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RESHAPING THE CITY-REGION IN GLOBAL COMPETITION

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RESHAPING THE CITY-REGION IN GLOBAL COMPETITION¹

WILBUR MAKI

INTRODUCTION

Much of governance in the Minneapolis-St. Paul city-region is countless meetings about one crisis after another. Underlying each local crisis is a profound reshaping of the city-region.

The central city of a metropolitan labor market area is surrounded by smaller labor market areas. The core area is arguably the new "engine" of economic growth in the city-region.² Its downtown district is the nerve center of trade and commerce. However, its neighborhoods are hurting desperately. They vie with the downtown district for more dollars from a shrinking city budget. Meanwhile, commuters from outlying suburbs take the highest paying jobs.

When out-migration was the common escape from limited job opportunities in a city-region's rural periphery, we talked of "people left behind" and a "rural crisis." A similar pattern of change in the central city leaves behind a continuing legacy of racial tensions, crime, poverty, high taxes, a declining tax base, and low educational attainment--an "urban crisis."

For the city-region, economic dislocation is a central issue. Its driving force is global competition, compounded by lagging labor productivity and a growing burden of industry regulation.

If left to market forces, the economic dislocation imposes a heavy burden on local communities as manufacturing plants shut down leaving jobless workers behind with well-paying employment alternatives out of reach. The urban crisis further reduces access to education and financing for improving labor and management skills.

¹ Prepared for the Thirty-Ninth North American Meeting of the Regional Science Association International, Chicago, IL, November 13-15, 1992. I gratefully acknowledge the helpful comments and suggestions from Greg Alward, Shelley Baxter, Richard Lichty, Paul Reynolds and Knut Westeren.

²The notion that the metropolitan core area is a key to national economic growth has many contributors, including Royce Hanson in *Rethinking Urban Policy* (1983) and Jane Jacobs in *Cities and the Wealth of Nations* (1984).

Without remedial efforts that successfully address the underlying problems, the urban crisis spills to the downtown district and the economic base of the central city.³ The oldest suburbs bordering the central city soon follow in economic decline. Eventually the surrounding labor market areas lack access to markets and producer services. The urban crisis consumes the city-region.

Mobilizing local resources to cope with the adverse effects of global competition is increasingly a cooperative effort between the central city and its region. Businesses in the metropolitan area already collaborate with input suppliers in the surrounding areas through contractual arrangements that improve just-in-time product delivery and reduce production costs. State and local governments also cooperate in financing and maintaining urban and rural infrastructure--roads, highways, airports and other transportation terminals, water and waste disposal systems, educational institutions and hospitals.

Much of the intergovernmental cooperation, commendable as it is, still lacks a framework for a shared vision of the future city-region. From a macroeconomics perspective, for example, what is a gain for one in federal grants, is a loss for another. Local subsidies to attract new business enterprises are nothing more than a "windfall" profit for a business with far more important reasons than a small public "bribe" for its site selection. Regional development is a zero-sum game. Within a city-region, however, the name of the "game" is "place" competition, much like competition among individual businesses in the same industry, but the "place" is no longer the single municipality or county, but the city-region.

Local business success in global competition builds on the unique resources of the core area. These resources provide the means for rapidly changing the productivity and product mix of the region's export-producing and import-replacing industries. They include the strategic management functions of corporate enterprise. The many small businesses in the downtown district provide most of these services. Their lack spells the difference between growing and declining regions.⁴

³Measures short of erasing all legislation supporting exclusionary local land use controls for containing the urban crisis include an open housing law that allows low income households to acquire needed housing in the suburbs. Mills discovers from some preliminary findings that such legislation, if implemented, would have a positive impact on job growth in the central city (Mills, 1985).

⁴The 1991 Minneapolis Downtown Business Survey accounted for more than three thousand firms, mostly employing less than 20 persons with more than 80 percent engaged in various strategic management functions (Baxter, 1992).

CITY REGION RESTRUCTURING

I turn next to the research findings on city-region restructuring from two studies completed or in process over the last three years (Reynolds and Maki, 1989; 1991). I have the good fortune or working with Paul Reynolds, formerly in the Department of Sociology at the University of Minnesota and now at Marquette University. The first study, covering all of the 50 states, addressed the role of business volatility in economic growth. We found business volatility (measured by births and deaths of firms and expansion and contraction of jobs) closely associated with measures of regional growth.⁵ The second study focused on U.S. regional characteristics, including business volatility, that promote regional growth. Both studies used the Duns Marketing Indicator county files from the Small Business Administration for the six two-year periods from 1976-78 to 1986-88.

