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FROM GLOBAL COMPETITION TO REGIONAL GOVERNANCE New Paradigms for Regional Policy in the 1990s

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Summary

The purpose of this paper is to present some elements of one or more paradigms for assessing a region's economic growth prospects and related infrastructure requirements. These concerns are central to a regional policy that offers guidance for individual decision makers of local governments and their resident populations. A paradigm for regional policy is a model of regional structure and activity that provides a basis for understanding and foresight about regional growth and change. It is a framework for well-targeted infrastructure investments, vigorous and sustained capacity-building, and continuing efforts in intra-regional cooperation.

- Critical infrastructure for globally-competitive business enterprise includes air transportation and the accompanying distribution system that brings together all transportation modes to provide access to regional and global markets.
- Capacity-building refers to the successful application and integration of the means of control and foresight--good management coupled with realistic anticipation about the future--in both private and public management.
- Intra-regional cooperation starts with the public agencies engaged in infrastructure planning.

We focus on implications of a new paradigm for regional policy on investment in growth-influencing resources and facilities, and their location. We relate these decision variables to the recurring themes that apply to any region with high hopes of sustainability. These are the nurturing and support of globally-competitive business enterprises, the organization of self-reinforcing industry clusters, the shift to location-dependent sustainable regional economic development, and the formation of functional economic communities of regional governance that make the difference between a vibrant and viable region and one that is on its way down. They provide the focus for regional policy that takes cognizance of regional spatial structure and its consequences for regional performance.

This framework differentiates the economic activities that occur within a region by their proximity and linkages to the metropolitan core area, which accounts for a corresponding differentiation of their role in regional economic organization. Concentration of high-order producer services and infrastructure characterizes the economy of the metropolitan core area. The spatial differentiation of economic activity and the corresponding differences in the economic base of labor market areas correlates with the spatial differentiation of regional infrastructure. Both the center and periphery have the basic infrastructure of commodity and people transportation and energy production. The center, however, has the high-order infrastructure of communications, transportation, education, health care, and producer services. The overspill of manufacturing and producer services industries into the surrounding countryside attracts a growing labor force that, in turn, supports a gradually increasing number and variety of consumer-oriented businesses, especially retail trade and personal services. The peripheral labor market areas adapt to their more remote locations by exploiting the gifts of nature that become the principal means of acquiring income from outside sources.

The local labor market and the productivity of its workforce and entrepreneurial resources now loom large as among the most important consideration affecting the competitive position of technology-intensive, export-producing enterprise. The labor market areas that form an economic region are linked, in one way or another, to the core metropolitan area and nearby secondary metropolitan labor markets.

FROM GLOBAL COMPETITION TO REGIONAL GOVERNANCE: New Paradigms for Regional Policy in the 1990s¹

Wilbur Maki²

Problem Focus

Regional policy refers to the activities and initiatives of state and local legislative and administrative bodies that address regional concerns. Much of the literature on regional policy pertains to "top-down" approaches for enhancing overall national well-being.³ Such an approach views regions as constructs for the devolution of national policies in agriculture, environmental concerns, and public works. Benjamin Chinitz, Assistant Secretary for Regional Development in the U.S. Department of Commerce during the Johnson administration, defined regional policy to include "pieces of legislation (the Public Works and Economic Development Act, the Area Development Act before it, the Appalachian Regional Development Bill, the current rural development legislation), administrative mechanisms (the organizations out there in the field, like district commissions and regional commissions) and programs and projects aimed at affecting regional indicators." The regional indicators cited by Chinitz were overall economic growth, the rate of unemployment, and per capita income (Chinitz, 1973, p. 23).

Regional policy generally favors "top-down" approaches to the amelioration of regional disparities, particularly unemployment, as in Great Britain. The much publicized "Technopolis" project adopted by Japan's Ministry of International Trade and Industry (MITI) in 1983 depends on its central government to accelerate the development of technology-intensive industry outside the current areas of industry concentration (Okamura, Sagauchi and Nonaka, p. 134).⁴ The Minnesota Experimental City Project initiated in the 1960s during the heyday of large-scale "new town" development focused on the application of urban design concepts and the adoption of modern

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²Professor, Department of Agricultural and Applied Economics, University of Minnesota. I wish to acknowledge the very helpful comments of Anwar Hussain on early versions of this paper and the use of his findings in a forthcoming report on commodity exports and imports among U.S. trading regions and also of Michael Swanson on the tabular presentations and related discussion.

³See: Regional Economic Policy: Proceedings of a conference sponsored by the Minnesota Economics Association and the Federal Reserve Bank of Minneapolis; Regional Analysis and Regional Policy, by William H. Miernyk; Regional Conflict and National Policy, edited by Kent A. Price; Symposium of Rural Development Strategies and Public Policy, edited by David W. Sears and J. Norman Reid..

⁴These features of the Technopolis Project include "(1) integration of industry, academia and habitation, (2) a close relationship with the 'mother city' as central city of the Technopolis area, (3) formation of industrial complexes through inducement and self-development, (4) transfer and frontier type of research and development, and (5) importance of each area's individuality." Since starting the project, MITI added 26 rural areas, with each designated as a "Technopolis" area. The Science and Technology Agency (STA) operates the Technology Project as an activity separate from MITI's industrial location policies that also are shifting in focus. These policies now target the internal development of new high-tech industries. Under the Technopolis Project, each prefectural government must establish a "Techno Foundation" to organize cooperative research projects among universities, industries, and other technology centers. The STA also authorizes construction of industrial parks, incubators, open laboratories, open space for R & D, training facilities, conference rooms, and convention facilities for various regional economic development activities.

urban technologies in the building of a new city rather than without a local, or even a state, constituency.⁵ The Metropolitan Council of the Twin Cities, established in 1967 by the Minnesota Legislature, formulated a strategy with two objectives: "1) delivery on a regional basis of services that can no longer be provided effectively by existing units of local government; and 2) establishment of policies, plans, programs and controls to guide the physical, social and economic development of the Twin Cities Metropolitan Region." (Naftalin and Brandl, 1980, p. 1). A quarter century later, measures of the Council's primary issues and performance are still largely "top-down" indicators of regional disparities, like poverty rates, earnings from employment and occupational distributions, but without relevant local activity-specific information about the vitality and viability of its economic base (Metropolitan Council, 1994).

Four of the nine contributors to the book edited by Kent Price on *Regional Conflict & National Policy* obviously were uncomfortable with the concept of the region. Regions exist but their size and shape depend on the criteria for delineating them, according to one writer. Another reminds us that "States, not regions, are the entities recognized by law (as if substate planning districts emerged spontaneously)." Still another cautions that "Regions lack decision-making institutions and thus are nothing but collections of states, with state decisions and actions defining 'regional' positions." None of the authors viewed a region from the perspective of locally-based regional governance.

In contrast to the expressed concerns of resource economics about regional conflict, the seven contributors to the symposium on *Rural Development Strategies and Public Policy* were untroubled by concerns about the notion of a region. None of the criteria for evaluating the research focusing on the seven strategies (one from each of the seven authors) cited linkage or proximity to metropolitan core areas, for example, as relevant in evaluating the research and its methodology.⁶ The underlying rationale for rural development in this symposium was an assumed primacy of federal leadership and support, rather than the empowerment of state, local, and regional organizations and their spokespersons as participants in the formulation of a rural development strategy.⁷ Except for occasional efforts in delineating rural development areas, the

⁵ The Minnesota Experimental City project initiated in the 1960s, was a high-tech venture with some of the same features now incorporated into the Technopolis Project sponsored by Japan's Ministry of International Trade and Industry (Okamura, Sagauchi, and Nonaka, 1993, p. 134), failed to gain legislative approval in the 1970s for lack of local community support. Instead, this proposal was vehemently opposed by communities near its selected site in northeast Minnesota. It failed to fully account for the human element in new technology development and transfer--local fear of uncontrollable population growth, coupled with the desire of project proponents to focus primarily on technology transfer rather than building a self-reinforcing functional regional community of which the Experimental City could be an integral part.

⁶ The seven strategies presented were: Business recruitment; business loans; tax increment financing; university-based research parks; enterprise zones; self-development; rural telecommunications. Sears and Reid, the symposium organizers, devised a set of 13 criteria for scoring the individual strategies. The criteria were: Breadth of studies; relevance of existing research to the strategy; number of success dimensions; appropriateness of success measures, quality of experimental design; data quality; timeliness of research; objectivity of research; settlement, representativeness; sample size; rural applicability; recognition of rural diversity; policy relevance (pp. 304-307).

