



Spatial/territorial development policies in the United States

[Link to publication record in Manchester Research Explorer](#)

Citation for published version (APA):

Hewings, G. J. D., Feser, E., & Poole, K. (2009). *Spatial/territorial development policies in the United States*. World Bank. <http://siteresources.worldbank.org/INTWDR2009/Resources/4231006-1204741572978/Hewings.pdf>

Citing this paper

Please note that where the full-text provided on Manchester Research Explorer is the Author Accepted Manuscript or Proof version this may differ from the final Published version. If citing, it is advised that you check and use the publisher's definitive version.

General rights

Copyright and moral rights for the publications made accessible in the Research Explorer are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

Takedown policy

If you believe that this document breaches copyright please refer to the University of Manchester's Takedown Procedures [<http://man.ac.uk/04Y6Bo>] or contact uml.scholarlycommunications@manchester.ac.uk providing relevant details, so we can investigate your claim.



world development report

2009

Reshaping Economic Geography



BACKGROUND PAPER

**SPATIAL/TERRITORIAL DEVELOPMENT
POLICIES IN THE UNITED STATES**

GEOFFREY J.D. HEWINGS

EDWARD FESER

KEN POOLE

University of Illinois

Current version: March 2009

Spatial/Territorial Development Policies in the United States

Geoffrey J.D. Hewings
Edward Feser
Ken Poole

Table of Contents

- 1 Overview of spatial development in the United States
- 2 National-Level Policy and Initiatives
 - 2.1 Formal Large-Scale Programs
 - 2.2 The Appalachian Regional Development Commission
 - 2.3 Economic Development Administration and its Changing Role
- 3 The Federal Role: Changing Priorities
- 4 The State Role in Spatial Development
 - 4.1 Overview
 - 4.2 Sample of some State Initiatives
 - 4.3 Summary Evaluation
- 5 New Challenges
 - 5.1 Changing Organization and Ownership of Industry; Fragmentation, Hollowing out and Out-sourcing
 - 5.2 Spatial Spillovers and Interstate Trade
 - 5.3 Business Cycles and Structure
 - 5.4 Labor Mobility, Immigration, Aging – Demographic Challenges
 - 5.5 Which regions? Hierarchy and Spatial Structure
- 6 Convergence, Divergence – what is the state of Regional America?
- 7 Summary

1. Overview of Spatial Development in the United States

A casual search for the existence of regional development policies in the United States might generate an outcome that would suggest that they do not exist, at least not in the form that would be consistent with policies enacted in the European Union (EU) or even in Canada. However, a more detailed search would yield information that reveals the existence of a complex web of (often poorly) integrated programs that stretch across a vast array of federal, state and local government agencies and that operate at different and often overlapping spatial scales. Further, the character of these programs has changed dramatically over the past three or four decades, largely in response to changes in spatial organization of production that have been generated by public and private investment strategies that have enabled firms to explore broader options in their location decision-making. Complementing these changes is an array of demand and supply pressures that have been generated by globalization. As a consequence, there has been a series of stages in the spatial development process in the US, each of which has called forth a different set of formal and hidden policies. In the current period, the transformation to a new stage appears to be moving rapidly although the degree of coordination across spatial governance regimes is often ad hoc at best.

While many may claim that the attention to problems of what Williamson (1965) referred to as “regional dualism” by the federal government was spurred by the establishment of the Appalachian Regional Commission (ARC) in, the pre-second world war period also featured other non-traditional approaches to spatial inequities. For example, the creation of the Tennessee Valley Authority in 1933 provided one of the first examples of an integrated approach to regional (in this case, primarily rural) development. President Franklin Roosevelt envisioned TVA as a totally different kind of agency namely “a corporation clothed with the power of government but possessed of the flexibility and initiative of a private enterprise.” The integrated mission, primarily focused on power production, navigation, flood control, malaria prevention, reforestation, and erosion control, offered an opportunity to address development problems in a far more comprehensive manner. A less ambitious (in terms of scope) organization, the Bonneville Power Administration (BPA) was created in 1937 essentially to provide a source of cheap power from the Columbia river and tributaries for the Pacific Northwest; even today, the accounts for about 50% power delivered in that region.

However, regional development policy, in the context of how such policy might be viewed internationally, was really initiated in the US with the creation of the ARC in 1965. There is no doubt that the scenes from Appalachia depicted on national television during the presidential campaign (won by John Kennedy) shocked a nation that had, to this time, believed that “a rising tide lifts all boats.” The existence of poverty and housing quality, the absence of modern transportation and other infrastructure, the disparities in the levels of income vis a vis the rest of the country highlighted a regional dualism that had all but been ignored. An evaluation of the ARC is provided in the next section.

For regional economists brought up on Borts-Stein views of operation of a spatial economy wherein factors would migrate efficiently in such a way that convergence in say per capita incomes would be anticipated, the empirical evidence assembled by Williamson (1965) offered a much more complicated picture. Drawing on cross-section data from a large sample of countries, he was able to examine the relationship between regional inequality and the process of national development.

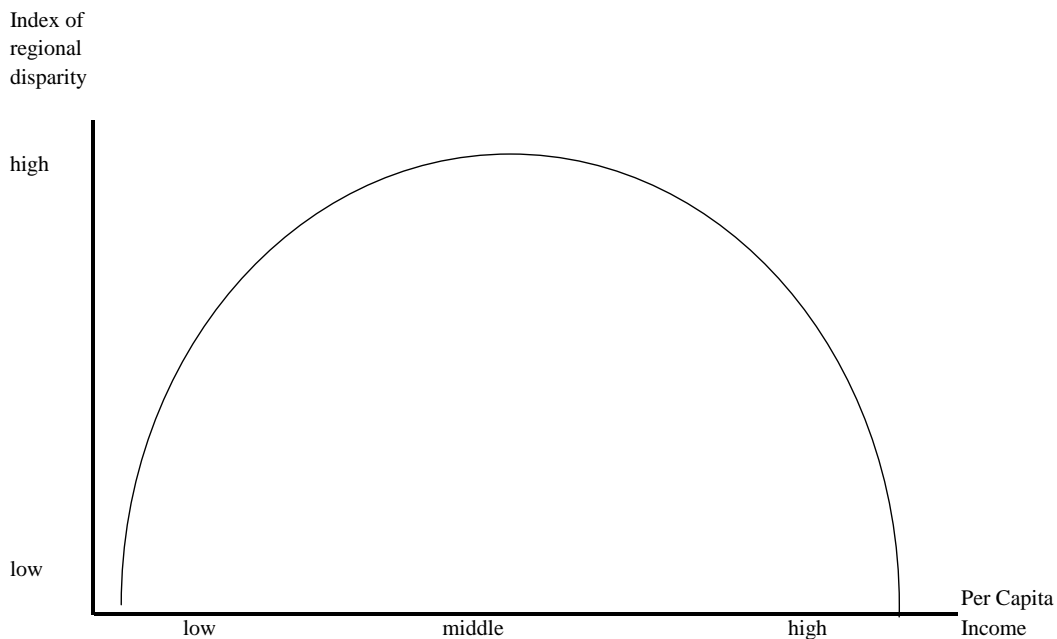


Figure 1: Regional Inequality and National Development: A Stylized Representation

Williamson's (1965) have usually been summarized in terms of a relationship postulated in fig. 1. Consider a country with a low per capita income. It is likely that the disparities between regions would be modest. However, one of the regions begins to develop – perhaps taking advantage of location, access to resources or some fortuitous event – thereby generating a process that Myrdal (1957) termed circular and cumulative causation whereby initial growth faster than other regions created a dynamic that attracted even more growth. The resulting processes created a widening of the disparities with the result that while national per capita income might increase, regional inequality would also increase – moving the economy to the area of the curve labeled “middle” in fig. 1.¹ Williamson (1965) promoted the idea that lags in factor mobility in adjusting to market signals suggesting a lag in the neoclassical equilibrating mechanisms.² Over time, it is assumed that the market signals become more efficient and the disparities begin to diminish as per capita income grows. However, does the market operate without any intervention by the (central) government? Regional development policy promulgated in the last four decades of the last century was hotly debated, with those looking at regional disparities as evidence of market failure on the one hand while others took a longer-term view that eventually the disparities would disappear as the market responded to the opportunities afforded by, for example, cheaper labor and re-located activities or labor decided to migrate to areas where wages were higher.

It here that there would appear to be a “divide” between the approach adopted by the EU countries individually and now collectively and the US; the response to the massive contraction in manufacturing employment in the 1980s and 1990s by these two continents could not have been more different. However, prior to addressing this issue, this paper will examine the role of the federal government in regional development policy in the US. Thereafter, some evaluation will be provided prior to examining the individual (US) state's role.

¹ It should be noted that the Perroux (1955) notion of “pôles de croissance” and Hirschman's (1958) concept of polarization share similar perspectives, namely that the development process is likely to be characterized by increasing disparities, at least initially. In Perroux's case, the centripetal forces so prominently featured in the New Economic Geography, generated the dynamic for concentration but Perroux's space was essentially topological.

² Williamson uses the example of Brazil to highlight a growing “north-south” dualism; more than forty years later, the dualism still exists between the Northeast and the Center-South.

2. National-Level Policy and Initiatives

2.1 Formal Large-Scale Programs

Drabenstott (2005) has provided a valuable overview of the federal role in regional development in which he has attempted to trace the spatial impacts of a vast array of programs that emanate from various branches of the federal government but which are rarely “bundled” into a formal regional development strategy. However, there has been a concomitant recognition that the federal government also plays an “indirect” role (in the sense that the impacts are spatially targeted but not from the perspective of an a priori development strategy). For example, forty years ago, the US Department of Commerce (1967) commissioned a study of the spatial effects of federal government procurement programs and noted:

The Federal Government’s capability of – and responsibility for – assisting the American economy in achieving economic well-being and promoting employment growth has become a generally established and accepted concomitant of the nation’s economic scene...Unfortunately, many sectors of the economy have not fully participated in this growth. For these, the general affluence has served only to accentuate the differences between the lagging and prosperous regions...Local government and market operations have been traditionally relied upon to provide these individual requirements, but the pervasiveness of current problems dictates a need for broader goals and more effective problem solving.

The underlying premise here that there is no longer a hard and fast distinction between national goals designed to achieve essentially national priorities and those directed to intra-national (regional) goals. The sheer quantity of goods and services purchased/provided by federal, state and local governments suggest hegemony in the US economy that cannot be dismissed as “neutral.” Drabenstott (2005) uncovered 180 “economic development” programs across US federal agencies – programs addressing issues as diverse as planning and economic development strategies, industrial parks, infrastructure repair and building renovation. Included in the agencies were the Department of Defense (see earlier studies by Bolton, 1966 who traced the relationship between defense expenditures and regional growth), Department of Agriculture, and the Department of Housing and Urban Development. However, in an earlier period, there was a much broader commitment to focused, larger-scale organizations. Attention will now be directed

to two of them, the ARC and the Economic Development Administration, an agency within the Department of Commerce with the only explicit mandate for spatial economic development within the federal government.