We also participated, along with colleagues from several departments of the University of Minnesota, in the Transportation and Economy Study Program sponsored by the Center for Transportation Studies and the Hubert H. Humphrey Institute of Public Affairs. The transportation and economy study addresses the implications of the changing economy of the 12-state Northern Transportation Corridor, stretching from Michigan to Oregon and Washington, for transportation infrastructure policy and planning in the individual states.⁶

City-Region Labor Market Areas

For each of the studies, we used the labor market areas delineated by Tolbert and Killian. These are on the commuting areas of individual county residents as reported in the

⁵Changes in the number of establishments and related jobs due to their establishment births and deaths, expansions and contractions define business volatility. This includes four variables--autonomous births and deaths and branch births and deaths--that represent firm volatility. Also, eight variables--the factorial combination of autonomous and branch, births and deaths, and expansions and contractions--represent job volatility. Business volatility is the composite of job volatility and firm volatility.

⁶The Transportation and Economy Project addresses a series of topical issues affecting the future development of the transportation infrastructure in the Upper Midwest Region. The findings show the importance of intra-area as well as inter-area trade and the role of transportation and related energy infrastructure in facilitating this trade. In Minnesota, for example, \$47 billion of the \$55 billion of out-of-state shipments in 1990 were to other states. Total imports from out-of-state sources were slightly larger than total exports. Shipments within Minnesota between the seven-county Metropolitan Council Region and the remaining 80 Minnesota counties exceeded the state's total foreign exports and imports.

1980 U.S. Census of Population and Housing. The several types of labor market areas fall into three distinct groups--the metropolitan core area, a transitional area and the periphery.

The *metropolitan core area* includes the downtown district of the central city, the neighborhoods of the extended central city, and "ex-suburbia" beyond the second-ring suburbs. Its innovative products and production processes, together with a diversity of economic activity and resources, account for its sustained growth and development (Noyelle and Standback, 1984).

Our study findings show that core labor market areas have a similarity of economic functions and roles in the emerging global information economy.⁷ They are the world class transportation, telecommunications and distribution centers. They have a rich diversity of industries--the export-producing and import-replacing sectors of manufacturing, transportation, finance, insurance, banking, business and other producer services, and consumer services like entertainment, recreation and health care. Most important, however, are the strategic management functions in the core area downtown district. These functions require one-on-one relationships between information providers and information users. They include the highly differentiated information-related services for achieving and maintaining the competitive edge of local businesses in regional and world markets (Porter, 1990).

Between the core LMA and its periphery are the *transitional areas*.⁸ The transitional LMAs closest to the core area experience rapid population and job growth. They have an expanding manufacturing base as a result of low site costs--rent, labor, and environmental, coupled with excellent access to metropolitan area markets (Scott, 1983; 1986). For many counties in the transitional areas, the percentage rates of growth exceed those in the metropolitan core area. Proximity to metropolitan areas further differentiates local labor markets.

⁷The Minneapolis Downtown Business Survey findings parallel the findings reported for Vancouver, British Columbia (Hutton and Ley, 1987; Ley and Hutton, 1987).

⁸Transitional rural areas adjoin the metropolitan core area and extend to the outer commuting limits of the core area work places and even slightly beyond (Reynolds and Maki, 1991). Within the 60-mile or so radius of the core area, farm subdivision is a common practice because of the high demand for part-time, hobby and garden-type residential farms. Off-farm employment of one or more family members supplements farming as an income source. The employment opportunities occur in manufacturing plants locating or expanding in the transitional rural areas and in trade and service establishments of growing rural service centers.

The *periphery* of the city-region exports standardized products. These products compete on a price basis. Low unit cost of production translates into a competitive market price, which, in turn, depend on high labor productivity or low wages. The periphery lacks cities that trade with other cities and gradually acquire the skills and resources to replace imports with their own production. The periphery includes labor market areas in varying stages of development and decline. The LMAs are sources of supply of primary products--farm, forest and mine. These are the supply areas for the secondary production centers. A few of the LMAs are transplants--the resident locations of branch plants from the core areas. Still others are rapidly declining economies experiencing the effects of labor-reducing technological advances in local production. Ever-increasing production levels require fewer and fewer workers. Finally, the LMAs workers have abandoned are the relics of an earlier period of economic activity.

The LMAs furthest removed from the core lack convenient low-cost access to decision information for business enterprise. They are vulnerable to the general business cycle and the product cycles of their standardized, highly tradable commodities. The low-cost producer dominates competition in commodity markets. This translates into extreme dependence on low wages or, alternatively, high productivity in resource use. High labor productivity, in turn, depends on high levels of investment per worker. Most businesses in the periphery suffer from low investment per worker.