⁷ The symposium organizers were disappointed, nonetheless, with "the shallowness of existing research, its lack of sensitivity to both differences of context and diversity of developmental outcomes, and to shortcomings of method and data quality." They conclude that much of the rural development research "can only be described as rudimentary." In an important introductory paper, however, its author relates the lack of rural policy, not to the

U.S. Department of Agriculture defines regions largely for the purposes of federal agricultural policy. This agency has an overriding political commitment to treat all states and localities alike, except for differences in agricultural production and closely-related activities.

Thus several belief systems exist contemporaneously with different definitions of a region and hence different frameworks--geographic, economic, and political--for the study and implementation of regional policy. One belief system may emphasize legal, rather than economic, structures because of its institutional biases, the other a metropolitan-non metropolitan dichotomy because of its administrative and organizational biases. Still another may seek public subsidies to reduce the loss of local jobs and income from business closures or relocation. These readily-recognized belief systems have one common feature: they define a region for the study of "top-down" regional policy.

Traditional as well as the new theories of economic growth fail to fully account for the observed differences among regions in economic performance. The traditional model of economic growth emphasizes capital accumulation--the combining of labor and capital to produce the output of an economy (Plosser, 1992). This output depends on the productivity of its primary inputs, that is, its production technology, but the traditional model ignores the sources of added productivity. The new models of economic growth provide for internally-generated growth through processes affecting the societal rates of savings and investment. Government tax policy, for example, influences the long-term rates of capital accumulation, which, in turn, generates beneficial external effects that can justify further government intervention. The same rationale justifies government subsidy of education that results in a more productive workforce that, in turn, leads to improved economic growth and individual well-being and that justify changes in tax laws to stimulate investment in productivity-improving equipment (de Long and Summers, 1992). Neither the traditional nor the new models of economic growth, however, account for differences in resource productivity from one location to another that result from their proximity to the core labor market area of an economic region.⁸

A new generation of models of regional economic growth, on the other hand, explicitly include measures of regional economic organization in accounting for differences in the various measures of regional economic performance (Treyz, 1993). They focus on local economic linkages to product and labor markets, and also local factors, like the quality of entrepreneurship and technical education. They build on regional economic base theory, input-output theory, production theory, consumption theory, investment theory, location theory, urban agglomeration theory, central place

lack of research, but to the multiplicity of rural development objectives, the lack of support for collective action in rural areas, the subsequent difficulty of coordinating national, state, and local organizing efforts in favor of rural development, and the lack of intense interest groups to support the organizing efforts (Bonnen, 1992, p. 197-8).

⁸ Tom Redburn, writing in the *New York Times* about the slow recovery of the New York region from its three-year recession (June 12, 1994, p. A12), links regional economic organization to regional performance when he notes that "Regional assets, in many cases, have become liabilities. Job gains will be retarded by New York's heavy dependence on the mammoth corporations now slashing their work forces for greater productivity and competitiveness." He also notes that "Among big cities, only Detroit has a lower working age population than New York City. Various explanations are offered, including generous welfare benefits, poor education in troubled urban neighborhoods and infestations of illegal drugs and crime. But a lack of promising jobs that require more strength and stamina than study is also important."

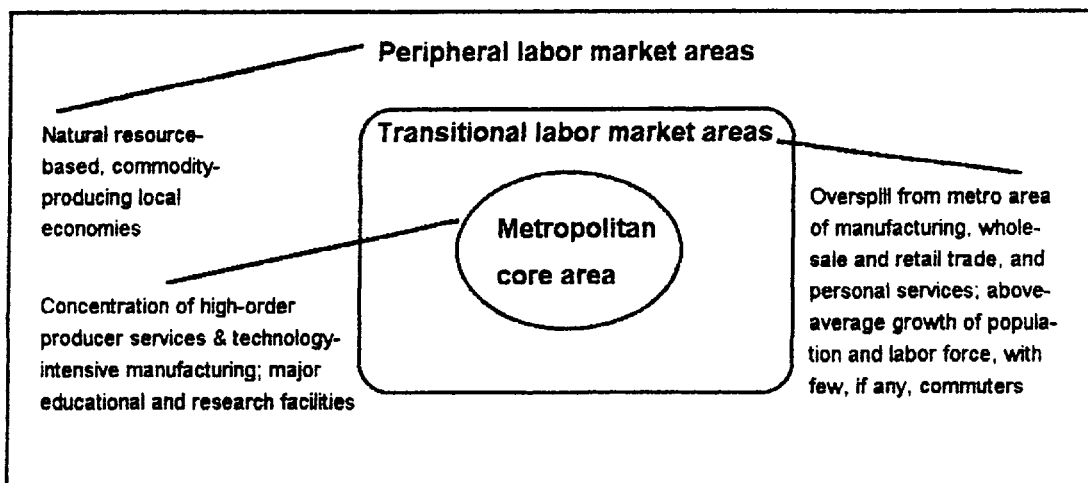
theory, interregional trade theory, and related paradigms and concepts pertaining to the structure and performance of firms, industries, and markets within a regional economic system.

Even with this abundance of theoretical approaches to the modeling of regional economies, their complexity exceeds the scope of any one or combinations of several of these approaches in providing an effective framework for sustainable economic development. The American Economic Development Council, for example, defines economic development as the "process of creating wealth by the mobilization of human, financial, capital, physical and natural resources to generate marketable goods and services." Bingham and Mier extend this definition by differentiating the roles of the private and public sectors in local economic development (Bingham and Mier, 1993). They acknowledge that [regional or local] economic development has many meanings. They believe they capture these meanings in a series of "generative metaphors," such as "problem solving, running a business, building a growth machine, preserving nature and place, releasing human potential, exerting leadership, and a quest for social justice." Baumol, on the other hand, views the inherently non-progressive nature of government and its lagging productivity as a source of its fiscal problems (Baumol, 1967; 1985).

In this paper, we refer to the commuting area of the local labor market as the labor market area (LMA)--the basic building block in a "bottom-up" approach to the economics of regional governance. The seven-county Twin Cities Metropolitan Council Region was once a LMA. With each passing decade, the LMA grew in size until it now has more than twice its 1960 counties. The Minneapolis-St. Paul Economic Region that includes the core metropolitan area, transitional LMAs within 100 miles or so of the core area, and the more distant, rural periphery (Maki and Reynolds, 1994).

Figure 1 summarizes the key concepts introduced for the study of regional policy within a framework of territorial governance. This framework differentiates the economic activities that occur within a region by their proximity and linkages to the metropolitan core area, which accounts for a corresponding differentiation of their role in regional economic organization. Concentration of high-order producer services and infrastructure--communications, transportation, energy systems, along with the region's major educational and research institutions and technology intensive manufacturing, characterizes the economy of the metropolitan core area--usually the largest and most densely populated labor market area in its economic region. The spatial differentiation of economic activity and the corresponding differences in the economic base of labor market areas correlates with the spatial differentiation of regional infrastructure. Both the center and periphery have the basic infrastructure for commodity and people transportation and energy production. The center, however, has the high-order infrastructure of communications, transportation, education, health care, and producer services. The overspill of manufacturing and producer services industries into the surrounding countryside attracts a growing labor force that, in turn, supports a gradually increasing number and variety of consumer-oriented businesses, especially retail trade and personal services. The peripheral labor market areas adapt to their more remote locations by exploiting the gifts of nature that become the principal means, when coupled with price-competitive production technologies, of acquiring income from outside sources for the purchase of their many imported goods and services.

Figure 1 Regional economic organization for regional policy and governance.



A "bottom-up" regional policy perspective calls for a special understanding of the linkage between regional organization, regional governance, and regional performance. The value of product disbursements, for example, vary, by industry and location, from one part of a region to another. They are high value added in the metropolitan core area, low in the rural periphery. They correlate closely with levels of industry investment per worker. Where expected profits are high, with little risk of failure, investment and production follow, along with jobs that generate above-average earnings. The location of the production activity in an economic region, whether in the core area, the periphery, or somewhere in between, has much to do with the earnings of its labor and capital resources and its long-term viability. Yes, it does matter where you are.⁹

Regional Organization and Performance

We address some implications of the various forms of regional organization for businesses and government agencies concerned with investment in growth-influencing resources and facilities, and their location. These are the nurturing and support of globally-competitive business enterprises, the emergence of self-reinforcing industry clusters, the shift to a sustainable economic development that focuses on a location-dependent economic base, and the formation of functional economic communities of regional governance that make the difference between a vibrant and viable region and one that is on its way down.

