related growth? The reasonable answer is probably no. It reflects the importance of headquarters functions, hospitals, and large educational institutions, not innovative entrepreneurship and new products and production processes. This means a burgeoning mid-level bureaucracy, not an innovation network.

Last but not least is the occupation—aside from the manufacturing-related fields, which are dying in Pittsburgh—that should be the most closely related to high-tech development: professional and technical workers. How have they fared during the 1980s? They have grown at 12 percent over the decade, or at one-half the state rate and one-third the national rate. This seems difficult to square with the

image of an active regional innovation network, or with a regional economy led by high-tech industries. The picture suggested above is that of a region made up of middle management, their clerical assistants, and service workers.

Conclusions

In a recent article Rondinelli argued that high-tech companies will continue to invest in metropolitan areas during the 1990s rather than in alternative locations (Rondinelli and Behrman 1991). His argument was based on the relationship between what he called urban cultures and urban economics, and it listed a number of "cultural mandates" for American cities if they are to generate high tech-based regional growth. Rondinelli's list includes many things that have been identified with dynamic local milieux in the GREMI literature and with *Strategy 21* in Pittsburgh. It should represent a formula for success, if the local milieu and public-private partnership networks to promote regional high-tech development are effective concepts.

This article has briefly surveyed these groups of ideas and attempted to use them to understand economic change in southwestern Pennsylvania over the last 20 years. After the collapse of heavy industry in the Pittsburgh region, public-private groups led by the Allegheny Conference on Community Development enunciated a high tech-based development strategy to be driven by local initiative and an innovation network of regional actors. This was adopted as official policy by important local jurisdictions and institutions, and it has guided development decisions now for most of a decade.

Because little in the way of detailed case studies has been carried out in the Pittsburgh region to determine how individual components of this strategy have functioned, too little is known at present to reach any firm conclusions about the experience of southwestern Pennsylvania or its relevance for theoretical concepts and other areas jockeying for high tech-based economic growth. Without stretching credibility, however, this study suggests that much more work is needed to affirm the effectiveness of regional innovation networks and to evaluate in what circumstances and in which time frames they might work. It also seems to suggest that some measure of caution may be advisable in arguing for the transfer of regional growth institutions and strategies such as those found in southwestern Pennsylvania to other regions.

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