The principal reasons for the *contrasting growth patterns in across city-region* rest with the base economies. The competitive position of the principal exports from the Northern Transportation Corridor, for example, is worsening. An overall above-average industry-mix effect and an overall above-average regional-share effect distinguish the base economies of the comparison region. These are some tentative conclusions drawn from a recent study of contrasting labor earnings and employment experience of selected core versus selected peripheral labor market areas in the Northern Transportation Corridor (Reynolds and Maki, 1991).⁹

⁹ Shift-share analysis identifies sources of income volatility--that is, period-to-period shifts in labor earnings. This analysis includes the two long periods of economic recovery--1970 to 1980 and 1982 to 1986--separated by two recessions occurring in the 1980-82 period. A two-digit county-level wage and salary earnings series is the source of the excess earnings change variable. The two-digit series is compiled and reported by the US Department of Commerce. Excess labor earnings, when used as a measure of the geographic concentration and specialization of industry, also defines the area economic base. It refers to the positive difference between a given area and the US in the percentage distribution of total labor earnings in a given industry. This positive difference is multiplied by the area's total industry earnings in deriving the area's excess labor earnings for the specified industry. Thus, the excess earnings variable also describes the area-to-area linkages of an industry.

One interpretation of the study findings is that a particular region's location in the national and global regional settlement and trading systems imposes severe constraints on regional development options. A rural LMA located outside the commuting area of any metropolitan LMA lacks prospects for long-term economic viability beyond the lifetimes of its principal product cycles. It lacks the resources for innovation and improvisation--essential attributes for import replacement and export diversification.

Alternative Futures of City-Regions

The most recent findings come from our newly-developed system of social accounts. The input-output modeling system (IMPLAN) developed by the Land Planning Unit in the U.S. Forest Service and now maintained at the University of Minnesota, generates a social accounting matrix (SAM) for each model it constructs.¹⁰ In addition to the more or less standard production, consumption, factor, capital and rest-of-world accounts, the new IMPLAN operating system will shortly include an occupation-earnings account for linking income changes to changes in industry production and staffing patterns. It already has the capacity for incorporating an input-output table and its related data base of an area outside U.S. counties and then generating the series of standard reports it generates for any U.S. area model it constructs. For example, we now generate SAM tables from IMPLAN for North Trondelag County in Central Norway.

The SAM framework provides a powerful methodology and data base for tracking and analyzing the effects of income changes on each set of institutions and activities in the city-region (Barnard, 1967; Hanson and Robinson, 1991; Pyatt and Round, 1977, 1985; Round, 1985; 1991; Stone, 1985, 1991). It helps explore implications of prospective changes in income flows for a wide variety of actors and institutions in the city-region. As part of a dynamic regional modeling system, it can address such disparate phenomena as the productivity-increasing effects of investment in education and the income-eroding effects of environmental regulations.

An expanded Tiebout-type economic base model addresses each of several alternative futures that are readily constructed for a city-region. Demand-side changes in local economies, as usual, pertain to changes in personal consumption expenditures, business investment, state, local and federal government purchases and exports and imports. The original Tiebout

¹⁰For a discussion of the IMPLAN model attributes and applications, see Alward, 1989 and Alward *et al*, 1992.

economic base model accommodates these changes when monitoring the distribution and use of income receipts among the several economic sectors (Tiebout, 1962). Supply-side changes, on the other hand, require a variety of additional demographic and economic accounts to connect the source of the income receipts in the demand-side monitoring to its supply-side consequences in productivity changes. The two approaches may combine into an even more advanced SAM framework than previously available for monitoring income flows in each labor market area in the city-region.

The construction and use of a SAM is highly topical issues for the study of city-region income flows (see: "references" section for series of articles in **Economic Systems Research**, **Journal of the International Input-Output Society** and **Social Accounting Matrices**, edited by Graham Pyatt and Jeffrey I. Round). The fully functional SAM system tracks the flow of income to the endogenous sector and the changes in industry output and productivity attributed to this income flows. It includes the occupational distribution of industry employment--the staffing patterns of individual industries--and the flow of wage and salary payments and proprietorial income to each occupational group. It includes also the regulatory measures of federal, state and local governments and the related changes in income payments and spending by business and the government sectors complying with these regulations. A financial sector is important for showing the flow of financial instruments and the restriction on these flows (Roe, 1985). It is a candidate, also, for inclusion in the SAM framework, perhaps initially as auxiliary tables. Even auxiliary "demoeconomic" accounts, following the Stone (1975) construction for Hungary in the early 1970s, are candidates for inclusion in the fully functional system of social accounts.

Finally, the dynamic regional modeling system that generates the fully functional SAM tracks the supply-side effects of demand-side "what-if" changes. These changes operate on the primary inputs--labor, capital and entrepreneurship. However, verification of the related supply-side changes will still require some limited use, at least, of carefully constructed interview schedules and population sampling procedures of certain target populations.

POLICY IMPLICATIONS OF CITY-REGION RESTRUCTURING

Among the critical policy implications of city-region restructuring are those that would tap the knowledge resources of the metropolitan core area for innovative production and import replacement. Innovation is the pre-eminent source of economic development (Jacobs, 1984).

Import replacement is important, also, by reducing "leakage" of "new" dollars brought into the local economy and thus increasing the "ripple effect" of exports.