The first of the four themes, globally-competitive business enterprise, brings "new dollars" into the local area. It brings these new dollars into the area because its products compete successfully with

⁹ A recent lead article in *The Economist* (July 30th 1994, p. 13-14) starts thusly: "The cliché of the information age is that instantaneous global telecommunications, television and computer networks will soon overthrow the ancient tyrannies of time and space." It is quick to note, however, that through history, companies in a fast-growing field tend to concentrate regionally and that in reality "history counts: where you are depends very much on where you started from." The most advanced use of the Internet system, for example, has been "to strengthen the local business and social ties among people and companies in the Silicon Valley"—a reality that "offends not just the techno-enthusiasts but also neo-classical economics: for both, the world should tend towards a smooth dispersion of people, skills and economic competence, not towards their concentration."

the products of other business, both domestic and foreign. The commuting area of the local labor market establishes the functional economic community of export-producing business enterprises.

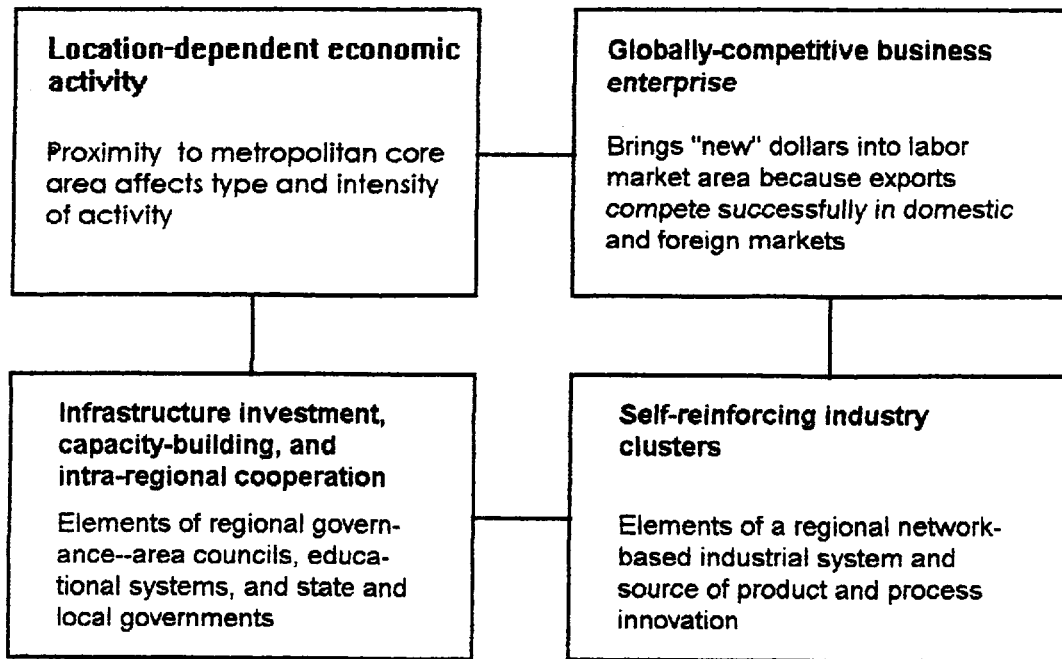
The second theme, self-reinforcing industry clusters, provides the essential elements of what Saskenien labels as a "regional network-based industrial system" (Saskenian, 1994, p. 4). The industry clusters nurture close working relationships with one another and depend on the countless numbers of informal exchanges among their workers. By industry clustering, we mean the bringing together of a group of companies that rely on an active set of relationships among themselves for individual efficiency and competitiveness. These become, as noted by von Hippel, important sources of product and process innovation for a business enterprise (von Hippel, 1988). The individual business clusters are an integral part of a larger complex of business enterprises that form a regional industrial system.

Providing the infrastructure for the emerging industry clusters and the regional industrial system puts a heavy burden on the third theme--sustainable economic development. The intent of such claims is, in the final analysis, to modify existing institutional arrangements in order to provide a new and different structure of conventions or entitlements. The central city of the metropolitan core area now seeks a re-arrangement of these claims that in the future will provide for a fair and equitable sharing of the costs and the benefits of the essential urban infrastructure supported largely by the central city. This situation calls for institutional innovations, as suggested by Bromley (1989, p. 111), "that will give expression to particular interests, which then show up as claims against the prevailing institutional structure. From these institutional re-arrangements an entrepreneurial government can emerge that considers the management of its space economy as a "good place" in which to do business and to live as its principal task.

Entrepreneurial local governments join with one another to form the functional economic community of regional governance--the fourth of the four themes. This community is defined by the commuting area of the local labor market. Ideally, the individual communities would maintain local environments favoring successful business enterprise and well-kept residential neighborhoods. They would collectively provide the community resources for reducing the heavy burden of poverty and aging on any one community. They also would share in the support of the infrastructure of transportation and education that is essential to the viability and competitiveness of local business enterprise.

Regional governance encompasses elements of each of the four themes listed in Figure 2. Location-dependent economic activity refers to its proximity to a metropolitan core area and the spatial-economic organization of the production of goods and services in a region. Its type and intensity is the first order of determinants of the economic viability of any regional industrial system. These account for the potential long-term viability of a region's economy. Regional governance, however, provides the economic environment for successful, globally-competitive, export-producing enterprise.

Figure 2. Elements of a new paradigm for regional governance in the 1990s.



Infrastructure investment is only one of several emerging tasks of regional governance. Capacity-building and intra-regional cooperation--the two tasks cited earlier--involve state, local, and regional organizations. Capacity-building in the Minneapolis-St. Paul LMA, for example, would involve the Metropolitan Council--the latter with a focus on infrastructure investments of regional significance, including metropolitan area re-use of existing public and private facilities. In this example, however, both the legislative mandate for the Metropolitan Council and its past performance fail to elaborate on the purpose of its capacity-building efforts.

New research findings confirm earlier insights that the most strategic relationships among firms in network systems serving global markets "are often local because of the importance of timeliness and face-to-face communication for rapid product development" (Saxenian, 1994, p. 5). The government sector similarly puts a high priority on maintaining face-to-face relationships through the annual sessions of legislative bodies and the even more frequently recurring meetings of legislative and administrative groups in the State's capitol city. These findings also have important implications for the role of downtown districts and the core metropolitan labor market areas as the new "engines" of regional economic growth.

Globally-Competitive Business Enterprise

Porter believes that to explain "competitiveness" we must understand "the determinants of productivity and the rate of productivity growth. To find the answers, we must focus not on the economy as a whole but on specific industries and industry segments" (Porter, 1990, p. 9) Following this suggestion, we focus on the medical devices industry in another paper (Maki and Maki, 1994). In this paper, we simply show the differences in the economic environments that exist for the globally competitive industries in a core metropolitan LMA and other labor market areas in the larger region of which both are an integral part. We refer to the Minneapolis-St. Paul LMA and its Economic Region as the territorial entity that involves many separate local

governments and several state governments in building local economic environments for globally-competitive business enterprise.

The two central counties in the Minneapolis-St. Paul LMA--Hennepin and Ramsey--include the two largest cities in Minnesota. The seven-county "Metro Region" that includes the two central counties represents the local LMA 30 years ago. The 16-county LMA (based on the 1980 journey-to-work data) is part of the Minneapolis-St. Paul Economic Region that includes all of Minnesota, North Dakota, and South Dakota, and parts of Iowa, Nebraska, and Wisconsin. The Economic Region has a total of 275 counties in five states. The economic region as a whole may show differences in its industry structure from the corresponding U.S. industry indicators, like employment, value added, and output.¹⁰ These differences correlate with corresponding differences in the industries. The strengths and weaknesses of local economic environments for globally-competitive industries in the economic region are a concern, therefore, to the individual LMAs that are linked to one another because of their respective industry sales and purchases.

Table 1 shows the four areas--the first three being all or part of the 16-county Minneapolis-St. Paul LMA and the fourth the remainder of the 275-county Minneapolis-St. Paul Economic Region. Thus, the total value added--the region's contribution to Gross Domestic Product--was more than \$151 billion in 1990, of which the 16-county area accounted for nearly 48 percent. Total employment was more than four million, of which one-third worked in the 16-county area.