2.2. The Appalachian Regional Commission (ARC)³

The US Congress passed the Appalachian Regional Development Act of 1965 providing a parallel initiative to the TVA but with many additional features (and problems). Although some additional counties have been added over time, the core of the region has remained the same; the region itself is larger than California and at the time of Isserman and Raphann's (1995) evaluation it contained over 21 million people. The region itself is far from homogenous; the three major sub-regions are characterized as old heavy manufacturing (Northern Appalachia), a mountainous, isolated coal area Central Appalachia and an exhausted agricultural area (Southern Appalachia). The initial enthusiasm for the ARC was challenged by Presidents Nixon and Reagan but the support for the institution is such that it has survived most challenges to its continuation. In some sense, the combination of federal/state/local participation has provided an innovative development cocktail that many have claimed to have provided the basis for its continuation and the successes that it has achieved.

Isserman and Raphann (1995) note that the primary focus of the organization was could be characterized as follows:

The Appalachian Regional Commission's approach to regional development was comprehensive. The 1965 Act appropriated funds for highways, hospitals and treatment centers, land conservation and stabilization, mineland restoration, flood control and water resource management, vocational education facilities, and sewage treatment works. The basic strategy combined physical infrastructure, social programs, and regional coordination. First, citing the experience of underdeveloped countries, the 1964 Presidential Appalachian Regional Commission (PARC) report asserted that "investment in basic public facilities would have to be undertaken before economic development could occur." Second, noting that "the unmet needs of the people in Appalachia are primary--food, clothing, medical care, housing, basic education, skills, jobs, hope, dignity," PARC concluded that "programs must also be initiated which are focused more directly upon the people

³ This section draws on Isserman and Raphann (1995)

themselves.” Third, it argued that “progress can only be realized through the coordinated effort of a regional development organization, working with State and local development units, with research and demonstration centers, and with multiple State and Federal agencies.” Hence was born the unique approach to federalism that connected federal programs, through the state governors, to local development districts.

Infrastructure was regarded as of paramount importance; in fact the 1965 act allocated 85% of the funds for highways; they were seen as critical to meeting other social-economic objectives and cumulatively have accounted for over 60% of the appropriated funds through the mid 1990s. Another feature of the economic development strategy was the focus on growth centers; clearly, appealing in spirit to Perroux’s (1955) ideas, the growth center strategy attempted to move the idea from a concept into reality. The thinking was also influenced by the central place notion of the synergism between an urban center and its hinterland; in fact, there is a strong suggestion that it was the central place notion that dominated the development strategy thinking rather than the idea of the centers serving as propulsive engines in economic development. In addition, politics entered the choice – Isserman and Raphann (1995) quote one official who claimed there was one growth center in every congressional district. This problem was also apparent in later applications outside Appalachia – in Illinois, communities vied to become state-designated growth centers so that they could advertise on billboards – an economic development metaphor for the “name it and they will come” notion of economic development.

Criticisms of the program were many and varied; some complained that the investment in physical infrastructure was designed to make sure the impacts remained in Appalachia (in contrast to the potential migration of investment in human capital). While investments in highways improved communication within Appalachia, it also provided easier access to firms located outside the region; in essence, the spatial monopoly positions occupied by some Appalachian firms was challenged and many did not survive. Further, as Miernyk (1971) demonstrated, many of the job creation programs had unintended effects – such as increasing the unemployment rates as far more people entered the labor force seeking jobs than the number of jobs available. Some of the internal criticism pointed out a regional variant of the “resource curse” of the development literature. Many of the strategies adopted focused on resources that were often owned by people living outside the region; little of the benefits remained and trickled

down to the local residents. Some even referred to the ARC as promoting a “colonialist” development strategy.

Given the contentious nature of the assembled evidence – providing a mixed evaluation of the ARC’s success, Isserman and Raphann (1995) adopted a control group strategy – essentially comparing counties within the ARC with those outside that had similar characteristics (see Isserman and Beaumont, 1989 for an introduction to the methodology).

The basic premise is that comparing Appalachia’s development over a quarter century with the rest of the US provides a potential misleading yardstick since the US is a composite, heterogeneous entity; far better, to compare Appalachian counties with economic “sisters” that share similar characteristics to see how the growth performance in Appalachia fared. The test consists of (1) calculating growth rates from 1959 to 1962 and to 1968 for each Appalachian county and its twin (outside Appalachia) (2) subtracting the twin's growth rate from the Appalachian county's rate, and (3) testing the hypothesis that the mean difference of those rates for all pairs of counties is equal to zero. Ideally, there should be no statistically significant difference between the growth rates of the Appalachian counties and their twins before the ARC programs began. For many variables, the Appalachian counties grew significantly more slowly than did their twins, indicating the presence of selection bias. That bias is a likely outcome in a situation such as this one, in which the public program came into being precisely because Appalachia persistently lagged behind the rest of the nation. The presence of selection bias is not fatal here. It simply means that the counter-factual will overstate what would have happened in Appalachia without the ARC, and, consequently, will understate the effects of the ARC.

Using data from 1965-1991, the analysis found that total personal income and earnings grew 48 percentage points faster on average in the Appalachian counties, population grew 5 points faster, and per capita income grew 17 points faster. Further, there appeared to be no “spatial bias” in the results, with the out-performance being spread throughout Appalachia. However, non-metropolitan counties did better than metropolitan ones and there were some important differences by state; since the ARC is a unique federal/state/local program, states have the ability to direct resources to different priorities.

The results are important, representing as they do one of the first ex-post evaluations of regional development programs ever conducted in the US using an experimental formulation. One issue arising from this analysis is the degree to which a small subset of the counties might have served as propulsive “centers” affecting other, surrounding counties; the twin-pairings cannot accommodate potential spatial correlation issues but even with this limitation, the results suggest an impressive outcome for the ARC. Isserman and Raphann (1995) report that the \$13b in ARC expenditures between 1965 and 1991 produced \$8.4 billion in additional income in Appalachia in one year alone; however, a full accounting would have to consider how much federal/state/local funds were spent in the “twin” counties. However, in absolute terms, the rate of return looks impressive.

2.3 Economic Development Administration and its Changing Role

Given the findings of the ARC evaluation, one might be tempted to ask the question – why was the idea not replicated elsewhere? In part, Appalachia’s unique characteristics generated an unusual opportunity; in addition, there has been a tendency, as Drabenstott (2005) notes critically to adopt a “one size fits all” policy in development strategy in the US, so perhaps the non replication of the ARC is not such a bad outcome. In addition, Isserman and Rephann’s (1995) evaluation was published 30 years after the ARC was created. Even though it was noted that there are over 180 economic development programs associated with the federal government, the one agency with perhaps the greatest visibility in this group (although not necessarily in terms of funding) is the Economic Development Administration (EDA) of the US Department of Commerce.

EDA is one of the few federal agencies explicitly charged with investing in sub-state regional development planning and implementation activities. The mission statement for the agency is “to lead the federal economic development agenda by promoting innovation and competitiveness, preparing American regions for growth and success in the worldwide economy.”⁴ Through its current informational efforts, EDA emphasizes the results of its programs, the effectiveness of its management, and the commitment of the current Bush Administration to the agency. This focus

⁴ US Economic Development Administration, “What You Need to Know About Your Economic Development Administration,” 2007

is based on a history of concerns about the agency's ability to make an impact, respond to changing economic priorities, and overcome decades of political controversy about the agency's future.

2.3.1 Brief History

As noted earlier, President John F. Kennedy proposed the creation of ARC in response to the poverty he witnessed first hand during his campaign in the 1960 West Virginia presidential primary.⁵ While it would take until 1965 to complete the Appalachian aid package that would create the ARC, Congress in the interim passed the Area Redevelopment Act, which authorized \$394 million from 1961 to 1965 for the Area Development Agency to provide assistance to distressed communities across the nation.⁶ This effort represented the first by the US federal government to address directly these more localized regional development needs. The ADA, EDA's immediate predecessor agency, focused on providing public works projects in rural areas, but it had little in the way of success in its earliest years. As part of its Great Society legislative efforts in 1965, Congress passed the Public Works and Economic Development Act (PWEDA) designed to offer the same kind of infrastructure (e.g., roads, health facilities, related basic public facilities) that were available to ARC communities. PWEDA also renamed the agency to the US Economic Development Administration (EDA).

PWEDA sought to target federal funds to areas with the greatest distress as measured by unemployment rates. EDA's key purpose was to support sustainable development by creating local capacity for planning. This effort resulted in the creation of a network of planning entities, or economic development districts (EDDs). The EDDs were multi-county economic development organizations controlled locally. Today, EDA has designated about 340 districts nationally. These districts receive direct annual funding for planning at about \$60,000 to \$65,000 per district. Any other funding they receive from EDA is through competitive awards.

From the program's initiation, the EDDs were given broad authority to leverage resources to support the implementation of their respective locally created development plans. This was a critically important policy element of PWEDA that has significantly affected the development of

⁵ Kenneth E. Poole, "Federal Regional Development Initiatives in Canada and the United States: Lessons From History," *The Regionalist*, Vol. 1, Number 4, Spring 1996.

⁶ Bruce Mulock, "Economic Development Administration: Overview and Issues," Congressional Research Service Issue Brief for Congress, April 11, 2003.

these organizations. In general, the most successful districts obtain the bulk of their funding from a broad array of revenue sources. The EDDs were encouraged to look to states, localities, and other federal agencies for additional resources. This local control, in turn, created a much more powerful grassroots network of supporters during the early 1970s and later during the 1980s when the expressed Presidential goal was to eliminate these regional development programs from the Federal government's program portfolio and helped to sustain political support for the agency in a government that was greatly divided about the future of the program. Congress, recognizing the importance of EDA to local constituencies, supported the program on a bipartisan basis in the "1981 Battle of the Budget" and in subsequent battles over Administration proposals to either eliminate or significantly downsize the agency.⁷

The EDDs also became entrepreneurial and as early as the mid-1970s, EDA funding represented less than 10 percent of their respective organization's funding. Thus, EDA maintained only a limited amount of leverage over the essentially autonomous enterprises. The independence of local development districts allowed them to seek resources from a variety of other federal programs designed to address local or regional issues, including housing, transportation, environmental stewardship, emergency preparedness, community and business finance, human services, and workforce development.

Unfortunately, the controversy about whether EDA should exist also stymied constructive federal dialogue about how EDA should change with the times. Without Congressional authorization for 16 years (from 1982 to 1998), EDA survived on annual appropriations and continued to invest in almost exactly the same types of activities that it was doing at its creation. Again, EDA was targeted for elimination or major reinvention in the 104th Congress. Not until its 5-year reauthorization in the 105th Congress could real discussions about the program's focus begin to occur.