This final section on policy implications draws from a series of studies for the City of Minneapolis on industrial targeting and the role of the downtown district and neighborhoods in city development. Thanks to reduced federal funding, we now have cities forced to engage in "urban entrepreneurship" with the emphasis on improving municipal finances through revenue enhancement. Minneapolis is one of them. This section also benefits from a study still underway for the Blandin Foundation of Grand Rapids, Minnesota on strengthening linkages between metropolitan area and rural area businesses. There has been much talk about two Minnesotas--the rich center and the poor periphery. Blandin wants to do something about it. We now have joined with the Center for Corporate Responsibility at St. Thomas University and a business and community advisory board to communicate these findings in a series of day and one-half regional conferences.

Innovative and Versatile Production

I refer now to innovative and versatile production--a phrase borrowed directly from Jane Jacobs. It is the unique contribution of the metropolitan core area to local renewal and revitalization. It relates also to the economic base of the city-region and its vulnerability to changes in global and regional markets and government policies.

Criteria for assessing the vulnerability of an area's economic base--risk, costs, productivity, and flexibility--vary by location of an area in the city-region settlement system where the core area is the principal transportation and communications center (Table 1). It is also the principal center for producing, distributing and using decision information for the private and public sectors of the region. Thus, the activities concentrating in the metropolitan core area are information intensive. They can afford to pay the high site costs of the metropolitan downtown district because of its market access advantages over other locations.¹¹ They experience relatively little risk because of location and capacity for achieving high levels of productivity and flexibility in resource use.

¹¹Site costs include labor costs as well as land and building costs, rent, taxes, pollution abatement costs, and other regulatory costs. Transfer costs include transportation charges and other marketing and transaction costs. Transfer costs differ most between standardized commodities, like No. 2 corn, that competes worldwide on a unit cost basis and highly differentiated products, like market or medical information, that compete on a quality as well as a cost basis. Transfer costs for certain information, for example, are lower in the metropolitan core area than in rural areas because of the necessity of one-on-one relationships in producing, distribution and using this information. These costs may be prohibitively high in rural areas and, therefore, unavailable.

Table 1. Criteria for Assessing a Region's Vulnerability to Changing Market Conditions and Government Policies

Criterion	Transitional Area		
	Core Area		Periphery
Risk	Low	Moderate	High
Cost			
Site	High	Moderate	Low
Transfer	High for commodities; low for information	Moderate	Low for commodities; high for information
Productivity	High	High in branch plants; moderate in small businesses generally	High in branch plants; low in small businesses generally
Flexibility	High	Moderate	Low

The four criteria for transitional rural areas are in their mid-range between the core area and peripheral area values. Productivity of resource use, however, is high because of access to capital financing and high value of investment per worker. Peripheral areas are furthest from the spillover effects of metropolitan development. Agriculture, forestry or mining in many peripheral areas overshadows manufacturing as the dominant economic base. Businesses face high risks because of specialization in cyclically sensitive or government policy sensitive industries. Productivity per work is generally low, except in businesses with high investment per worker and superior market access

The Commission of European Communities proposes a four-point program of endogenous measures under Section 5b on rural development, namely: (1) develop partners for cooperation to stimulate small and medium-sized entrepreneurs, (2) cooperate with university systems to access results from technological research, (3) educate and train within the enterprises to develop skills in business and production processes, and (4) advise and assist on prototype development, feasibility studies, investment project studies, and economic and finance studies.¹² These measures focus on improving the productivity of labor, capital and entrepreneurial inputs in production. They point to a renewed appreciation of the importance of the endogenous factor in economic development.

Import Replacement

For the core areas, imported goods and services are essential inputs in production and consumption. The more diverse the area, the more likely that intermediate rather than final

¹²The Commission gives priority to "development of endogenous potential" in the following: (1) Development of the primary sector in order to help agriculture to adapt to the reform of the Common Agriculture Policy, and to ensure that it plays a positive role in the economic and social development of rural areas; (2) development of other activities, including small and medium size d enterprises in particular; (3) expansion/promotion of tourist and leisure activities and the creation of nature parks; (4) respect for the environment; and (5) European Social Fund assistance for training programs in support of agricultural and non-agricultural activities (from Commission of the European Communities, Annual Report of the Implementation of the Structural Funds, Brussels, 1991).

markets account for the larger share of total imports. The export-producing activities make these purchases possible. As exports expand, imports also increase. At some point, however, opportunities for import replacement attract new locally produced products for local consumption. These opportunities occur because of the innovations and improvisations, mostly from small businesses, that result in import-replacing products entering local markets.