Table 1. Value added and employment in specified areas, 1990

Area	ValueAdded (mil.\$)	Employment (thou.)
Central counties, Hennepin & Ramsey	57,037	957.7
Twin Cities Metropolitan Region	68,485	1,222.3
Mpls.-St. Paul Labor Market Area	72,317	1,339.6
Rest of Mpls.-St. Paul Econ Region	78,912	2,703.4

Source: University of Minnesota IMPLAN regional modeling system

The contribution of individual sectors of the two areas differed sharply, as shown in Table 2. Private services--everything from hotels and motels, personal services, business services, health care, education, and other services--was the top ranking sector of the 16-county area in value added. The same sector ranked fifth from the bottom in the rest of the economic region. The two manufacturing sectors ranked high in both areas, along with finance, insurance, and real estate, which included the imputed rental value of resident-owned housing. Manufacturing in total was the top-ranking sector in total value added in both areas.

¹⁰ Disaggregated data would help reveal the sharp differences in industry composition within the core metropolitan LMA. The detailed listing of related industry groups for the Twin Cities emphasizes the technology-intensive manufacturing and related service sectors of the LMA economy, but within the context of the traditional industry groups that remain an important part of the overall regional economy (Maki and Maki, 1994).

Table 2. Rank order of industry value added, Mnpls-St. Paul LMA Economic Region, 1990

Sector Title	Mnpls.- St.Paul		Sector Title	Other EconReg
	LMA	(mil.\$)		LMA
Private services	16,836		Finance, insurance, real estate*	10,544
Finance, insurance, real estate*	10,889		Government	10,454
Manufacturing, total durables	9,480		Agriculture & mining	8,761
Manufacturing, total nondurables	8,012		Manufacturing, total durables	7,929
Government	6,548		Retail trade	7,155
Wholesale trade	5,594		Manufacturing, total nondurables	6,758
Retail trade	5,466		Wholesale trade	4,571
Construction	3,289		Construction	4,153
Other transportation	1,568		Private services	4,153
Communications	1,420		Other transportation	2,733
Air transportation	1,229		Sanitary services, public utilities	2,600
Sanitary services, public utilities	1,183		Communications	1,445
Agriculture & mining	783		Air transportation	100

*Including imputed rental value of home ownership

Source: University of Minnesota IMPLAN regional modeling system

Table 3 ranks the individual industry groups according the value added of the total exports of each industry. These are the goods and services purchased by non-residents, either outside the respective areas or by visitors to the two areas. The value added of the export share of each industry's output totals to 28.6 percent of total value added for the Minneapolis-St. Paul LMA and 14.6 percent for the remaining areas in the Economic Region. The lower equivalent value added for the larger area results from the internalization of commodity shipments originating from farms, mines, and forests. A large portion of these shipments go to processing and manufacturing facilities in the Economic Region. A reverse flow of private services, particular high-order producer services, originate from the metropolitan core area for destinations throughout the region. In both areas, manufacturing exports account for a larger share of total exports than any other comparable industry group. This is, however, among the fastest growing sectors in the metropolitan core area. It serves the rapidly growing local markets for intermediate goods and services.

Table 3. Rank order of exports value added, Mnpls-St. Paul Econ Region, 1990

Sector	Mpls- St.Paul		Sector	Other EconReg
	LMA	(pet.)		LMA
Manufacturing, durables	8.6		Agriculture & mining	5.1
Manufacturing, nondurables	8.0		Manufacturing, nondurables	3.9
Private services	2.9		Manufacturing, durables	3.3
Wholesale trade	2.7		Retail trade	0.6
Agriculture & mining	1.7		Private services	0.5
Finance, insurance, real estate	1.7		Wholesale trade	0.4
Retail trade	1.4		Other transportation	0.3
Other transportation	1.0		Finance, insurance, real estate	0.3
Air transportation	0.3		Sanitary services, public	0.0
Construction	0.2		Construction	0.0
Communications	0.0		Government	0.0
Government	0.0		Communications	0.0
Sanitary services, public	0.0		Air transportation	0.0
Total	28.6		Total	14.6

Source: University of Minnesota IMPLAN regional modeling system

Self-Reinforcing Industry Clusters

A region's industrial system has three dimensions: local institutions and culture, industrial structure, and corporate organization. Saxenian notes, however, that "spatial clustering alone does not create mutually beneficial interdependencies (Saxenian, 1994, p. 7).¹¹ An industrial system may be geographically agglomerated and yet have limited capacity for adaptation. This is overwhelmingly a function of organizational structure, not of technology or firm size." Moreover, the clustering is self-reinforcing through its vast network of industry and individual business and professional linkages in production, marketing, procurement, and personnel staffing. In this paradigm of a geography-bounded industry linkage network, customers and suppliers, as well as research, drive the product and process innovations. These, in turn, help sustain the industry clusters that account for an above-average share of total U.S. value added in each of the industries in the industry cluster.¹²

A high level of industry exports correlates with its high concentration ratios in a particular area (Appendix). The high concentration of medical devices manufacturing in the Minneapolis-St. Paul LMA, for example, depends on easy access to highly active local labor and product markets and extensive distribution systems and related infrastructure for domestic and foreign trade.

The business and professional linkages in the local labor market extend well beyond the local area as alliances between companies. They are a "fact of life in business today," comments Rosabeth Moss Kanter, whether these alliances are from "different parts of the world or different ends of the supply chain" (Kanter, 1994, p. 96). Benjamin Gomes-Casseres goes even further suggesting that "Collaboration in business is no longer confined to conventional two-company alliances, such as joint ventures or marketing accords. Today we see groups of companies linking themselves together for a common purpose" (Gomes-Casseres, 1994, p. 62). He then notes that "within the network or group, companies may be linked to one another through various kinds of alliances, ranging from the formality of an equity joint venture to the informality of a loose connection."

The most common difficulties faced in business alliances deal with money--capital infusions, transfer pricing, licensing fees, compensation levels, and management fees, as well as the complexity of roles that one partner has with another. "Active collaboration takes place when companies develop mechanisms--structures, processes, and skills--for bridging organizational and interpersonal differences and achieving real values from the partnership," according to Kanter (page 105). These relationships range from mutual service consortia where similar companies in similar industries may pool their resources to gain access to a new and expensive technology to

¹¹This author notes further that recent research reveals the interrelations of these three dimensions (ibid., p. 174). For example, economists now recognize that "innovation is a product of interactions among customers and suppliers, a firm's internal operating units, and the wider social and institutional environment."

¹² Rosegrant and Lampe summarize the lessons learned from Boston's high-tech community include the following (topical headings were excerpted verbatim from pages 182-190): 1) The Boston area's extensive educational and research infrastructure is the key to the region's ability to innovate. 2) The Route 128 high-tech community was not planned, but evolved for specific reasons. 3) State government has not played a major role in the development of the research infrastructure or the high-tech community. 4) Innovations have occurred when the "traditional" roles of these sectors and the boundaries between them have been challenged. 5) Innovations at all levels have often been driven by individuals, not organizations.

joint ventures and, finally, to value-chain partnerships, such as supplier-customer relationships--the strongest and closest collaboration.

Highly productive levels of collaboration achieve integration across the board--strategic, tactical, operational, interpersonal, and cultural--when each party is willing to let the other party inside the organization. This requires serious communication across functions. Even better are companies with a high order of cross-functional teamwork and exchange of ideas, according to Kanter. Many benefits derive from establishing "multiple, independent centers of competence and innovation" to companies that can be flexible and open to new ideas. For many companies, however, internal barriers to communication limit learning to those directly involved in the relationship. Again, the metropolitan core area with a well-functioning labor market, a diversity of industry and skilled workers, and one or more advanced technology research centers, with much informal, as well as formal, interaction between the market-driven businesses and the concept-driven advanced technology researchers, has a clear advantage over other areas.

Producer services (including commercial and personal transportation, communications, banking, insurance, and real estate, business services, legal, educational, management and consulting, and other high-order professional services) facilitate the collaboration between businesses. They are an important complement of a globally competitive manufacturing sector that are most abundant and accessible in the core metropolitan LMA. They are available to the export-producing businesses in the rural locality, but from a greater physical distance. The rural business enterprise provides one or more of the producer services from within its own premises. Both businesses maintain strong linkages backward in the production process to suppliers as well as forward to customers.

Location-Dependent Activity

Emphasis on jobs rather than the performance of the job-creating activity--the export's that sustain a region's economy--can easily misdirect attention from the original sources of job-creating and wealth-creating activity to the mere counting of jobs. Granted, this is a much-used measure of economic well-being, especially in political contests.¹³ However, sustainable economic development depends on outcomes, that is, the competitive standing of a region's production of goods and services as measured by changes in a region's market shares--its export base, rather than its employment shares.