2.3.2 The 1998 Legislation

The Economic Development Administration and Appalachian Regional Development Act of 1998 (P.L. 105-393) endorsed numerous administrative reforms undertaken by EDA, such as efforts to target assistance to the most distressed areas and encourage greater regional

⁷ National Association of Development Organizations: "Celebrating 40 Years of Service: 1967-2007," 2006-2007 Biennial Report.

cooperation in economic development. The legislation sought to codify activities that were already in practice and consolidated the program's traditional nine eligibility factors for a variety of programs into three basic distress factors: high unemployment (1 percent above national average), low per capita income (20 percent below national average), and "special need" as determined by the Commerce Secretary, such as need associated with increased unemployment or the presence of a pocket of poverty or high unemployment. In addition, the legislation established EDA's role in providing economic development information and required more regular program evaluations of the EDA-sponsored EDDs and university centers (a network of technical assistance providers). Possibly most importantly, the legislation limits the agency's share of project grants to 50 percent and total Federal Government investment in any project to 80 percent to encourage greater local participation in funded activities. The legislation continued the requirement that investments be part of a regional "comprehensive" economic development strategy. The legislation also formalized EDA's investments in places adjusting to the economic consequences of defense-related cutbacks and natural disasters.

One important legislative shift that occurred with EDA reauthorization in 1998 was the agency's traditional focus on rural areas was extended to encourage investments in distressed urban communities as well. The legislation also explicitly encouraged support of entrepreneurial activities "afforded by technological innovation and expanding, newly opened global markets.

Even after the agency's reauthorization, many still viewed EDA's mission as remaining largely unchanged since the agency's creation: "to provide grants for infrastructure development, business incentives, and other forms of assistance to help communities alleviate conditions of substantial and persistent unemployment in economically distressed areas and regions."⁸

In October 2004, EDA's reauthorization was extended through fiscal year 2008 (P.L. 108-373). Major provisions of that bill included: (1) providing the Commerce Department with authority to reward outstanding performance by grant recipients who excel in carrying out job-creating projects; (2) supporting regional collaboration among communities competing globally by emphasizing strategies for manufacturing-intensive communities and deploying broadband technology; and (3) simplifying paperwork requirements and removing barriers for nonprofit and

⁸ Bruce Mulock, "Economic Development Administration: Overview and Issues," Congressional Research Service Issue Brief for Congress, April 11, 2003.

faith-based organizations to participate in economic development activities. The legislation encouraged regional collaboration in development comprehensive economic development strategies (CEDS) to alleviate economic distress and enhance competitiveness. The act also encouraged the agency to make assistance available to promote reuse of abandoned industrial facilities and the redevelopment of brownfields.

2.3.3 Agency Organization and Programs

The Economic Development Administration is a sub-cabinet level agency whose leader is the Assistant Secretary. The agency is authorized to have 200 full-time equivalent staff, including personnel in six regions across the US (Philadelphia, Chicago, Atlanta, Denver, Austin, and Seattle). The agency also has traditionally managed seven distinct investment programs:

- Public Works and Economic Development
- Economic Adjustment Assistance
- Research and National Technical Assistance
- Local Technical Assistance
- Planning
- University Center Economic Development
- Trade Adjustment Assistance for Firms

Public Works and Economic Development invests in construction and rehabilitation activities for essential public infrastructure or facilities needed to generate jobs and investment. These include infrastructure investments directly tied to attracting a new industry, supporting technology-level development, brownfields redevelopment, or eco-industrial development. The Economic Adjustment Assistance Program supports flexible technical, planning and infrastructure assistance for areas experiencing significant sudden or long-term economic dislocation. Research and National Technical Assistance invests in research about leading, world class economic development practices, and funds information dissemination efforts. The Local Technical Assistance Program is targeted to leaders in the public and nonprofit sectors in specific economically distressed regions. The Planning Program provides resources for the development, implementation, revision or replacement of EDA-required comprehensive economic development strategies (CEDS) as well as for related short-term planning investments and State plans targeted to address the needs of economically distressed regions. The University Center

Economic Development Program supports collaboration between EDA and academic institutions to leverage technical assistance, training, and implementation investments on behalf of economic development communities. Finally, the Trade Adjustment Assistance for Firms Program is managed through a national network of eleven Trade Adjustment Assistance Centers. These centers help manufacturing and production firms that have lost domestic sales and employment due to increased imports of similar or competitive goods, become more competitive in the global economy.

Since 2001, funding for EDA's programs has declined while funding for salaries and expenses have remained almost level. In 2001, EDA received an appropriation of \$411 million for its economic development assistance programs. That has declined to about \$251 million in new budget authority for FY 2006. Staff salaries peaked at \$31 million in 2002 and declined to \$30 million by FY 2006. In 2007, the agency received an increase to \$297.5 million in program funding. This involved shifting line item funding for five (i.e., Public Works and Economic Development, Economic Adjustment Assistance, Research and National Technical Assistance, Local Technical Assistance, and University Center Economic Development) of the seven individual programs into a single "regional development account" to allow for greater flexibility in responding to local needs and cutting the budget for Planning and Trade Adjustment Assistance by about \$4 million.

For 2007, key funding priorities focus on three areas: "supporting long-term, coordinated, and collaborative economic development, supporting innovation and competitiveness, and encouraging entrepreneurship."⁹ The agency is also providing special consideration for investments proposals from regions that respond to sudden and severe economic dislocation, enable the transition of BRAC-impacted communities, promoting historic preservation, and revitalizing brownfields. The agency has developed a five-point investment policy guideline to influence the proposals submitted from communities and to encourage competitive awards to regions that meet or exceed these guidelines. The investment guidelines include:

⁹ US Economic Development Administration, "What You Need to Know About Your Economic Development Administration," 2007

Be market-based and results driven by capitalizing on regional strengths and shifting regional economic indicators in support of higher skill jobs, increased tax revenue and greater private sector investment.

Have strong organizational leadership by demonstrating relevant management experience and a commitment of human resources talent to proposed projects

Advance productivity, innovation, and entrepreneurship by enhancing regional clusters and linking technology innovators to the proposed effort

Look beyond the immediate economic horizon by integrating the effort into a CEDS that is designed to enhance the standard of living and develop new regional economic drivers

Demonstrate a high degree of commitment by exhibiting high levels of local matching funds, demonstrating clear and unified public leadership support, and strong cooperation among the public and private sectors.

EDA reports that its investments leverage approximately \$37 in private sector investment for every EDA dollar. In FY 2005 and FY 2006, EDA investments helped to attract or retain 210,491 jobs. EDA also reported that it received the second highest score on the OMB Performance Assessment Rating Tool, and investments generate new jobs at a rate of \$2,400 of EDA investment per job. The agency is gearing up for reauthorization in FY 2008 and President Bush requested a \$47 million increase in program funding for FY 2008. However, it would be fair to state that an evaluation of EDA's programs that matches the rigor of the Isserman and Raphann (1995) evaluation of ARC has yet to be accomplished.

3. The Federal Role: Changing Priorities¹⁰

One of the main themes that emanates from the ARC and EDA reviews is the focus on infrastructure; in fact Drabentstott (2005) emphasizes that *current* federal programs maintain this focus, reflecting a 20th century development focus while the knowledge (human capital) focus that many claim to be critical appears to be absent. One might comment that at least there is a strong element of public goods' characterization of the programs – for the most part they are not targeting specific industries or even providing financial incentives to specific firms, in contrast to some public programs in other countries. However, the infrastructure focus presupposes an

¹⁰ This section draws heavily of Drabentstott (2005)

industrial development strategy and one that is assumed to be rather homogenous across the country. Again, one might argue that US regions are more similar than was the case three or four decades ago; however, these apparent similarities mask different capacities for growth and development, different mixes of products (even within the same broad industry), different labor skills and costs and differences in the age and sophistication of capital. Overriding all these more subtle differences is the one feature of the US economic landscape that contrasts markedly with those of other countries – namely the incredible mobility of labor. To this feature one needs to add the important role that immigrant (legal and illegal) labor is now playing both as a factor input and in terms of demand. Drabentstott's (2005) main complaint about the policies is their relative inflexibility; further, the sum of the programs does not amount to a policy. In fact, it is difficult to gain a sense of the whole, one that could be communicated effectively – yet the combined programs spend about \$188 billion on economic development, with over 90% if this on broad-based programs with the remaining funds more geographically targeted.

Table 1: Eras in Regional Economic Development

	Industrial Recruiting 1950s - early 1980s	Cost Competition Early 1980s to Early 1990s	Regional Competitiveness Early 1990s - present
Driver	Export Base	Scale economies	Innovation and entrepreneurship
Strategies	Financial incentives to firms Industrial parks	Industry consolidation and cost-cutting Deregulation	Entrepreneurship Clusters Commercializing Research
Keys to Success	Government funds for subsidies and tax breaks Industrial infrastructure	Health of existing industries	Distinct Regional assets: Human capital Higher education Amenities

Source: Drabentstott (2005)

Drabentstott (2005) divides the last five decades into three eras; these are shown in table 1. The three eras are self-explanatory but they have different spatial implications. The first program was a predominantly nationwide initiative wherein regions were lead to believe that economic growth was associated with the ability to export; accordingly, development strategy focused on attracting industries to a region since their predominantly export orientation would, through the familiar multiplier effects, generate impacts above and beyond their direct contributions. In an

era of relatively high transportation costs, firms often enjoyed spatial monopolies shielded as they were from competition by transportation rates that were high relative to the value of the goods and services produced. Further, the restricted competition often resulted in firms not fully utilizing capacity so that scale economies were often only partially realized. The liberalization of transportation costs with the passage of the Staggers Act in 1976 ushered in a new era as firms now faced the prospect of interstate competition. Accordingly, consolidation took place, with firms seeking to locate plants in cheaper cost locations to exploit both lower input costs and scale economies. During this period, there was a massive restructuring of the economy – Schumpeter’s idea of gales of (creative) destruction certainly characterized much of the states in the industrial core of the US, a process that continues apace even to the present time. It was during this era that many plants in the Midwest and Northeast were closed while facilities were opened or expanded in southern states; one of the major sources for the move was the potential to employ non-union labor in the south in so called right-to-work states. The period was also characterized by considerable consolidation in the industrial sector and a rapid movement away from firms with only one or two plants to multi-state and often multi-national organizational structures. In a sense, this era might be thought of as one that focused on the supply-side (in contrast to the earlier era) since input costs and productivity became paramount foci of attention.