Industries in the core areas in the Northern Transportation Corridor show widely varying patterns of imports and exports.¹³ Extreme specialization of the Detroit core area in motor vehicle production, for example, accounts for the proportionately high levels of imports, particularly final purchases of households, businesses, and state and local governments. This area also has the smallest number of small businesses per capita among the four core areas and it lags in economic growth. The Minneapolis-St. Paul core area, on the other hand, has a great diversity of industry. It shares with the Seattle-Tacoma core area above-average economic growth. However, Seattle is still not far removed from a Detroit ready-to-happen were it not for the grace of Boeing to have a globally competitive business in a still expanding air transportation sector. The Seattle economy remains extremely dependent on three or four large, specialized, cyclically vulnerable industry clusters as its basic industry.

SAM Applications

The SAM framework provides summary accounts for documenting the income effects of market and policy changes for each sector of a city-region's economy. The findings from the Transportation and Economy study cited earlier fit nicely into the SAM framework. For example, certain *institutional factors* account for many of the current difficulties in optimizing public and private investment in city-region infrastructure, particularly transportation. The institutional factors include state and local subsidy of exurban infrastructure and federal tax expenditures (i.e., deduction of interest payments on home mortgages) for residential housing, exclusionary use of subdivision and zoning regulations, extraordinarily high transactions and related costs of "doing business" in the area, and blind acceptance, to use Jane Jacob's words, "of the mercantilist tautology that nations are the salient entities for understanding the structure of economic life" (Jacobs, 1984; p.50). Thinking of economic development as a national, rather than a city, process ignores the importance of location and its matrix of unique attributes affecting the viability of business enterprise.

¹³The most recent data base for the University of Minnesota IMPLAN regional modeling system includes each of the 3,124 US counties. All counties have the same model and data base formats, starting with a 528 producing sectors, 19 final demand sectors and five primary input (value added) sectors.

Among the most troubling institutional factors affecting city-region futures is the public subsidy of access roads and highways to the expanding urban periphery of metropolitan areas. The public subsidies invite "leap frog" residential development that results in costly urban sprawl. Separation of place of residence from place of work also added to costs of local transportation (Hoben, 1975).

Another troubling feature of urban economic life is misuse of the power given states to establish any land use controls they want, subject to "due process". These powers included zoning regulations, subdivision controls, municipal growth management and land development fees that protect the exclusionary uses of large lot sizes and open space preserves.

Large lot size and open space requirements favor the construction of high-income housing in the open country. Central cities and the first ring of suburbs secure the low-income housing, but without the tax base to support the high cost of providing social and economic services for those left behind. Those who have the money to buy large lots and build expensive housing can move away from the problems of the central city and first ring suburbs and at the same time reduce their municipal taxes and deduct mortgage interest payments from taxable personal income.

Two serious consequences (apart from its outright unfairness) flow from the exclusionary land use controls: the inability of local governments to support area-wide concerns (Ellickson, 1971; Mills, 1984) and the proliferation of subsidized shopping centers that simply redistribute the total spending of the metropolitan region, but add to its total transportation costs--public and private. No municipality can bribe another, for example, to locate its land fill in the other municipality. Suburban municipalities readily turn down the location of a job-creating facility within its boundaries, especially if it serves the entire metropolitan area. Thus, the exclusionary practices reduce the total jobs available to the central city and first-ring suburban residents.

Maintenance and re-enforcement of the separation of place of work and place of residence impose large private and social costs. The transportation infrastructure for serving new shopping centers absorbs a large amount of available financial resources of state and local governments. Not only is the total transportation bill higher, but the environmental costs also increase because of the readily available public financing of local transportation infrastructure. For example, one segment of Interstate Highway 394 connecting suburbs 12 miles west of downtown Minneapolis to the downtown has a fast lane for vehicles with two or more

passengers. This feature cost \$420 million. It serves largely the commuter workers in downtown Minneapolis who reside on or near the shores of Lake Minnetonka--the highest income residential area in Minnesota. The City of Minneapolis also provides parking space at a monthly rate of \$10 for the fast lane user--much below rental fees for others.

Another important source of added costs of "doing business" in the metropolitan core area is government, particularly the federal government (Mills, 1986). Since 1990, American businesses incurred \$130 billion more costs than in 1990 as a result largely of compliance with the Fair Labor Standards Act of 1989, the Americans With Disabilities Act of 1990, the Clean Air Act amendments of 1990, and the Civil Rights Act of 1991.¹⁴ Small businesses (those with fewer than 500 employees) created two out of three net new jobs between 1982 and 1990. Since 1989, however, small business profits per worker dropped from \$3,500 to \$600 while the tax and regulatory burden increased from \$900 to \$4,300 (Galloway and Anderson, 1992). The added costs place US and Minnesota businesses at an immediate disadvantage in competition with foreign companies that do not carry these costs.

A new study of mental health care in Norway finds that the overhead costs of general education services for mentally retarded clients in the Minneapolis-St. Paul area are twice the corresponding costs in the Oslo, Norway area.¹⁵ The Minneapolis-St. Paul area has several times as many business lawyers and court cases as the Oslo area per 1000 population--an indication of high transaction costs. High transaction costs precipitated the breakdown of the Soviet Union. However, the nature of the costs and their close association with the vested interests of those engaged in legislative processes to contain these costs precludes an early resolution of the problem in the US, also.