¹³ Declining rates of growth characterize the industrialized economies of both the United States and Europe. Economists attribute the productivity slowdown to various supply-related factors, like the first oil hike (environmental regulations had the same effect), slowdown in R&D spending, many inexperienced workers entering the workforce, and financial instability following the breakdown of the Bretton Woods system (Shigehara, 1992, p. 21). Additional explanations come from studies on the effects of declining savings and investment rates, including spending on education. More fundamental causes proposed by Shigehara (pp. 21-32) include the interaction of inflation and productivity performance, the increasing structural rigidities and ossification of economies, increases in rent-seeking activities (e.g., growth of nontariff barriers and impediments to trade), problems of some financial markets in channeling investment funds toward long-term productive uses, losses in the efficiency of investment (e.g., as insurance against higher trade barriers in the future), and the fragility of the financial system and its institutions. Seibert, in reviewing the productivity decline in Germany, found the composition of primary production inputs, because of the linkage between capital and labor, an important explanatory variable (Seibert, 1992, p. 45). Overall productivity per worker increases only when capital and labor rise together to achieve an optimal input mix. He concluded that "Economic policy should be steady, stressing institutional relationships," rather than "attempting to influence economic activities ad hoc."

Economic Base

The regional economic base sustains a region's overall economy. It is formed by the export-producing activities of local resident populations--the goods and services produced by businesses, governments, and households. These include, also, the activities that cater to visitors purchasing locally-available goods and services that bring "new dollars" into the community. The components of the economic base vary from one part of a LMA to another and from one time period to the next.

Export-producing industry defines the economic base of each of the three areas--the central counties, the Metro Region, and the Minneapolis-St. Paul LMA. Inter-area trade is the lifeblood of each local economy. Domestic trade and the trade-generated flow of income across county boundaries are many times greater than all foreign trade. Even trade between the seven Twin Cities Metro Area counties and the 80 Greater Minnesota counties exceeds Minnesota's total foreign trade. Industry imports, on the other hand, are less than the total exports by all industry. Total commodity imports that include sales to both the producing sectors and final sales to the consuming and investing sectors, on the other hand, are much larger for many areas than total industry imports. The producing sectors add value to these imports. As exports increase, industry imports also increase.

Table 4 presents several measures of the economic activity occurring in the Minneapolis-St. Paul Economic Region. Starting from the left side of the table, each column under one of the two major headings, other than the one for the two central counties, represents the remaining counties in the LMA or the Economic Region. The two measures of industry activity--employment and the equivalent value added of exports from each of the five areas--provide a summary portrait of the differences that exist among groups of counties in an economic region. The employment profile presents a portrait of a region's job-creating industry. The export-defined value added profiles presents a totally different portrait of region's economy, but one that potentially has more predictive value about a region's future than a portrait based on total employment. Employment numbers alone fail to show the economic base and the competitive position and prospects of a region's economy for future growth and change.

Table 4. Rank order for exports value added of specified sectors, Mnpis-St. Paul Econ Region, 1990

Sector	Total Exports Value Added				Total Employment			
	Mnpis-St. Paul LMA			Other	Mnpis-St. Paul LMA			Other
	Central	Metro	Mpls-StP	EconReg	Central	Metro	Mpls-StP	EconReg
	Counties	Region	LMA	LMAs	Counties	Region	LMA	LMAs
	(pct.)	(pct.)	(pct.)	(pct.)	(pct.)	(pct.)	(pct.)	(pct.)
Manufacturing, durables	22.8	28.0	30.0	22.6	11.9	11.9	10.3	6.9
Manufacturing, nondurables	24.2	26.2	28.0	27.0	9.3	10.1	9.8	6.0
Private services	17.0	12.7	10.2	3.5	10.6	7.3	9.5	23.2
Wholesale trade	11.2	10.2	9.6	2.9	8.3	5.8	3.5	4.2
Finance, insurance, real estate	11.1	9.4	6.0	1.8	11.2	7.2	5.7	5.0
Retail trade	5.4	5.0	4.8	4.3	20.5	25.3	19.9	17.5
Other transportation	4.5	3.7	3.5	2.0	2.7	4.3	3.2	2.7
Air transportation	1.6	2.1	1.2	0.0	2.2	0.1	0.0	0.1
Agriculture & mining	0.8	1.4	6.0	35.1	0.5	3.2	12.3	11.7
Government	1.0	0.7	0.1	0.2	14.9	14.4	15.9	15.3
Construction	0.1	0.5	0.5	0.2	6.3	9.6	8.8	5.9
Communications	0.1	0.1	0.1	0.2	1.1	0.5	0.4	0.7
Sanitary services, public utilities	0.2	0.0	0.0	0.3	0.5	0.4	0.6	0.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: University of Minnesota IMPLAN regional modeling system

The preceding table shows the relative importance of the so-called "one-digit" industry groups in each of the given areas in the Minneapolis-St. Paul LMA and Economic Region. The retail trade and service industries, including government, provide much the same consumer sector infrastructure in both metropolitan and rural areas. The important difference occur in the producer infrastructure, particularly the high order producer services and technology-intensive manufacturing. Even the aggregate data, like transportation, wholesale trade, finance, insurance and real estate, show these differences. As the distance from the central counties and their business districts increase, the relative importance of the high order producer services and manufacturing declines. More striking is the existence of high levels of intra-regional, inter-area trade with the metropolitan core area providing the high-order services and the rural areas providing the primary resource-based exports, both intermediate inputs and manufactured products. The largest differences between the central counties and those in the periphery of the core LMA and the Economic Region are in the upstream and midstream sectors of each local economy. Much of the primary production occurs in the rural areas. Efficient and timely transportation for the movement of these commodities to the manufacturing facilities in metropolitan areas, both in the U.S. and abroad, is important to these primary producers.

Total exports are smaller for the larger area simply because of large intra-area purchases of goods and services that come under the "export" classification, that is, purchases of goods and services produced locally that generate income flows from outside the area. Industry imports are much less in total value than total exports. They include only purchases by the producing sector of the local economy, not the consuming and investing sectors. A comparison of the total exports of an industry with its total imports provides a measure of the net "new dollars" the given industry generates. An import-dependent industry adds value to its imports and, thus, generates "new dollars" for the local economy. An import-dependent consuming sector, on the other hand, spends the "new dollars" to cover the cost of these imports.

Table 5 provides measures of labor and capital productivity in the four groups of counties--output per worker and value added per worker. Proximity to the two central counties correlates with

greater output and higher value added per worker. Exceptions occur, however, in manufacturing, communications, finance, insurance, and real estate. These industry groups have greater output per worker in the five outlying Metro counties than in the two central counties—generally the case, also, for value added per worker. The newer facility investments in these industry groups are in the newer suburbs rather than the central cities and the first-ring suburbs. Again, location within a metropolitan regional system correlates with certain industry attributes and activities that may account for a particular industry's concentration in one part of the economic region and labor market area rather than another. The core metropolitan area and its highly active and diverse local labor and capital markets provides assurances for both employers and employees of comparatively low private costs of possible business failure.

Table 5. Value added and gross output per worker in specified sectors, by area, 1990

Sector	Value Added per Worker				Gross Output per Worker			
	Mnpls-St. Paul LMA			Other	Mnpls-St. Paul LMA			Other
	Central Counties	Metro Region	Mpls-StP LMA	EconReg LMAs	Central Counties	Metro Region	Mpls-StP LMA	EconReg LMAs
(thou.\$)	(thou.\$)	(thou.\$)	(thou.\$)	(thou.\$)	(thou.\$)	(thou.\$)	(thou.\$)	
Sanitary services, public utilities	177.8	172.3	172.8	146.1	446.4	423.7	425.5	445.9
Private services	157.8	137.4	127.6	18.6	177.7	157.5	147.6	65.0
Communications	121.1	120.9	120.5	79.0	145.1	146.1	145.9	218.9
Finance, insurance, real estate	77.5	81.9	82.5	77.7	118.8	123.7	123.9	231.4
Manufacturing, nondurables	64.7	65.2	63.2	41.4	134.4	146.4	144.9	307.4
Manufacturing, durables	60.5	61.6	60.5	42.3	127.1	127.9	127.0	210.0
Air transportation	59.4	59.2	59.2	34.0	100.6	100.5	100.6	70.2
Wholesale trade	58.8	57.9	57.1	39.8	61.2	60.2	59.4	92.1
Average	59.6	56.0	54.0	29.2	89.3	86.9	85.1	59.2
Other transportation	39.4	39.3	38.6	37.1	67.4	65.7	64.5	96.9
Construction	36.4	35.2	34.5	25.8	87.0	85.7	84.8	123.3
Government	34.5	33.7	32.9	25.3	33.4	32.8	31.9	43.6
Agriculture & mining	39.2	33.5	28.2	27.6	81.5	75.9	73.5	75.0
Retail trade	19.9	19.5	19.2	15.2	29.7	29.1	28.8	39.4

Source: University of Minnesota IMPLAN regional modeling system

For most businesses, whether its shipments or purchases are domestic or foreign, is a moot question since this information is not readily available to the individual exporting business. The important issue is the contribution of each export-producing industry to the local economic base that is measured by the value of its exports, including local purchases by visitors to the area. In 1990, the manufacturing sector accounted for more than one-half to more than two-thirds of the total exports in the three areas. Private services accounted for slightly more than 14 percent to slightly more than eight percent of total exports. The two central counties were more dependent on producer services than either one of the other two areas, while the outlying counties in the LMA were more dependent on manufacturing than either one of the other two areas.