The final era, one of regional competitiveness addresses what might be thought of as a more endogenous perspective; in large part, it ushers in a period in which the nation as the focus of competition has given way to the region. Region-region competition, often with regions located in different countries has become the dominant development paradigm. One of the new initiatives, the WIRED program begun in 2005, will be featured below. In contrast to earlier eras, the focus of this program is on workforce innovation; to some extent it reflects thinking from cluster-based development strategy, the ideas of a creative class (Florida, 2002) and the critical role of entrepreneurship, venture capital and innovation as the ingredients that combine to produce competitive regions. Perhaps, though, the most fundamental difference between current and prior eras is the fact that the outcomes reflect a far more tailored approach as opposed to the more homogenous outcomes that characterized the earlier eras.¹¹ However, many of the programs enacted by states (in contrast to the federal level) in the second era did focus on the

¹¹ There has been some justifiable skepticism about this interpretation in the light of a remarkable degree of homogeneity that often accompanies the analyses of cluster-based development strategies.

provision of funding for labor force training but this was usually in the context of firm-specific incentive packages to lure businesses to regions or to retain existing ones that threatened to leave. One of the surprising characteristics of the categorization shown in table 1 is that many of the techniques promoted in the third era were known and to some extent operationalized in earlier time periods. For example, industrial complex analysis, created by Isard (1960) and re-interpreted and modified by Czamanski (1971, 1974, 1976) and Czamanski and Ablas (1979) was an elegant pre-cursor to the cluster-based development strategies now associated with Porter. The cluster approaches of Bergman and Feser (1999) would appear to be more firmly grounded in the regional science tradition than Porter's (1990) approach that opts for less sophisticated analytics in favor of broader considerations of market potential inter alia. One characteristic approach that was mentioned during the ARC review, growth centers, never quite achieved traction outside of Appalachia; yet much of the current thinking in say the WIRED program seeks to capture and internalize the benefits of development. The difference between the current and earlier approaches would appear to be the focus on labor/entrepreneurship/innovation, broadly defined, as the main engine of development as opposed to the identification of a sector or set of sectors whose action generate an above-average impact on the region's economy.

Recent Initiatives: The Workforce Innovation in Regional Economic Development (WIRED) Program¹²

The WIRED Initiative, launched in November 2005, stresses the critical role talent development plays in creating effective regional economic development strategies. WIRED goes beyond traditional strategies for worker preparation by bringing together state, local and federal entities; academic institutions (including K-12, community colleges and universities); investment groups; foundations; and business and industry to address the challenges associated with building a globally competitive and prepared workforce.

In February 2006, following a Solicitation for Grant Applications, ETA announced 13 regions that comprise the first generation. First Generation regions face various challenges in economic development and sustainability including: remaining competitive with a globalized workforce;

¹² This section draws on the Employment and Training Administration of the US Department of Labor website.

managing existing growth opportunities; and creating a more innovative economy by focusing on developing small business. First Generation WIRED Regions were awarded \$15 million over three years to revitalize their local economy.

In April, 2006, ETA added 13 additional regions, then known as the Virtual Regions. These regions received \$100,000 planning grants, were invited to participate in all WIRED related activities and were given access to the tools and resources developed. In January 2007, these regions became the second generation regions and received an immediate investment of \$500,000. This investment supports the development of a comprehensive implementation plan. Upon completion and acceptance of this plan, each region will receive an additional \$4.5 million investment over a three year period.

The WIRED Initiative continues to move forward; on June 20, 2007, the Employment and Training Administration announced the expansion of the WIRED Initiative. Thirteen applications were selected to become the Third Generation of WIRED Regions. Each will receive a \$5 million investment over a three year period.

All 39 WIRED Regions are supported by managers from ETA and the WIRED resource team, as well as access to various staff from other federal agencies to assist in the implementation of their plan for regional economic growth.

In addition to the monetary investments, a number of activities are taking place in support of the WIRED regions including:

- Creation of a data tool that incorporates economic, research and development, investment and real-time job information to provide a current and accurate picture of the regional economy and its assets.

- Assignment of senior ETA managers and emerging leaders to each region for guidance and assistance with WIRED activities.

- Development of a nationwide network of foundations interested in investing in regional economic and talent development.

- Linkages to angel and venture capital networks.

- Connections to programs and investments at nine other federal agencies for regions to access and apply in support of their economic strategy.

Partnerships with state universities and land grant colleges as well as university continuing education departments.

The development generating process envisages six steps:

1. Identify the Regional Economy - Ignore political boundaries and identify surrounding areas that share the same economic structure. Form one regional economy around the assets of several contiguous communities.
2. Form Core Leadership Group - Form a senior executive team responsible for implementing growth strategies and guiding the transformation effort.
3. SWOT Analysis - Conduct a comprehensive analysis of the Strengths, Weaknesses, Opportunities, and Threats in a region that feeds directly into strategy development.
4. Create a Shared Regional Identity and Vision for the Regional Economy - Develop a regional identity and vision for regional economic growth.
5. Devise Strategies - Create "SMART" strategies (Specific, Measurable, Achievable, Realistic, and with a Timeline).
6. Leverage Resources and Implement - Leverage regional resources from private, non-profit, and government sources to implement a transformational strategy.

Since the program is new, no evaluation has been made of effectiveness of the activity; almost forty regions have been identified and the activities are in various stages of progress. The program is clearly a bottom-up lead initiative in that primary responsibility lies at the regional level; given the experience with the ARC, it remains to be seen whether step 1 above can clearly overcome the tendency for state-level officials to think parochially.

4. The State Role in Spatial Economic Development

4.1 Overview

Bradshaw and Blakely (1999) argue that the history of economic development strategies pursued by the various U.S. states can be summarized by three “waves.” The first, initiated in the 1930s and taking off after World War II, constitutes efforts to attract footloose investment, whether that means the relocation of an existing facility from out of state (or overseas) or the location of a new facility by an existing company. First wave strategies are operationalized primarily with location inducements of various kinds, from statutory and discretionary tax incentives to grants of cash, infrastructure, and subsidized training. Also central to first wave strategies are place marketing through a variety of media (print, radio, television, and now the web), domestic and

international business calls, and industry targeting. Historically, first wave strategies have been pursued most successfully by the Southern states, which in the 1950s and 1960s found themselves in an excellent position to capture northeastern and Midwestern manufacturing companies eager to escape high taxes and unionized labor.

Second wave strategies, which emerged in earnest in the 1980s, place the focus on entrepreneurship, business retention, and existing industry competitiveness. Specific policy tools include incubators, industrial extension programs, capital assistance, and focused industrial training. Greater emphasis is placed on the role of smaller firms and the importance of endogenously generated economic development. Second wave strategies came on the heels of states' establishment of science advisors and boards, which tended to focus on basic research and technology transfer, but preceded industrial modernization programs established under with the instigation of the U.S. federal government's Manufacturing Extension Partnership (MEP) program. MEP had the effect of shifting some state science and technology funding into industrial extension-type activities (Plosila 2004). The emergence of second wave strategies should also be viewed in the context of late 1970s and early 1980s concerns about the erosion of U.S. competitiveness in the face of the growth of Japan and a resurgent Europe (particularly Germany) which, incidentally, also was the impetus for Porter's (1990) initial work on national competitiveness and subsequently industry clusters. Today, the latter are often cast as a science and technology-based strategy, but Porter was initially concerned with investigating why U.S. productivity growth was slowing in comparison to comparatively low R&D countries like Japan and Germany.

Third wave strategies might be best described as a focus on process rather than specific policies or program tools. Bradshaw and Blakely (1999, p. 230) claim that third wave strategies involve "creating the context for economic growth through public-private partnerships, networks that leverage capital and human resources to increase the global competitiveness of a group of strategically linked firms." According to Eisinger (1995), such approaches, ascendant in the late 1980s and into the 1990s, may be a reaction to doubts about the efficacy of second-wave, entrepreneurship-focused programs and policies. Sifting through data collected through the early 1990s, Eisinger found evidence of a resurgence of conventional industrial recruitment activities and a consolidation of entrepreneurship programs among U.S. state development agencies, trends which he attributed to political preferences for immediate impact and "quick wins" rather than

reasoned shifts based on evidence of the relative effectiveness of recruiting versus entrepreneurship promotion. Eisinger's work emphasizes the important point that "third wave" economic development activities do not preclude the concurrent pursuit of first- and second-wave strategies. Indeed, most states are pursuing versions of all three strategy types to varying degrees.

Quantitatively assessing the scope of economic development efforts across the states is notoriously difficult. Economic development activities tend to be spread among multiple agencies, from commerce departments to employment security agencies, state supported authorities, private non-profit organizations, universities, and community colleges. It is very difficult to point to a unified development strategy in any state as a result. The parallels with the experience at the national level seem striking! Historically, science and technology programs were operated most commonly outside of lead development agencies, often by a board or commission administered out of the governor's office, though there appears to be a trend toward bringing them into the traditional economic development bureaucracy (Plosila 2004). Direct evidence on program efforts and spending is difficult to come by, especially in a form that is consistent across states and over time. Students of subnational economic development policy in the U.S. have often relied on a biennial survey of the National Association of State Development Agencies (NASDA), despite problems with its design and response rate (Eisinger 1995). However, the NASDA survey is no longer regularly conducted.

Even without perfect data on development activities of the various states, we can cobble up enough partial information to form a picture of what is being pursued in the name of subnational economic policy. It is clear that in most states, even those states that prioritize traditional marketing and industrial recruitment activities, overall economic development programs are quite broad: all three waves are in evidence. A recent ACCRA survey of the budgets and program activities of economic development spending in 23 states found significant resources devoted to community development, workforce development, tourism promotion, and existing industry services/business assistance, in addition to business attraction (Poole *et al.*, 2004). The 23 states in the study will spend an average of \$192.6 million in state and federal funds on primary economic development activities. Note that the ACCRA data exclude off-budget spending for things like statutory tax incentives. "Primary" economic development activities

exclude general infrastructure provision such as highways, water, and sewer. Note that most of the data derive from ACCRA's review of lead development agency budgets.

According to the ACCRA data, average budgeted spending across the states by major category is as follows: community assistance (20 percent), business finance (20 percent), strategic business attraction funds (14 percent), tourism and film promotion (11 percent), workforce development (6 percent), program support and administration (4 percent), industry assistance (5 percent), technology transfer (3 percent), entrepreneurial development (2 percent), trade promotion (2 percent), and other (13 percent). While a considerable share of the funds under the community assistance and workforce development categories derive from federal rather than state sources, the onus is still on development officials to administer them in a manner that achieves maximum gains for the given state.

If there is a major current trend in state economic development policy, it is a rethinking of the institutional framework within which policy is pursued. As states have enjoyed less and less success in the area of recruiting, arguably an inevitable trend with the contraction of the U.S. manufacturing industry and increased outsourcing of both low- and high-value production, some policymakers have pointed the finger at the operation of development agencies as the cause. One argument is that public agencies are not able to pay economic development staff sufficient salaries to attract real talent, and recruiting has suffered as a result. Florida, for example, has out-sourced much of its development function to a quasi-private organization in part to avoid the restrictions of the civil service system and therefore to restructure employee performance incentives. Other states have curtailed traditional development functions in favor of a focus on science and technology, while still others have tried to unify economic development activities under strong governor control (e.g., Arizona). While many of these institutional shifts may produce better policy remains to be seen.