Finally, the macroeconomics bias of economic development efforts in the US leads to misallocation of public resources, for example, inducing factories to locate in peripheral areas without import-replacing capabilities. Central cities that form viable metropolitan core areas, on the other hand, have the diversity of industry, producer services, and business entrepreneurship to innovate and improvise in the development of new products and processes that replace

¹⁴Lowell Galloway and Gary Anderson, visiting scholars at the Congress' Joint Economic Committee, also note in their recently completed study, "Derailing the Small Business Express", that "an increase in costs amounting to 1% of sales for a gas station would necessitate, on average, a 1.4% decline in wages to avoid layoffs" (Galloway and Anderson, 1992).

¹⁵Private communication with Knut Westeren about the comparability of services and their related costs to the consumer.

existing imports. The dollars released from the purchase of these imports become available for the purchase of other imports. These include intermediate inputs for local production.

Closer scrutiny of all public infrastructure spending, together with increasing public pressures to reduce government spending in the future, puts a premium on *productivity improvements* in the construction and uses of city-region infrastructure. Improvements in the productivity of transportation resource use, for example, could reduce the total transportation bill, according to my rough calculations, by an amount equivalent to seven percent of the 1990 gross domestic product.¹⁶ They include measures for reducing travel from place of residence to place of work and reducing material inputs. They also include measures for increasing the efficiency of personal and business transportation and improving the effectiveness of transportation spending.

Personal expenditures for transportation and public expenditures for highways account for two-thirds of the total transportation bill. Thus reductions in the use of personal transportation or improvements in its productivity account for a large share of the potential cost savings. The total savings in transportation costs attributed to reducing the distances to work and shopping is as much as \$100 billion.

Energy conservation measures affect the demand for transportation by reducing the tonnages transported by truck, rail and barge. Projected conservation measures would add to transportation savings equivalent to approximately \$50 billion. (A gasoline tax of 50 cents per gallon, for example, adds \$50 billion to the federal treasury.)

Alternative means of travel to work and shopping are feasible with existing urban land use control. They become even more feasible with the revamping of existing land use controls. Projected savings from these measures would reduce the total transportation bill by \$50 billion.

Freight consolidation and multi-modal transportation use by businesses engaged in commodity shipment to regional markets and shipments from domestic and foreign markets reduce total transportation costs. For example, air freight originating in Minneapolis is trucked by freight consolidators to Chicago for reshipment by air transport to its market destination rather than shipped directly by air in small lots. Also, greater use of rail transportation, contingent on its improved efficiency, is part of the savings that could reach \$80 billion.

¹⁶These estimates are based on extrapolation of the University of Minnesota 1985 IMPLAN data base to 1990 values.

Included among related changes in the targeting of transportation-related spending is the adoption of "zero maintenance" strategies. Many rural roads, built to the high standards of past years, now lack the traffic loads of the past. They are candidates for a "zero maintenance" strategy. Such strategies gradually bring the transportation spending, particularly in declining areas, in line with present and projected use of the transportation infrastructure.

Estimates of the potential cost savings from cost-effective targeting of transportation spendings are clouded by lack of criteria for evaluating business and personal transportation requirements under several future scenarios. For example, a gradually increasing gasoline tax adds to private costs but such a tax would reduce pollution abatement costs, given a price-elastic demand for gasoline. Even if the the social cost savings from reduced pollution balanced the added private costs, the disassociation between costs and benefits still results in winners and losers. Preliminary estimates of net primary and secondary (like pollution abatement) cost savings from cost-effective targeting of transportation spending are in the \$50 billion to \$100 billion range.

In this illustration of SAM framework applications, the total transportation cost savings could reach \$380 billion. This does not imply, however, that the total transportation bill is reduced by the same amount. The savings become available, instead, for improved transportation facilities and services and, also, an improved business environment and quality of life for local residents.

Increasing infrastructure expenditures is a popularly advanced proposal for creating jobs and reducing the "infrastructure gap." Much macroeconomic analysis supports this proposal (Ashauer, 1991). On the other hand, region-specific and mode-specific studies of existing transportation systems emphasize productivity-improving alternatives to achieve cost-savings that, in turn, are targeted to high priority projects.

Federal funding for transportation infrastructure, driven by conventional "pork barrel" politics, seeks the macroeconomic analyses for its justification. Unfortunately, the allocation of the federal funding to states and local governments on the basis of votes and political constituencies turns the priority setting process on its head.

An alternative approach to infrastructure spending is targeting federal funding for the highest priority projects without the imposition of congressional district constraints. Some states and regions would be winners in the alternative approach and some state would be losers.