Core Competencies.

Prahalad and Hamel characterize core competencies as collective learning in the organization. It refers to the capacity to coordinate diverse production skills and integrate multiple streams of technologies. Core competence is communications, involvement and deep commitment to working across organizational boundaries. Identifying a region's core competencies is much like identifying the core competencies of a business. Prahalad and Hamel propose three tests for a company intent on building its core competencies. Core competencies should provide "potential access to a wide variety of markets." They should make "a significant contribution to the perceived customer benefits." They should be "difficult for competitors to imitate" (Prahalad and Hamel, 1990, p. 81-

82). State and local governments that are successful in building affordable transportation and technical education systems that address the critical market and resource access requirements of their export-producing businesses have a "step up" on their competitors in building the regional infrastructure of a globally competitive regional industry cluster.

The metropolitan core area and its air transportation node provide their industry clusters and those linked to the core area with a global reach. These new engines of economic growth (Jacobs, 1984) are powerless, however, without the strong, productive business and governmental linkages that extend well beyond the metropolitan core area. In fact, manufacturing in rural areas was the fastest growing segment of the globally-competitive, export-producing industry clusters of U.S. metropolitan core areas in the eighties in large part because of these linkages (Maki and Reynolds, 1994).

Some students of regional industrial systems at least imply that regions, not individual businesses and communities compete--regions with outstanding infrastructure of air transportation and education, among other assets (Porter, 1990). The industries producing the high-valued manufactured products, together with the high-valued services that people seek or provide, become the new valued clients of every world-class transportation system.

Post-secondary education is part of any regional strategy for economic development. The Minneapolis downtown district, for example, houses a technical college, a private university graduate program in business administration, and several private post-secondary educational activities. It also borders the University of Minnesota Twin Cities Campus. The downtown educational systems provide daily access to accredited courses, many in applied business fields, for largely a downtown commuter population. The University of Minnesota educational programs also attract a large urban commuter population, but as students seeking academic degrees in traditional academic fields. Many of its graduates leave the Twin Cities for jobs in other states and foreign countries. In addition, as the state's research university, it supports a wide range of applied and basic research with funding from federal, state, and private sources. Again, much of the research relates to national and international issues and the interests of peer groups in the various academic disciplines. But they also involve, at least potentially, an increasingly greater interaction with local and regional companies supporting advanced technology research.

Legacy Systems.

The almost unbelievable complexity and richness of the extra-market relationships means that any business restructuring that is not accompanied by acute sensitivity to the importance of these relationships is likely to fail. This is increasingly well-documented in the recent literature (von Hippel, 1989). It is evident also from the perspective of an individual seeking employment in another regional cluster of the same industry. Lack of the interpersonal ties among other professionals in the same industry in a new locality results in extreme difficulty in finding satisfactory employment, especially in a tight labor market (Michelle Quinn, 1994). These relationships and their history are the legacy systems that sustain and enlarge a region's base economy develop over many product cycles that initially play an important part in the repeated successes of a region's export-producing enterprises. They also play a part in the ultimate decline of a once-successful industry by burdening new businesses with unnecessarily high taxes and misdirected public outlays. Friedman suggests that in designing governance structures "we must be able to identify the relevant institutional details. One good way to learn about the details is to review the economic history of the activity" (Friedman, 1984, p.592).

The legacy system also carries the heavy burden of state and federal regulation of export-producing business enterprise. The costs of business compliance with new federal regulations is constraining the capacities of small businesses to successfully compete in domestic and global markets (Galloway and Anderson, 1992). The addition of new health care costs makes the future success of many businesses even more questionable. Thus a region's legacy system imposes an additional challenge for regional governance that must also contend with the viability of its economic base and core competencies.

Regional Governance

Naftalin and Brandl, in their study of the Twin Cities regional governance and regional strategy, define strategy as capacity-building (Naftalin and Brandl, 1980, p. 35). It is also the fashioning of a comprehensive growth and development policy for the region. The capacity-building strategy involved the creation of the Metropolitan Council, the metropolitan commissions, and a sharing of the property tax base and state revenues by local governments.¹⁴

The Metropolitan Council of the Twin Cities of Minneapolis and St. Paul, for example--one of many councils of local governments established in the 1960s--is a body of officials and citizens appointed by the Governor to represent the local governments and populations in the seven-county Twin Cities Metropolitan Council Region. Growth management, particularly the use of sewer and water access to guide the location of population and economic activity, and the reduction of "regional disparities" were the Council's key issue in the 1960s and 1970s (Kolderie, 1972). Policy issues now facing this regional body pertain to the viability of its economic base and infrastructure, including air transportation and technical education and the acquiring of fiscal resources for maintaining the region's essential public services. These differ, however, from the immediate policy issues addressed by the Council's current membership and staff. The latter include concerns about "balanced" growth and development, orderly expansion of the metropolitan area, affordable housing, and poverty (Metropolitan Council, 1994).

¹⁴ The Metropolitan Council was authorized by the Legislature to adopt a comprehensive development guide. This guide has 12 chapters, with each chapter adopted only after many open hearings and much agency and public review. The ten substantive chapters are: health, airports, housing, protection of open space, recreational use of open space, transportation, solid and hazardous waste management, sewage disposal, water resources, and law and justice. The remaining two chapters--the development framework and the investment framework--are the implementing components. The development framework breaks the Region into five planning zones--the Region's two metropolitan centers; the fully developed area of 20 older suburbs surrounding the metropolitan centers; the area of planned urbanization lying beyond the fully developed area; the 13 freestanding growth centers; and the remaining agricultural areas. In spite of its many chapters, the development guide is not fully comprehensive. Its emphasis is on physical development. It is concerned much less with social and economic planning. At no point is distress or a distressed area singled for attention. As noted by Naftalin and Brandl, "The Council's most effective fiscal power is its approval authority over the capital budgets of its metropolitan commissions for sewers and transportation." The authors suggest that without this control, the Council's policies for guiding regional development would be ineffective. A 1977 report of the Fully Developed Area Task Force emphasized a new urban philosophy of "1) intensive reuse of the existing public and private investment structure, and 2) region-wide sharing of the costs of such redevelopment." Moreover, the Council strongly favors an open planning process at all governmental levels that would come to have "a commonly accepted set of policies reflecting neighborhood and private sector inputs." In their concluding commentary, Naftalin and Brandl suggest that the proposed metropolitan reinvestment fund would be a major tool for the implementation of the redevelopment plans.

Currently, the Metropolitan Council's regional strategies call for "a holistic approach to stabilize the core and ensure economic vitality" (Metropolitan Council, 1994, p. 1). The Council recognizes that "The entire region plays a part in shaping solutions" that include measures for "economic revitalization, matching work force to jobs, maintaining quality communities, and renewing neighborhoods." The Council also recognizes that "A combination of incentives, rather than a reliance on strict regulation or penalties, is necessary to shape workable solutions" (Ibid, p. 3). The "fully developed area" within the seven-county Metropolitan Council region, is the focus of the Council's current efforts in regional governance. The "Regional Blueprint"--the new regional planning guide replacing the "Regional Development Planning and Investment Framework"--broadens the Council's role in addressing economic and social issues of the Council region, as well as its infrastructure needs, but with emphasis on the core area.¹⁵

Infrastructure Investment

The increasing importance of interregional trade and the building of a regional infrastructure for sustaining the region's export-producing industries suggests forms of interstate cooperation based on some sort of political legitimization of these efforts. Local economic conditions, of course, influence the changes that will result in new institutional arrangements. The changes take several forms. Bromley views these changes as institutional transactions that (1) increase productive efficiency, (2) redistribute income, (3) reallocate economic opportunity, and (4) redistribute economic advantage (Bromley, 1989). For example, improving transportation access to the downtown district that results in an increase in its daytime population increases the district's land use efficiency. The increase in productive efficiency may result in less funding for public transit and reduced access by low income workers to available jobs in the suburbs. This would lead to a redistribution of income from the poor to the rich. Changes in institutional arrangements thus account for the possibility of several kinds of changes in commuter and taxpayer behavior.