3.2 A Sample of some State initiatives¹³

As noted, there are a multitude of programs and approaches; the sample provided here provides a sense of the scope rather than a comprehensive evaluation of successes. One common thread in state program development has been the near absence of evaluation and the often complete disregard of any ex ante formal program appraisal; far too often programs are promoted without

¹³ This section draws on an unpublished document assembled by Shannon Landwehr.

any cost-benefit or similar evaluation. Appeals to the fact that “other states” have adopted similar strategies are often used to justify the initiatives. There is a strong parallel with advertising expenditures; received theory suggests that only 50% of advertising works, but it is not clear which 50% is effective.

Alabama and Arkansas

Like most states, spatial economic development in Alabama is spread across several organizations – such as a Development Office at the cabinet level and a Department of Economic and Community Affairs. These organizations have worked with a consortium of state companies, the Economic Development Partnership of Alabama that is dedicated to industrial recruitment and has been successful in attracting more than 40 companies to the state including plants for Mercedes-Benz, Boeing and Honda that have generated in total in excess of 40,000 jobs. As in most states, Alabama is partially targeting its strategy to existing firms and establishments since over 70% of recent new jobs have come from existing industry. There is increasing recognition of the role of diverse activities such as film-making and tourism to supplement the more usual economic development strategies.

Arkansas has a similar strategy to Alabama, touting its pro-business, right-to-work economic environment. The state’s Department of Economic Development is guided by an Economic Development Commission whose 16 members are appointed by the governor. Both these states recognize that in addition to marketing their states, they also have significant internal spatial disparities. There still seems to be a strong sense of marketing each state in the promotion materials.

Arizona

As with many states, Arizona has a Department of Commerce within which there is a Commerce and Economic Development Commission that was funded in part from the Arizona Lottery. This Commission has been responsible for the development of the state’s 10-year economic strategy. In 2003, a Council on Innovation and Technology was established to enhance these strategies often in conjunction with universities within the state. In contrast to many other states, Arizona is experiencing significant population growth generated by international immigration and domestic immigration from the Midwest and the Northeast of the US, and, more recently, from

California. One of the major development issues surrounding any strategy will be water – an issue that is likely to involve significant interstate conflict in the decades ahead.

Connecticut

Connecticut Innovations was created by the state legislature in 1989 to enhance growth of the state's entrepreneurial environment by making venture and other investments available. A few years later, the Connecticut Economic Research Center, a nonprofit organization funded by utilities, was established; utilities clearly have a vested interest in promoting the state's economic health and one of the goals was to have an organization that would be more flexible than one inside a government entity. The organization has worked with the state Department of Economic and Community Development in an industry cluster initiative.

Kansas

In contrast to Alabama and Arkansas, the state's focus has been much more in line with enhancement of the economy rather than pure industry attraction. In 2004, the legislature passed a Kansas Economic Growth Act to identify strategies to help strengthen and stimulate the state's economy; the initiatives encompassed programs for downtown redevelopment to workforce and entrepreneurship. Other organizations that are active in development are the Kansas technology Enterprise Corporation is a private-public partnership to promote advanced technology (especially in a statewide Bioscience Initiative) and Kansas, Inc., and organization created in 1986 to help the state enhance its competitiveness. There appears to have been considerable interaction with the major institutions of higher education in the state in developing research to support initiatives proposed by these agencies.

Illinois

Illinois can be seen as the quintessentially Midwest state but it has transformed itself in a very dramatic way over the last two decades. Whereas it presented an economic structure in 1980 that was very different from the US as whole, the economy looks very similar to the US (at a ten sector aggregation of economic activity) in 2007. Last most states, it adopted most of the policies associated with the three waves identified in the previous section. More recent efforts have recognized significant intra-state differences in structure and performance; an "Opportunity Returns Initiative" focused on developing appropriate strategies for each of 10 regions. While

the initiative is lead by the state Department of Commerce and Economic Opportunity (DCEO), there is an extensive partnership structure with local organizations (private and public sector). There is far greater transparency in the allocation of funds; negotiated investment incentives are now posted on the internet. However, DCEO still maintains over 80 programs many of which were developed in prior times (by the legislature); the primary foci are (1) health care for the 4 million uninsured in the states; (2) workforce development; (3) sustainable energy and (4) infrastructure. These are, for the most part, what Hirschman would have referred to as indirect investment strategies since they are not embodied in any one sector or firm. The state does continue to play the incentive game but now claims that ex ante and ex post analyses of these incentives programs are conducted.

3.3 Summary Evaluation

There is a general consensus that spatial economic development strategy in the 2000s is far more complex than in earlier periods; states are struggling with limited budgets for development while at the same time there is increasing pressure on agencies tasked with development to demonstrate positive results. For many of the reasons that will be discussed in the next section, many states have failed to grasp the changing economic climate; in part, the reasons for lack of success are attributed to “globalization;” this has been a catch-all phrase to account for processes such as out-sourcing, increased competitive pressures, ephemeral commitments to communities and states by business leaders and so forth. One fact is very clear – states have far less impact on their own economic fortunes than was the case two or three decades ago, yet there is public pressure to keep doing something about the economy.

The review of state programs revealed that there are some important differences in the mix of policies that states are enacting; many of the southern states are still focusing on industry attraction while the formerly dominant industrial states are re-orientating their strategies towards workforce development, technology and entrepreneurial development combined in some cases with the creation of venture capital/incubator resource funds.

5. The New Challenges

The previous section highlighted the ways in which the states have adapted to the changing economic environment of the last three decades in the US. However, there is still a sense that many of the policies that have been promulgated and initiatives that are being proposed have failed to full impact of this changing environment. Conversation with one senior state official revealed a sense of frustration that several policies were still in place that reflected an economy that was not longer in existence; many programs have become “entitlements” that are very hard to displace. In this section, a brief review of some of the new challenges confronting spatial development policies in the US will be presented.

5.1 Changing Organization and Ownership of Industry; Fragmentation, Hollowing out and Out-sourcing¹⁴

In the development of the so-called “new economic geography” and the re-establishment of the formal link between location theory and trade, several characteristics about the nature of space seem to have emerged. It has been asserted, for example, that the nature of economic interaction as well as the relevant processes are similar across different levels of geographic space: international, national, multi-regional, regional, etc. The view has also been expressed that space is dominated by an implicit spatial discounting, often referred to as the first law of geography. Two contributions have drawn attention to the complex interplay between forces shaping and re-shaping the space economy. The first, by Fujita and Hamaguchi (2001), developed a theoretical model that explored agglomeration forces arising from product variety in intermediate goods. This model complements earlier work by Fujita and Krugman (1995) that focused on the role of consumer desire for variety in generating agglomeration forces. The second contribution, by Glaeser *et al.* (2001), introduced the term “consumer city” to examine the role played by urban density in facilitating consumption.

Such contributions belong to a body of innovative thinking, from which a set of theories has emerged, these findings their most prominent expression in Fujita *et al.* (1999). An obvious question that might be raised is the extent to which these novel insights into the space economy are supported by empirical evidence. One particular aspect to be highlighted will be the changed role of agglomeration economies and their part in fostering the renewed economic development

¹⁴ This section draws on Hewings *et al.*, (1988); Parr *et al.* (2002), and Monroe *et al.* (2007)

in those cities and regions that have exhibited significant structural transformation over the last four decades.

The Changing Relationship between Establishments and Firms

In the new economic geography literature there seems to be a fuzzy mapping between the notions of the firm and the establishment. In earlier decades, when the two were almost synonymous, inasmuch as the majority of firms comprised one or at most two establishments, the distinction was less critical. In recent years, however, the effect of mergers and acquisitions (consolidations generated by competitive pressures as well as changing technologies) together with the usual processes of entry and exit, has been to change the landscape to one in which the presence of multi-establishment firms is common. Hence, there is now a more complex relationship between establishments and firms. With the number of single-establishment firms declining, it is important to make a careful distinction between the location of the firm and the location of its various constituent establishments. The issue is further complicated by the tendency for ownership to extend across state, multi-state and, increasingly, international boundaries. These new ownership patterns have been explored in terms of their impacts on labor markets and the effects of restructuring on productivity and profitability (Nguyen, 1999; McGuckin and Nguyen, 2000). Little attention has been given, however, to the effects of these new patterns on what is produced within the establishments, how inputs are sourced, and the orientation (both geographic and sectoral) to the market. Also important in this connection have been the radical developments in the transportation sector; deregulation has significantly lowered real transportation costs and thereby facilitated the expansion of the size of market areas.

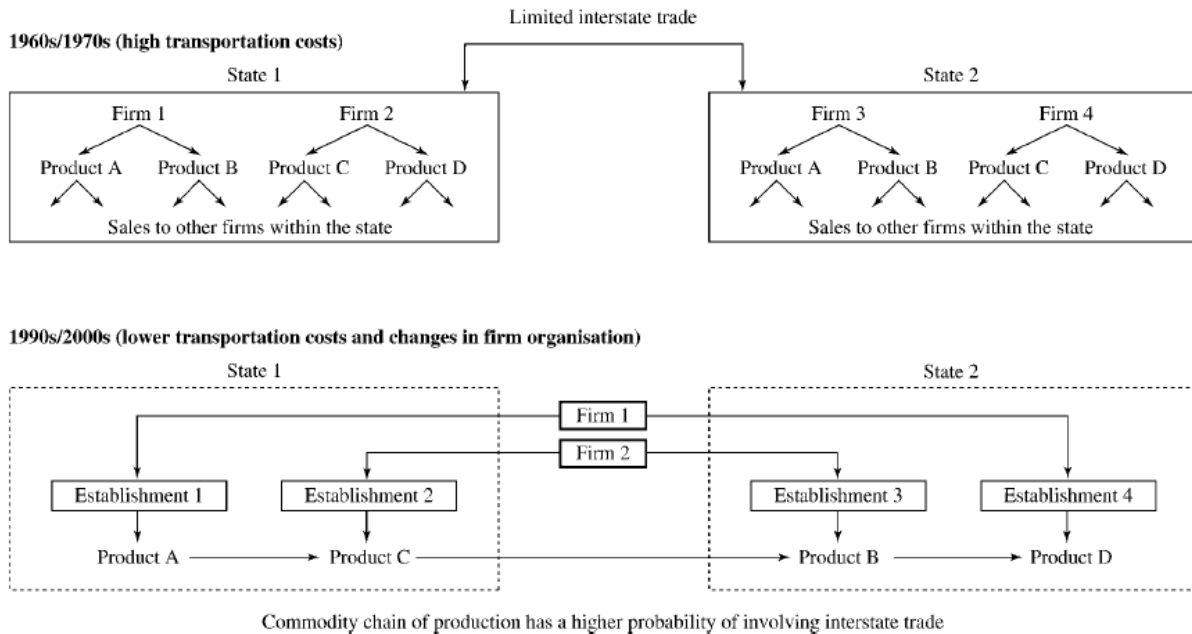


Figure 2: Changing Spatial Organization of Production

The changed situation might be described in terms of the following stylized representation of location and spatial interaction, which is summarized in Figure 2. In the first period (1960s/1970s) a firm (often a single-plant entity) produced a variety of products at one location and served a relatively restricted spatial market such as a large metropolitan area or a state, each spatial market being served by such a firm. Regulated transportation costs precluded a wider market reach and thus limited the realization of economies of scale. With deregulation, however, reduced transportation costs, in concert with changes in firm ownership and internal organization, drastically transformed the spatial structure of production. Thus in the second period (1990s/2000s) we typically have a single firm owning more than one establishment, with a limited range of products produced within each establishment. The effect of decreased transportation costs, in combination with changes in firm ownership and changes in production within the establishment, has facilitated the exploitation of economies of scale and expanded the reach of the firm. The result has been a more specialized set of activities being produced at each location of what is now a multi-establishment firm, serving a wider, multi-state market from each establishment. The more general outcome has been an increase in the flow of goods and services throughout the Midwest.