Both parties are likely to pressure their congressional delegations into a more costly alternative--a likely possibility not included in alternative spending scenarios.

SUMMARY AND CONCLUSIONS

This paper starts with the premise that global competition is forcing a reshaping of the city-region. Central cities that form the core areas of the city-region have the diversity of industry, producer services, and business entrepreneurship to innovate and improvise in the development of new products and processes that replace existing imports and expand exports. They are an integral link in the global transportation and communication network (Irwin and Kasarda, 1991). The gross domestic product ultimately depends on the success of the central cities in expanding their trade with other cities and labor market areas of the city-region.

The central city also faces internal change as it becomes the change-agent of the new global economy. Its downtown district is now the "nerve center" of the city-region (Daly, 1991; Daniels, 1991; Moss and Brion, 1991). Air transportation and telecommunications systems, along with a full range of strategic management and other producer services, connect the downtown with clients and customers on virtually a real time basis (Beyers, 1991).

Yet, one-on-one relationships among information providers and users are even more important in the downtown district than ever before because of the uniqueness of information--its principal product--and its inherently differentiated content (Hutton and Ley, 1987; Ley and Hutton, 1987). The downtown district thus transforms into a locally connected global information center by its strategic management functions and supporting infrastructure and services (Daly, 1991; Daniels, 1991).

For residents of both the central city and the city-region, however, the drag of low productivity and the heavy burden of government regulation is too much. Many businesses face bankruptcy and closure leaving behind a former workforce without replacement jobs. Widespread economic dislocation becomes commonplace from the central city to its region's periphery.

The cure for the economic dislocation is neither benign neglect (some of it is less than benign) nor massive federal spending on infrastructure. For starters, we don't have the money. If we did have the money and the budget was in surplus, spending more on infrastructure would probably do more harm than good. We have fundamental problems with the spatial-economic organization of our city-regions. One problem is the institutionalization of certain property

rights that more infrastructure spending only makes worse. As an example of an alternative approach, the the potential cost-savings from productivity-increasing performance of existing transportation systems bear careful scrutiny.

We have had these problems before us for a long time. Only now we have the theory and the tools in the regional sciences to document the nature of the problems and to demonstrate the implications of alternative paths for coping with them. If the will to engage still wanders, let's have it come home.

The studies I cite have come home. They address problems of the city-region, starting with Tiebout's concept of the community economic base and its endogenous income generation. The initial concept has expanded to include "import-replacing," as well as "export-producing," activities of the metropolitan core area. This concept and each of the studies cited highlight the importance of economic linkages between the metropolitan core area and non-metropolitan areas in the periphery of the extended city-region. These linkages make the central city and its city-region partners in building a regional economic base with the flexibility and diversity to successfully compete in the new global economy.

The reshaping of the city-region is thus a task forced upon us by global competition. The new partnerships within the city-region are the results of concerted efforts within the private sector and between state and local governments. They help achieve the competitive advantage of their region's industries in domestic and international markets.

REFERENCES

- Alward, Greg, Eric Siverts, Doug Olson, John Wagner, David Senf and Scott Lindall. 1989. **Micro IMPLAN Software Manual**. Department of Agricultural and Applied Economics, University of Minnesota, St. Paul, MN.
- Alward, Gregory S., William G. Workman, Wilbur R. Maki. 1992. "Regional economic impact analysis for Alaskan wildlife resources." **Valuing Wildlife Resources in Alaska**, edited by George L. Peterson, Cingy Sorg Swanson, Daniel W. McCollum, Michael H. Thomas. Westview Press, Boulder, San Francisco, Oxford.
- Aschauer, Paul M. 1991. "Infrastructure: America's third deficit." **Challenge**, March-April, p. 39-45.
- Barnard, Jerald. 1967. **Design and Use of Social Accounting Systems in State Development Planning**. Bureau of Business and Economic Research, The University of Iowa, Iowa City.
- Baxter, Shelley. 1992. **Minneapolis Downtown Business Survey**. Report prepared for the Minneapolis Community Development Agency, Minneapolis, MN
- Beyers, W. B. 1991. "Trends in the producer services in the USA: the last decade." Chapter 7 in: **Services and Metropolitan Development International Perspectives** by P. W. Daniels (editor), p. 146-172.