The widespread reshaping of regional infrastructure systems is both a cause and a consequence of increasing global competition. State and regional transportation is thus no longer an activity isolated from events beyond state and regional borders. Yet, much of transportation systems planning is held captive by the durability of its own legacy in maintaining costly, but unneeded,

¹⁵ The 1991 Minnesota Legislature directed the Metropolitan Council "to examine changes that encourage the economic and societal strengthening of the fully developed area." This legislation called for the analysis of economic and societal trends affecting the fully developed area, specifically, development patterns, migration, household composition, demographics, economic and societal conditions, comparative costs of redevelopment and new development, and effects of light rail transit, if implemented. The study findings identify broad regional strategies "geared to growth and recovery" that include specific policy recommendations. These are strategies (under each of the four issues cited earlier) to: (1) recycle contaminated sites back into productive commercial and industrial use; with cities playing a stronger role in site assembly and re-use of existing buildings and improving public funding tools for their redevelopment efforts; (2) increase people's skills to match job needs through various measures that re-allocate available funds, improve transit and transportation to better link job seekers in the fully developed area with job opportunities in the developing areas, and provide better access to affordable housing throughout the Council region; (3) make communities safer, maintain high quality housing stock, ensure the quality of city schools, and "appropriately" involving public, private, and neighborhood groups to increase confidence in schools and neighborhoods; and (4) eliminate policies that restrict housing choices of low-income people, link economic development with community development in larger neighborhoods, and encourage cities and counties to work together in forming common strategies (Metropolitan Council, 1994).

roads and bridges and sustaining a world-class transportation network to almost every corner of its jurisdiction.

Capacity Building

From an economic perspective, a regional strategy for capacity-building must eventually focus on the region's economic base and the economic environment for successful export-producing enterprise. Williams defines capacity-building in a community as "the ability to plan, design, create, finance, implement, inform, operate and protect the community's economic and business activities" (Williams, 1994). Skill-based education and employment counseling activities, for example, enhance the availability of various labor skills that, in turn, improve the competitive position of a community's export-producing businesses. Readily-accessible and well-managed private and public delivery systems that provide adequate health care at competitive prices also contribute to a favorable local economic environment. In addition, quality-of-life concerns loom large for a core metropolitan area with a diversity of resident population, including interest groups with above-average personal income levels that have left the central city to the newest commuter suburbs. A regional policy affecting the quality-of-life would provide access to the education, health care, housing, and recreational and cultural activities sought by the region's residents. In central cities and rural areas with many dislocated workers and businesses that lack easy access to export markets, quality-of-life concerns remain secondary. Such areas are likely candidates for community-based economic development.¹⁶

Central city neighborhoods, unlike a small community miles away from another community, experience much travel back and forth from place of work or shopping to place of residence.¹⁷

¹⁶ In keeping with the "wave" terminology cited earlier, community economic development is viewed here as the "fourth wave" of economic development. Earlier discussions of state economic development cited "smokestack chasing" and "helping firms compete in global competition" as the first and second waves, with the second wave including state and local government incentives, ranging from financing and export initiatives to technology transfers. The "third wave" focused on long-term investments in technical education and business infrastructure. This rationale justified subsidy of education that could result in a more productive workforce that, in turn, would lead to improved economic growth and individual well-being (Mattoon and Testa, 1993). Cooperative enterprise also fits the "fourth wave" descriptions. Recent studies tend to show, however, that the similarity of functions of cooperative and investor owned firms, in spite of possible differences in perceived goals, may be the overriding factor in accounting for the similarity of performance indicators (Parliament, Fulton, and Lerman 1989). In comparison, a community economic development corporation is a community-based profit-making enterprise that has the capability of "attracting and obtaining a full range of financing and tools available to undertake economic and social initiatives," according to DMI's Mary Williams. She acknowledges that both cooperatives and CEDCs have "enhanced the democratic process and accountability in the business sector."

¹⁷ Community-based development for central city neighborhoods is sometimes promoted as self-development, similar to the local economic development efforts in small communities surveyed by Flora and others. The Westcoast series on community economic development cited earlier emphasizes corporate profits as a measure of corporate success that is the essence of a viable community economy. "Jobs result from sustainable development, that is, businesses which can pay their own way over the short- and long-term. Businesses cannot be sustained if they do not make a profit. They cannot support self-reliance if they do not make a profit." William Hatton, author of the Westcoast manual, **Development Corporation Basics**, suggests that "Jobs, in economic development terms, can be seen as a short-term benefit. Profit is a long-term benefit, without which other benefits (including jobs) cannot be delivered." Starting with an assessment of the economic base of a neighborhood is the first step towards its revitalization. Community-based economic development is the core philosophy of the Center for Community Enterprise (CCE) in Vancouver, British Columbia, and the Development Management Institute (DMI) in Prince

This separation makes the income payments from the place of work outside the neighborhood part of neighborhood's economic base. On the other hand, the spending of that income outside the neighborhood reduces the impact of this income on neighborhood spending. Establishing the neighborhood as "a good place to live" strengthens that portion of its economic base represented by the "outside" income receipts of its resident population. The export-producing businesses in the neighborhood account for the remainder of the local economic base. By starting with the local economic base, community-based economic development addresses the sources of the neighborhood's economic well-being and viability. The determinants of neighborhood well-being are the quality and price of housing and services, the ease of access to local parks and amenities, the safety of person and property, the quality of schools, and the amount of property taxes due each year. Dislocated workers and single-person households without income from steady employment and lacking other income sources thus become a heavy burden on any neighborhood, but especially those bordering the downtown district.

Intra-regional Cooperation

The core labor market area provides, among its many other contributions, a favorable environment for increasing collaboration among regional organizations that depend upon one another for jobs and services. These include state and local governments and their special agencies for intra-regional cooperation, even across state boundaries.. The central city particularly seeks greater collaboration with surrounding suburban governments in providing community services and sharing the expenses incurred in supporting impoverished and dislocated households now concentrating in the central city (Maki, 1994). However, individual municipalities view their economic development efforts as competitive, particularly with neighboring communities. "The existence of widespread competition notwithstanding," notes a recent study of competition and cooperation in local economic development, "the attitudes of development officials and the experiences of some cities provide a basis for the prospects of increasingly cooperative development between cities or at the county level" (Goetz and Kaiser, 1993, p. 76).

Still missing is readily accessible information on the critical elements of the local economic base and their problems and prospects for future growth and development. Easy access to such regional information helps identify the community economic base, target community services, build core competencies, modify legacy systems, and make policy choices--all requirements for an effective regional policy in the 1990s. Lack of decision information for industry and sector

Albert, Saskatchewan (Hatton and Lewis, 1992). They incorporated in Canada for the purpose of organizing successful community ventures through capacity-building and networking. This organization, through its community-based economic development efforts, provides a system for telescoping business, financial, political and intelligence gathering services mandated by state and provincial governments for delivery at the community or neighborhood level. The Westcoast Development Group serves as the project arm for the CCE. It publishes the Westcoast Series on Community Economic Development and sponsors, with DMI, workshops on managing community economic development projects. The Development Management Institute serves as an education and training resource for the community economic development corporations (CEDCs). "The CEDC is "a ubiquitous, self-sustaining organization that can organize and marshal resources, and stimulate revenue generating business and other development institutions in a coordinated fashion," according to Mary Williams, one of the principals in DMI. The Institute helps organize the CEDCs, with initial funding from the Canadian government.

targeting of a statewide science and technology policy, for example, remains one of several hurdles in implementing such a policy in Minnesota (Minnesota. Dept. of Trade and Development, 1988).