Economies of Scale, Scope and Complexity

In a single-establishment firm, economies of scale, scope and complexity, if realizable, would only be available at a single geographic location. However, the changing relationship between the establishment and the firm has resulted in economies of scope and complexity being realized at the level of the firm rather than within a single establishment *qua* firm. Such an outcome has been strongly influenced by greater variety in the demands exerted by other industries as well as households. Thus firms are exploiting specific product economies of scale within an individual establishment and are doing so by limiting the variety of products produced within the establishment. At this level, therefore, firms are foregoing economies of scope and complexity in favor of economies of scale. Agglomeration economies based on scale are thus displacing those based on scope and complexity. Despite this product specialization at the establishment level, firms are becoming less specialized in terms of product variety, this being made possible by the rise of the multi-product (multi-establishment) firm. Such a development may be related to the results of Kim (1995) who found that indices of state specialization have declined since the 1940s. Thus while establishments are becoming more specialized, firms (and the states in which these are located) are becoming less specialized. We argue in the next section that this development may be due to some effect operating at a wider multi-state scale.

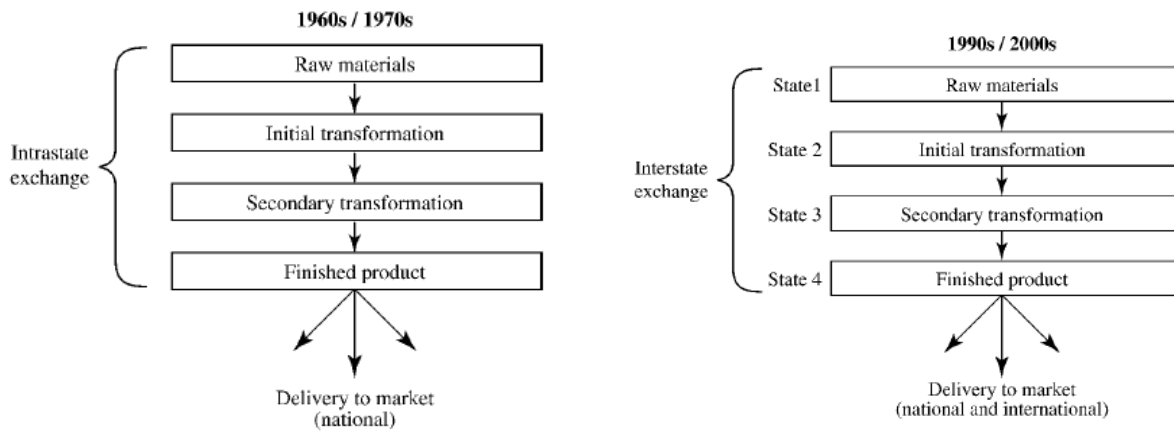


Figure 3: The Changing Nature of Trade

The Nature of Trade

The problem with individual state analyses, such as those provided in Kim (1995), is the inevitable disregard of interstate linkages. Interstate trade is increasing but is dominated by intra-industry trade, as revealed in the evidence provided by Munroe *et al.* (2007) based on indices of trade overlap. Using two-digit SIC data, they found that there was a very high degree of trade overlap (simultaneous two-way flow of similar goods and services) for the Midwest states. What, then, is being traded? Essentially, specialized products from one establishment move onto another establishment for further value-adding activities in the context of a value chain of production (i.e., increasing transformation towards a final product). As Krugman (1991) has noted, this finding would be entirely consistent with the precepts of the new trade theory, reflecting trade between regions (states) which have minimal differences in per capita income, resource base or size. However, one might suspect that cross-hauling (trade overlap) would decrease as one moved from 2 to 7 digit SIC detail, particularly in view of the prior discussion of establishment-level specialization. The net result of all these processes is that the value chain/commodity chain now involves more interstate movement, a stylized representation being shown in Figure 3. In the 1960s and 1970s, the value-chain was much more spatially restrictive with perhaps only final or close-to-final products moving over longer distances. In recent decades, however, this has given way to a greater transportation intensity in production, the successive states of the commodity chain of production involving movement across state lines more than once during the production/assembly process *en route* to final consumption.

Hollowing Out

At the level of the individual establishment, located within a state or large metropolitan area, the number of products produced is smaller, returns to scale are higher, while returns to scope and complexity are lower, and the dependence on local (state/metropolitan) suppliers and markets is reduced, thus leading to a decrease in the internal multiplier *without* a concomitant decrease in the levels of production. At the level of the firm, however, returns to scale, scope and complexity are higher, with the various products produced by the firm spread over establishments as part of a multi-regional operation, leading to increases in interregional trade, increases in interregional dependence, and a higher multi-state (Midwest) multiplier.

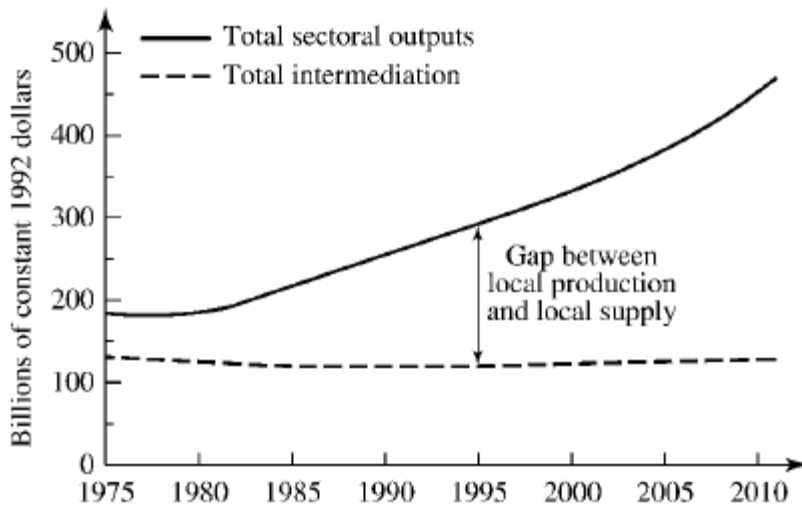


Figure 4: Hollowing Out in a Regional Economy (Chicago MSA, 1975-2010)

This process of transformation (the relative decrease in local dependence and the relative increase in long-distance dependence) has been termed “hollowing out” by Okazaki (1987) and Hewings *et al.* (1998). We may think of the hollowing out process as a relative decrease in the density of intermediate transactions within an economy. Figure 4 shows the changes for the Chicago metropolitan economy. While aggregate production has increased (and is projected to continue to increase), intermediation has remained fairly steady, leading to an increasing gap between local production and local supply. Of course, part of the increasing gap might be attributed to technical change, price changes or changes in the competitive position of the economy but the overwhelming evidence derived from the trade data suggests that these processes are dominated by changes in trade patterns. The process is not uniform across sectors and there are often differences in the degree to which sectors hollow out through a reduction in intra-sectoral purchases as opposed to intersectoral purchases.

Such findings point to the changing extent of agglomeration and the changing role of agglomeration economies. The ties that once bound establishments in close spatial proximity seem to be unraveling in favor of spatial association at the scale of a multi-state area. In fact, evidence from the Midwest model indicates that the multipliers have not changed significantly

over the period during which those for Chicago declined (Seo *et al.*, 2002). The trade data reveal a remarkable interstate level of dependence within the Midwest; for 1993, the trade among the five states was in excess of \$263 billion, a volume not far below that for US-Canada trade. Clearly, there is a need for some rethinking about the tendencies to agglomerate, including a recognition of the fact that the location of activities is likely to depend increasingly on different attributes of the regional economy, e.g., the role of a region's occupational capital (skill-mix of the labor force). This process is not only found in the US; Hitomi *et al.*, (2002) in Japan and earlier, Sonis *et al.*, (1993) in Europe found similar processes operating. In all cases, decreasing intra-regional dependence and increasing inter-regional dependence was observed.

This process has been described by others as evidence of fragmentation (Jones and Kierzkowski, 1990, 2001) or vertical integration of production (Hummels *et al.*, 1998, 1999). Fragmentation of production occurs when production is split into blocks of distinctive activities connected by service links; these blocks need not to be performed in spatial proximity to one another. In more recent work, Jones and Kierzkowski (2005) have presented arguments integrating the concept of fragmentation within the new economic geography. These processes are considered different from out-sourcing, where there may be wholesale relocation of part or a whole production chain to locations outside a country.

Implications for Regional Development Policy'

The process of hollowing out/fragmentation makes it difficult to envisage regional (state) economies moving independently of one another. And in the case of Japan the study by Hitomi *et al.*, (2002) based on structural-decomposition analysis, revealed that changes in interregional trade eclipsed technological change in accounting for the growth of production over the period 1980-90. States and regions are now more tightly bound to each other; changes in production levels in one state now have an immediate impact on related components of the production chain in other states.

5.2 Spatial spillovers and interstate trade

The processes of hollowing out/fragmentation have generated a dynamic that can be captured in table 2. In parallel to observations at the world level, interstate trade is growing more rapidly

than gross domestic product – and the trade data only reflect physical commodities. The spatial manifestation of this growth in trade can be seen in the next set of tables; in table 3, the interstate flows within the US are presented, drawn from a two-region model of the Midwest-US economies. Two important phenomena should be highlighted. First, intra-regional flows are declining (although they still dominate total flows) and secondly, intra-sectoral flows are increasing faster than intersectoral transactions. Table 4 provides a further perspective on trade within the Midwest; the average state in this region is sending between 30 and 40% of its total exports to its neighbors and buying from 26 to 48% of its imported inputs from the region.

Even though international exports from this region have increased dramatically since 2003, the data in table 5 suggest that interregional (interstate) trade is still dominant; not also, the dominant role that Canada and Mexico play in terms of international trade dependence (although it should be noted that Michigan's trade is distorted by automobile exports). Table 6 examines the way in which this interstate dependence plays out on other states when there is a change in international trade originating in one state.

While the Midwest may be a far more integrated region than other parts of the US, the data illustrate a phenomenon that is likely to be present throughout the country – namely the degree to which spillovers from one expansion or contraction in one state penetrate the rest of the state economies.