- Daly, M. T. 1991. "Transitional economic bases: from the mass production society to the world of finance." Chapter 2 in: **Services and Metropolitan Development International Perspectives** by P. W. Daniels (editor), p. 26-43.
- Daniels, P. W. 1991. "Service sector restructuring and metropolitan development: processes and prospects." Chapter 1 in: **Services and Metropolitan Development International Perspectives** by P. W. Daniels (editor), p. 1-25.
- Ellickson, Bryan. 1971. "Jurisdictional fragmentation and residential choice." **American Economic Review**, 61: 334-339.
- Galloway, Lowell and Gary Anderson. 1992. **Derailing the Small Business Express**. Joint Economic Committee of the U.S. Congress.
- Hanson, Kenneth A. and Sherman Robinson. 1991. "Data, linkages and models: US national income and product accounts in the framework of a social accounting matrix." **Economic Systems Research**, Vol 3 (3), 215-232.
- Hanson, Royce ed. 1983. **Rethinking Urban Policy**. National Academy Press: Washington, D.C.
- Hoben, James E. 1975. **Costs of sprawl. HUD Challenge**. Superintendent of Documents, US Printing Office, Washington, C. C. 20402.
- Hutton, Thomas and David Ley. 1987. "Location, linkages, and labor: The downtown complex of corporate Activities in a medium size city, Vancouver, British Columbia." **Economic Geography**, 63 (2): 126-141.
- Keuning, Steven J. 1991. "Proposal for a social accounting matrix which fits into the next system of national accounts." **Economic Systems Research**, Vol 3 (3), 233-248.
- Irwin, Michael D. and John D. Kasarda. 1991. "Air passenger linkages and employment growth in U. S. metropolitan areas." **American Sociological Review**, 56: 524-537,
- Jacobs, Jane. 1984. **Cities and the Wealth of Nations**. Random House, New York.
- Ley, David and Thomas Hutton. 1987. "Vancouver's corporate complex and producer services sector: Linkages and divergence within a provincial staple economy." **Regional Studies**, 21: 413-424
- Mills, Edwin S. and Richard Price. 1984. "Metropolitan suburbanization and central city problems". **Journal of Urban Economics**, 15: 1-17.
- Mills, Edwin S. 1985. "Open housing laws as stimulus to central city employment". **Journal of Urban Economics**, 17: 184-188.
- Mills, Edwin S. 1986. **The Burden of Government**. Hoover Institution Press, Stanford, CA.
- Moss, M. L. and J. G. Brion. 1991. "Foreign banks, telecommunications, and the central city." Chapter 12 in: **Services and Metropolitan Development International Perspectives** by P. W. Daniels (editor), p. 265-284.
- Noyelle, Thierry J. and Thomas M. Stanback, Jr. 1984. **The Economic Transformation of American Cities**, Rowmand & Allanheld: Ottawa.
- Porter, Michael E. 1990. **The Competitive Advantage of Nations**. New York: Free Press.

Pyatt, Graham and Alan R. Roe. 1977. **Social Accounting for Development Planning With Special Reference to Sri Lanka**. Ambridge University Press, Cambridge.

Pyatt, Graham and Jeffrey I. Round. 1989. "Regional accounts in SAM framework". **Social Accounting Matrices A Basis for Planning**, edited by Graham Pyatt and Jeffrey I.Round. The World Bank, Washinton, D.C.

Reynolds, Paul and Wilbur Maki. 1990. **Business Volatility and Economic Growth**. Final project report submitted to the U. S. Small Business Administration in fulfillment of Contract SBA 3067-0A-88, Regional Economic Development Associates, Incorporated, 4520 Oxford Avenue, Minneapolis, MN.

Reynolds, Paul and Wilbur Maki. 1991. **U.S. Regional Characteristics that Promote Regional Growth**. Final report prepared for Aspen Institute, Washington, D. C., in fulfillment of Ford Foundation Grant No. 8900-013, U of M Grant No. 0610-5764, University of Minnesota, Minneapolis.

Roe, Alan R. 1989. "The flow of funds as a tool of analysis". **Social Accounting Matrices A Basis for Planning**, edited by Graham Pyatt and Jeffrey I.Round. The World Bank, Washinton, D.C.

Round, Jeffery I. 1991. "A SAM for Europe: Problems and perspectives". **Economic Systems Research**. Vol 3, (3), 249-268.

Scott, A. T. 1983. "Industrial organization and the logic of intrametropolitan location: I. Theoretical considerations." **Economic Geography**, 59 (3): 233-250.

Scott, A. T. 1986. "Flexible production systems and regional development: the rise of new industrial spaces in North America and western Europe." **International Journal of Urban and Regional Studies**.

Stone, Richard. 1961. **Input-output and National Accounts**. Organization for European Economic Cooperation. Paris.

Stone, Richard. 1975. **Towards a System of Social and Demographic Statistics**. UNSO, New York.

Stone, Richard. 1989. "The disaggregation of the household sector in the national accounts. **Social Accounting Matrices A Basis for Planning**, edited by Graham Pyatt and Jeffrey I.Round. The World Bank, Washinton, D.C.

Tiebout, Charles. **Community Economic Base Study**. Committee for Economic Development, Supplementary Paper No. 16. December 1962.

Tolbert, Charles M. and Molly Sizer Killian. 1987. **Labor Market Areas for the United States**. Washington, D.C: US Department of Agriculture, Economic Research Service, Agricultural and Rural Economy Division, Staff Report AGE870721.