Appendix: Economic Activity in the Minneapolis-St. Paul LMA in 1990

Table A1 presents several measures of the economic activity occurring in the 16-county Minneapolis-St. Paul Labor Market Area (LMA). The two central counties--Hennepin and Ramsey--include the two largest cities in Minnesota, namely, Minneapolis and St. Paul. The seven-county "Metro Region" that includes, of course, the two central counties, represents the local LMA 30 years ago. The three measures of individual industry activity--gross output, value added, and employment--are the primary measures of industry activity. They refer to the several highly disaggregated as well as highly aggregated industry groups. In this listing, the medical devices industry in the two central counties accounts for \$1,247 million, or 80 percent, of the \$1,550 million gross industry output in the Minneapolis-St. Paul LMA. It is highly concentrated geographically. "Medical Alley," located near important access highways to both downtown Minneapolis and the Minneapolis-St. Paul International Airport, houses many of its individual enterprises.

Table A1. Gross industry output, total value added, and personal earnings in specified sectors, by area, 1990

Sector	Gross Industry Output			Total Value Added			Total Employment		
	Central Counties (mil. \$)	Metro Region (mil. \$)	Mpls- St.P LMA (mil. \$)	Central Counties (mil. \$)	Metro Region (mil. \$)	Mpls- St.P LMA (mil. \$)	Central Counties (number)	Metro Region (number)	Mpls- St.P LMA (number)
Agriculture & mining	410	1,023	2,043	197	452	783	5,031	13,484	27,807
Construction	5,216	7,294	8,087	2,182	2,997	3,289	59,948	85,140	95,329
Manufacturing, total nondurables	11,909	16,869	18,355	5,729	7,520	8,012	88,576	115,260	126,689
Manufacturing, total durables	14,427	18,522	19,915	6,863	8,921	9,480	113,528	144,765	156,758
Surgical and med instruments	390	402	412	196	198	200	3,709	3,764	3,833
Surgical appliances & supplies	524	569	669	294	321	381	4,352	4,735	5,575
Dental equipment	3	5	6	1	2	3	19	36	43
Electromedical apparatus	292	421	423	152	215	216	1,538	2,347	2,367
Ophthalmic goods	36	37	37	23	23	23	720	720	720
Computer-related manfg	2,861	3,284	3,603	1,436	1,676	1,806	20,862	23,598	25,417
Other durables*	10,346	13,804	14,763	4,759	6,486	6,850	82,328	109,565	118,803
Air transportation	2,067	2,084	2,088	1,221	1,228	1,229	20,546	20,728	20,750
Other transportation	1,763	2,454	2,655	1,030	1,468	1,588	26,154	37,380	41,155
Communications	1,458	1,650	1,719	1,216	1,366	1,420	10,045	11,297	11,780
Sanitary services, public utilities	2,217	2,585	2,914	883	1,051	1,183	4,966	6,101	6,848
Wholesale trade	4,811	5,650	5,818	4,626	5,432	5,594	78,665	93,895	98,013
Retail trade	5,806	7,642	8,212	3,888	5,105	5,466	195,639	262,241	285,381
Finance, insurance, real estate	12,655	15,511	16,350	8,254	10,275	10,889	106,485	125,394	132,011
Private services, total	18,000	18,965	19,399	15,979	16,544	16,776	101,275	120,409	131,428
Computer svcs & data process	1,254	1,390	1,401	857	950	957	17,257	18,958	19,116
Doctors and dentists	1,657	2,012	2,154	1,244	1,494	1,592	21,837	28,276	31,155
Nursing & protective care	316	394	468	210	260	307	15,639	19,667	23,780
Hospital	1,652	1,940	2,107	721	842	904	27,576	32,562	35,642
Other medical & health svcs	324	431	471	149	200	218	6,168	8,148	8,937
Other private services	12,798	14,842	15,435	6,888	7,887	8,165	284,218	338,714	355,568
Government	4,751	5,905	6,350	4,914	6,068	6,548	142,357	180,305	198,776
Households	55	58	60	55	58	60	4,463	5,884	6,830
Other data adjustments*	-153	-185	-196	-153	-185	-196	0	0	0
Total	85,665	108,409	116,763	51,188	63,650	67,762	1,229,098	1,548,199	1,682,325

A high level of technological innovation characterizes the manufacturing and private services industries in the Minneapolis-St. Paul LMA, particularly its central counties. The medical devices sector, for example, has close ties with the computer hardware and software sectors and the university-medical complex in the Metro Region. The closely-linked, technology-intensive industry clusters account for a large share of the economic activity in the core metropolitan LMA. For example, the computer-related manufacturing in the Minneapolis-St. Paul LMA accounts for slightly more than six percent of the corresponding industry group in the U.S. However, one of its

industry components, electronic computers, accounts for more than nine percent of its total, while another, computer storage devices, accounts for less than four percent of its total in the U.S. The business services industry component in computer and data processing services sector, on the other hand, accounts for only 1.7 to 1.8 percent of its U.S. total in the three areas. The computer services industries thus fail to follow the patterns of high concentration established by the computer and medical devices industries in the local areas. However, this industry is among the fastest growing in the metropolitan area.,

Table A2 lists the total value of commodity exports from each of the three areas cited earlier to destinations outside each area, domestic and foreign. In 1990, these totaled to \$33,726 million for the two central counties, \$38,133 million for the seven-county Metro Region, and \$38,026 million for the Minneapolis-St. Paul LMA. Total exports are smaller for the larger area simply because of large intra-area purchases of goods and services that come under the "export" classification, that is, purchases of goods and services produced locally that generate income flows from outside the area. Industry imports are much less in total value than total exports. They include only purchases by the producing sector of the local economy, not the consuming and investing sectors. A comparison of the total exports of an industry with its total imports provides a measure of the net "new dollars" the given industry generates. An import-dependent industry adds value to its imports and, thus, generates "new dollars" for the local economy. An import-dependent consuming sector, on the other hand, spends the "new dollars" to cover the cost of these imports.

Table A2. Domestic and foreign commodity exports and total imports of specified sector, by area, 1990

Sector	Commodity Exports, Domestic			Commodity Exports, Foreign			Industry Imports, Total		
	Central Counties (mil. \$)	Metro Region (mil. \$)	Mpls- St.P LMA (mil. \$)	Central Counties (mil. \$)	Metro Region (mil. \$)	Mpls- St.P LMA (mil. \$)	Central Counties (mil. \$)	Metro Region (mil. \$)	Mpls- St.P LMA (mil. \$)
Agriculture & mining	311	616	1,115	11	48	2142	118	289	585
Construction	55	229	266	1	2	2	1,581	2,151	2,328
Manufacturing, nondurables	9,081	11,298	12,177	718	999	1,100	4,398	6,501	6,814
Manufacturing, durables, total	6,683	8,674	9,320	2,642	3,505	3,709	3,540	4,659	5,022
Surgical and med instruments	210	203	200	55	55	56	93	94	95
Surgical appliances & supplies	326	342	409	22	23	28	99	107	125
Dental equipment	0	0	0	2	3	4	1	1	2
Electromedical apparatus	48	70	70	216	312	314	63	93	93
Ophthalmic goods	0	0	0	9	9	9	5	5	5
Computer-related mfg	545	567	626	768	0	364	453	453	559
Other durables	5,555	7,492	8,015	1,510	3,102	2,935	2,839	3,905	4,144
Other transportation	325	508	152	187	239	254	179	211	180
Air transportation	1,072	866	781	425	428	428	373	247	257
Communications	0	0	0	31	36	37	98	116	117
Sanitary services	102	22	7	3	3	3	526	593	643
Wholesale trade	1,491	1,311	1,119	776	912	939	31	37	37
Retail trade	1,579	1,547	1,485	3	3	4	548	694	697
F.L.R.E.	3,019	2,633	1,510	281	326	345	674	897	837
Private services, total	3,579	2,854	2,259	161	180	185	930	1,170	1,186
Computer seves & data proc	465	472	430	9	10	10	63	77	77
Doctors and dentists	415	175	100	0	0	0	66	87	89
Nursing & protective care	109	90	129	0	0	0	31	36	41
Hospital	0	0	0	6	7	8	309	345	352
Other medical & health sves	0	0	0	0	0	0	65	79	85
Government	184	136	11	3	3	3	132	139	153
Total	28,490	31,453	30,879	5,490	6,985	7,469	13,660	18,328	19,500

While the medical devices industry is small compared to other similarly detailed listing of technology-intensive industries, it serves as a sort an "indicator species" for revealing the underlying robustness and vitality of the area for creating and nurturing new knowledge-based, technology-intensive industries. Moreover, the total employment, although low compared with other industries in the area, looms larger compared to the corresponding U.S. industry employment.

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