Table 2 Growth rates of GDP and interstate commodity flows in the US, 1993-2002

	Percentage growth rates		
	Gross domestic product	Interstate flows of commodities by value	Difference in percentage points
1993-1997	15.54	18.78	3.24
1997-2002	15.85	22.20	6.35
1993-2002	33.86	45.10	11.24

Table 3 Interstate Trade Flows in the US with a Focus on the Midwest

	1980	1990	2000
Total US flows	4,688,314	4,964,328	5,933,438
Intraregional flows	3,901,955 (83.2)	4,090,943 (82.4)	4,796,029 (80.8)
Intrasectoral	(31.0)	(35.5)	(37.5)
Intersectoral	(52.2)	(46.9)	(43.3)
Interregional flows	786,359 (16.8)	873,385 (17.6)	1,137,409 (19.2)
Intrasectoral	(7.5)	(8.5)	(10.0)
Intersectoral	(9.3)	(9.1)	(9.2)
MW and RUS flows			
MW to MW	(13.7)	(15.0)	(17.3)
MW to RUS	(8.2)	(8.4)	(8.8)
RUS to MW	(6.1)	(6.5)	(7.0)
RUS to RUS	(72.0)	(70.1)	(66.8)

Source: Hewings and Parr (2008)

Table 4: Interstate Dependence within the Midwest

1993-2002 Dependence on MW trade

	Outflows		inflows	
	1993	2002	1993	2002
IL	32.10%	30.70%	31.60%	30.71%
IN	40.70%	35.11%	26.80%	46.39%
MI	37.10%	32.59%	44.90%	48.70%
OH	29.20%	31.77%	35.10%	29.78%
WI	34.90%	34.43%	41.50%	41.77%

Table 5: Interstate and international trade

	Interregional Trade	International Trade	Total Trade	Share Interregional	Share International	Share International with Canada and Mexico
IL	277,184	25,686	302,870	91.52%	8.48%	38%
IN	208,590	14,923	223,513	93.32%	6.68%	57%
MI	199,082	33,775	232,857	85.50%	14.50%	72%
OH	325,151	27,723	352,874	92.14%	7.86%	56%
WI	143,050	10,684	153,734	93.05%	6.95%	44%

Table 6: Spillover effects from trade

	IL	IN	MI	OH	WI	Rest of Midwest	Rest US
IL	43.8	5.1	5	4.1	5.8	20	36.2
IN	5.7	42.7	8.7	7.7	3.2	19.6	32.1
MI	6.1	7.8	30.9	16.2	4.9	28.9	34.2
OH	3.9	4.6	7.6	51.9	2.6	14.8	29.5
WI	11.3	4.4	7.4	5.4	19.7	17.2	51.9
Rest US	6.4	3.5	6.7	5.8	4.1		73.5
Inter-Avg	6.7	5.1	7.1	7.8	4.1		36.8

5.3 Business cycles and structure

The effects of hollowing out that have increased interstate trade would suggest that with greater integration, state economies would likely move together over the business cycle. Analysis by Park and Hewings (2003) focusing on the Midwest has found that states in this region are not moving in phase over the business cycle – either with each other or with the US. Illinois, with an economic structure that is very similar to that of the US, is the Midwest state that is more out of phase with the US than the other states. Clearly, economic structure is only part of the explanation for a state’s business cycle behavior. The earlier commentary on the role of intra-industry trade may be missing a major dimension of increased integration. Fragmentation may have broken the production chain into a series of discrete blocks that are spatial separated but there has been little attempt to map the locations of these value chains and to consider the production sequences associated with them. Figure 3 presents a stylized representation of the issue. States in which the finished products are assembled are likely to have business cycles that move more closely with national counterparts; those producing components are the early stages of the value chain are likely to be slower to respond to changes. Further, there is a suggestion that at the earlier stages, innovation potential might be more limited.

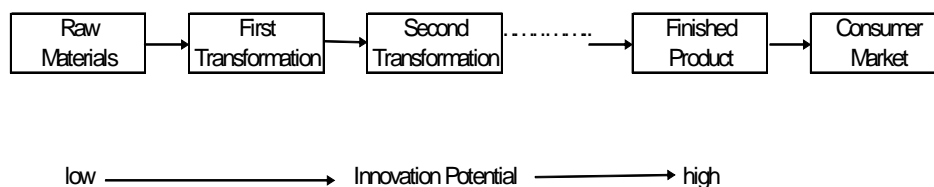


Figure 3: Fragmentation, Value Chains, Innovation Potential

The implications for regional development policy center on the ability of states to effectively attract and retain components of the value chain that have the higher potential for innovation. However, as a significant body of research has suggested, there is no guarantee that new products that are developed will have similar spatially-organized value chains.

5.4 Labor Mobility, Immigration, Aging – Demographic Challenges

One of the characteristic features of the US labor market has been to the mobility of labor; for the most part, unconstrained by housing availability and with far greater propensities to move to new locations in search of jobs, the US labor market has operated in a fashion that is as reasonably close to what one might imagine a perfectly competitive labor market to perform. With the significant decrease in union membership over the past three decades, the migration of both labor and capital has been impressive as firms have sought to move to cheaper labor locations while labor has also responded to changes in the availability of jobs. This is not to suggest that there are no spatial mismatches; they exist at a variety of spatial scales and a variety of reasons can be advanced for their continued existence. However, there are few institutional impediments to labor mobility.

Nevertheless, there are new emerging challenges that will confront regional development strategy in the decades ahead. First, even though total employment in manufacturing is declining, the excess demand for skilled blue-collar labor remains positive; each year, job turnover and retirement create large numbers of openings, many of which are not being filled. States with large manufacturing employment for so long abandoned labor training in these sectors; now some states are facing labor shortages with the result that firms are often faced with re-location or closure decisions, not because of economic challenges but because they cannot find skilled labor to meet vacancies. Further, some firms are resisting investment in new machinery to meet higher quality control standards, again for the reason that they cannot find labor to operate the new, more sophisticated machinery. In their drive to prepare the labor force for “new jobs,” many states have compromised the longer-term viability of existing segments of their employment base.

A second important challenge is the one presented by in- and out-migration. Legal and illegal immigration has generated significant changes to the demographic composition of many states

and metropolitan regions. For example, Latin populations have now become the largest non-white ethnic group in the Chicago metropolitan region and are projected to grow more rapidly (through further immigration and natural increase) than the rest of the population. One of the most critical issues for immigration is the different impacts that it is likely to have on an economy over time. In the short run, an increase in labor supply might depress regional wages, but there will be a concomitant increase in demand from additional households; there will also be a positive impact on social security tax payments. However, in the longer run, there is concern about the skill levels being acquired by immigrants' children and the potential impact this will have on the skill endowments of regions with large immigrant populations. These are complex issues – a sense of the problems can be gained in a series of papers by Park and Hewings (2007a,b,c).

On the other hand, out-migration is also changing the demographic structure of many regions; the migration of retirees from the Midwest and Northeast to the South and Southwest is changing the structure of populations in both origin and recipient regions. The volumes of these migrations are important in terms of the demands lost (gained) in the origin (destination) regions especially as the US population as a whole ages. By 2030, it is estimated that 20% of the US population will be over 65 years old. As research by Yoon and Hewings (2006) has demonstrated, there are significant differences in the consumption expenditures by populations of different ages; further, the dynamics of a regional economy changes when a significant portion of the expenditures are made from other than wages and salaries. When all of the migration, aging, consumption, skill endowment issues are assembled, a complicated pattern of development and impact ensues, one that has not featured very prominently in much of the regional development literature.

However, household consumption accounts for 70% of GDP by expenditure; how this is “earned” (it may come from dividends, interest or pensions), how it is spent and where it is spent will have important implications for regions within the US over the next several decades. Given the mobility of labor and households (and their attendant income), the geography of demographically-induced changes are likely to increase in complexity; few states have fully embraced these changes or understood how they might need to adjust development strategies to address the issues and opportunities that will arise.

5.5 Which regions? Hierarchy and spatial structure

The final challenge that needs to be addressed cuts across all the issues raised to date. The concept of a region is an elusive one; there is no appropriate regional structure that fully captures all the problems and dynamics of the US economy. Fragmentation, migration and demographic changes are generating a restructuring of the way in which the US economy works; increasingly, states are becoming less critical as economic entities, although they continue to have enormous importance in the allocation of critical human and physical infrastructure.

The final part of this paper examines the progress of convergence in the US; much of the analysis has been conducted with states or census regions as the economic unit of measurement but even as early as the 1980s, Amos (1988) was raising the issue as to whether convergence at one level in space would be mirrored by similar processes at other levels. In his case, he probed the problems below the level of the state and found that inequality was increasing while between the states (within the US) it was decreasing. This finding presents a further challenge for spatial development policies.

6. Convergence, Divergence – what is the state of Regional America?

Barro and Sal-i-Martin (1991, 1992) introduced more formal methods of assessment of the convergence properties in the US. Since that time, a significant literature has applied this more formal approach to the analysis of convergence or divergence (see Rey and Montouri, 1999; Higgins *et al.* 2006 for some recent examples applied to the US). Williamson's (1965) proposition that a variety of factors would combine to induce convergence, drawing in part from neo-classical principles and the effects of government intervention and expenditures was never formally tested.

Three articles that have approached this problem in the US suggest that resolution of the outcome is difficult; in large part, the problem of non-compatibility stems from (i) time period chosen, (ii) spatial frame of reference (regions, states, counties, metropolitan versus non-metropolitan) and (iii) estimation technique. The latter issue has proven to be particularly important; for example, many authors have found evidence for convergence based on cross-

sectional analyses (Barro and Sala-i-Martin, 1991, 1992) while others employing time series analyses have found it difficult to reject the no-convergence hypothesis. More recent analysis (Rey and Montouri, 1999) has employed spatial econometric techniques to account for potentially important spillover effects that may exist; here again, though, the importance of these spillover effects is likely to be more important as the geographic scale moves from census regions to counties.¹⁵

In attempting to summarize the analysis to date, it would be accurate to suggest that there is general agreement on the existence of some convergence among US states; Barro and Sala-i-Martin (1991) suggested a value of slightly less than 2% per year. Carlino and Mills (1996a, b) found that over the period 1929-1990 the presence of state-specific shocks implied a lack of stochastic convergence – but did confirm evidence in support of cross-sectional convergence. At the county level, Higgins *et al.* (2006) used 41 conditioning variables to study growth and convergence. Using OLS, they found evidence of convergence of about 2%; 3SLS yielded higher estimates (6-8%). More importantly, they found significant regional differences, with regions analogous to census regions converging more rapidly in the South than Northeast. Of particular interest were the results of the application of a set of conditioning variables; these ranged from population and education characteristics to sectoral employment. It turned out that the size of the government sector had a negative correlation with growth while finance, insurance and real estate had a positive association. Most surprisingly, they found education employment correlated negatively. Hammond (2004) similarly found important differences between metropolitan and non-metropolitan income convergence and, in addition, differences in behavior between macro regions.

The differences in results can be interpreted in many ways; one of the more useful suggestions was provided by Rappaport (2005). Essentially, he argues that as one moves to smaller geographical scales, the degree of openness increases challenging the applicability of the standard version of the neoclassical growth model. In the US, the high mobility of labor will have an important contribution to income convergence; when such considerations are included in the model, conditional convergence results. In his analysis, Rappaport (2005) considers the role

¹⁵ For example, using Census region data for the period 1880-2000, there was no evidence of significant spatial spillover effects; in contrast, using the period 1929-1994, Rey and Montouri (1999) found strong patterns of both global and local spatial autocorrelation.

labor will play – for example, out-migration will have an impact on wages but might slow capital accumulation. The resultant of these two forces will either accelerate or retard tendencies towards convergence. At the county level, the degree of openness is so high that the picture becomes far more complex, especially within metropolitan regions where people may change jobs but not location or vice versa. However, it would be important to note that high labor mobility has been possible in the US because of efficient information dissemination on the one hand and on the other hand, a flexible housing market.

7. Summary

The spatial development of the United States has evolved in large part as a result of a combination of market forces tempered by a federal government hegemony that has been important in this evolution yet often ways that have derived from motivations other than explicit concern with regional equity. In the last three decades, the contrast between the involvement of government (at all levels) in spatial development in the US compared to the EU has been even more pronounced. However, it would not be fair to characterize one approach as *laissez faire* and the other interventionist; state and federal government policies have had profound spatial impacts even if their original promulgation was not predicted on explicit spatial outcomes. In both the EU and the US, government spending on infrastructure, especially transportation, has had a significant role in shaping the pace and direction of development.

Another characteristic difference between the two areas can be traced to the role of regulation; US labor markets have always been a mixture of national and local-level bargaining; the 1970s saw the emergence of “right-to-work” states that for a time were able to offer cheaper labor costs to Midwest and Northeast manufacturers. However, their competitive advantages were quickly usurped by Mexico and subsequently by Korea, China, and Indonesia. Another difference in the US labor market composition has been the role played by immigrants, first by those from European countries and now more recently with those from Central and South America. Not only has this new infusion of labor changed the dynamics of the labor market, it has also generated significant longer-term implications for the composition of not only the labor force but the nature of consumption demand. In addition, absent significant in-migration, the US would follow in the footsteps of Japan, Italy and France and evolve into an aging and potentially a declining (in population terms) state.

One of the interesting questions that might be raised focuses on the distribution of measures of welfare (such as income). Given the more liberal market policies, especially those related to labor, housing and even location of industry, and the indirect role of the federal government in spatial development, has the US been able to achieve a more “equitable” distribution of income than the EU? The question is a simple one yet answering it presents enormous problems. First, there is the question of the appropriate measure of equity; then, the even more difficult question of the appropriate geographical scale (e.g. states in the US and NUTS II in the EU); third, there is the problem of the appropriate time frame and finally there is the problem of which countries to include in the EU since the composition has been changing so rapidly in recent years. A further concern might be raised about the degree to which the policy-makers’ preference functions between the two areas are at all congruent; even though there is significant liberalization of the economies taking place in the EU, there is much more overt concern with spatial distribution problems. In the US, the distribution problem often degenerates into an assumed zero-sum game competition between the states; it is nigh on impossible to convince a US state that there exist significant spillover effects from development in other states – even when presented with data about the volume and importance of interstate trade. In some sense Tiebout’s (1956) notion of consumers choosing a portfolio of attributes in their location decision-making context characterizes location choice not only at the more micro level (say within a metropolitan region) but often in the choice of which state in which to live. In the last decade, there has been significant inter-country migration in Europe at all skill levels, with senior executives, football players and unskilled labor moving from their country of origin to exploit opportunities elsewhere. However, there are likely to be significant social problems that will arise as discrimination – overt or subtle – create groups who end up with only limited access to employment opportunities; the US experience with the African-American population and emerging problems with Latino groups suggest that these issues will not be easily resolved.

Finally, two significant spatial problems will probably require some form of federal government intervention in the US over the next two decades. The first is the appropriate utilization of existing infrastructure versus the construction of new infrastructure to house the anticipated 80 million more people who will appear in the US between now and 2050. The second problem concerns supply of water. Both issues have very significant spatial dimensions, both are characterized by even more pronounced spatial mismatches – the water and the underutilized

existing infrastructure are in parts of the country that are growing and likely to grow less rapidly while the places without water and with pressing demands for new infrastructure are located in regions with more rapidly increasing populations. It remains to be seen whether a more overt federal role in allocation evolves to address these problems.

References

- Amos, O.M. 1988. "Unbalanced regional growth and regional income inequality in the latter stages of development," *Regional Science and Urban Economics*, 18, 549-66
- Atkinson, Robert D. 1989. "Some States Take the Lead: Explaining the Formation of Effective and Ineffective State Science and Technology Policies," unpublished PhD thesis, Department of City and Regional Planning, University of North Carolina at Chapel Hill, Chapel Hill, NC.
- Barro, R.J. and X. Sala-i-Martin 1991. "Convergence across states and regions," *Brookings Papers on Economic Activity*, 1, 107-82
- Barro, R.J. and X. Sala-i-Martin 1992. "Convergence," *Journal of Political Economy*, 100, 223-51.
- Bergman, E M, and E J Feser. 1999. *Industrial and Regional Clusters: Concepts and Comparative Applications*. On-line Web Book in Regional Science, Regional Research Institute, West Virginia University. 150 pages. www.rri.wvu.edu/WebBook/Bergman-Feser/contents.htm
- Bolton, R. 1966. *Defense Purchases and Regional Growth*, Washington, DC, Brookings Institution.
- Bradshaw, Ted K and Edward J Blakely. 1999. "What Are the "Third-Wave" State Economic Development Efforts? From Incentives to Industrial Policy," *Economic Development Quarterly*, 13, 229-244.
- Carlino, G. and E.S. Mills 1996a. "Testing neoclassical convergence in regional incomes and earnings," *Regional Science and Urban Economics*, 26, 565-590.
- Carlino, G. and E.S. Mills 1996b. "Convergence and the US states: a time series analysis," *Journal of Regional Science*, 36, 597-616.
- Czamanski, S. 1971. 'Some empirical evidence of the strengths of linkages between groups of industries in urban regional complexes,' *Papers of the Regional Science Association*, 27, 137-50.
- Czamanski, S. 1974. *Study of Clustering of Industries*, Halifax, Nova Scotia: Institute of Public Affairs.
- Czamanski, S. 1976. *Study of Spatial Industrial Complexes*, Halifax, Nova Scotia: Institute of Public Affairs.
- Czamanski, S. and L.A. de Ablas 1979. 'Identification of industrial clusters and complexes: a comparison of methods and findings,' *Urban Studies*, 16, 61-80.
- Drabenstott, M. 2005. *A Review of the Federal Role in Regional Economic Development*, Kansas City, Federal Reserve Bank.
- Eisinger, Peter. 1995. "State Economic Development in the 1990s: Politics and Policy Learning," *Economic Development Quarterly*, 9, 146-158.

- Florida, R. 2002. *The Rise of the Creative Class*, New York, Basic Books.
- Fujita, M. and N. Hamaguchi. 2001. "Intermediate goods and the spatial structure of an economy," *Regional Science and Urban Economics*, 31, 79-109
- Fujita, M. and P. Krugman. 1995. "When is the city monocentric? Von Thünen and Chamberlin unified," *Regional Science and Urban Economics*, 25, 505-528
- Fujita, M., P. Krugman and A.J. Venables. 1999 *The Spatial Economy*, Cambridge, MIT Press.
- Glaeser, E.L., J. Kolko and A. Saiz. 2001. "Consumer city," *Journal of Economic Geography*, 1, 27-50.
- Hammond, G.W. 2004. "Metropolitan/non-metropolitan divergence: a spatial Markov chain approach," *Papers in Regional Science*, 83, 543-563.
- Hewings, G.J.D. M. Sonis, J. Guo, P.R. Israilevich and G.R. Schindler, 1998. "The hollowing out process in the Chicago economy, 1975-2015," *Geographical Analysis*, 30, 217-233.
- Higgins, M.J., D. Levy and A.T. Young 2006. "Growth and convergence across the United States: evidence from county-level data," *Review of Economics and Statistics*, 88, 671-681.
- Hirschman, A.O. 1958. *The Strategy of Economic Development*, New Haven, Conn.
- Hitomi, K. Y. Okuyama, G.J.D. Hewings, and M. Sonis. 2000. "The Role of Interregional Trade in Generating Change in the Interregional Leontief Inverse in Japan, 1980-1990," *Economic Systems Research*, 12, 515-537.
- Hummels, D., D. Rapoport and K-M. Yi 1998. "Vertical Specialization and the Changing Nature of World Trade," *Economic Policy Review* (Federal Reserve Bank of New York), June, 79-97.
- Hummels, D., J. Ishii and K-M. Yi. 1999. "The nature and growth of vertical specialization in world trade," *Working Paper*, Federal Reserve Bank of New York.
- Isard, W. 1960. *Methods of Regional Analysis*, Cambridge, MIT Press.
- Isserman, A. M. and T. Rephann 1995. "The economic effects of the Appalachian Regional Commission," *Journal of the American Planning Association* 61, 345-365.
- Isserman, A.M. and P.M. Beaumont 1989. "New directions in quasi-experimental control group methods for project evaluation," *Socio-Economic Planning Sciences*, 23, 39-53.
- Jones, R.W., and H. Kierzkowski. 1990. "The role of services in production and international trade: a theoretical framework." In R.W. Jones and A.O. Krueger (ed.), *The political economy of international trade*. Oxford, Blackwell.
- Jones, R.W., and H. Kierzkowski. 2001. "A framework for fragmentation." in S.W. Arndt and H. Kierzkowski (eds), *Fragmentation: new production patterns in the world economy*. Oxford University Press, New York.
- Jones, R. W. and H. Kierzkowski. 2006. "International fragmentation and the New Economic Geography," *North American Journal of Economics and Finance*, 16, 1-10.
- Kim, S. 1996. "Changing structure of US regions: an historical perspective," in D. Allardice and W. Testa (eds) *The Midwest Economy at a Crossroads*. Chicago, Federal Reserve Bank of Chicago.
- Krugman, P. 1991. *Geography and Trade*, Cambridge, MIT Press.
- McGuckin, R.H. and S.V. Nguyen 2000. "The impact of ownership changes: a view from labor markets." *Discussion Paper*, Center for Economic Studies, US Bureau of the Census.
- Miernyk, W.H. 1971. "Local labor market effects of new plant locations," In J.F. Kain and J.R. Meyer (eds.) *Essays in Regional Economics*, Cambridge, MIT Press.

- Munroe, D.K. G.J.D. Hewings and D. Guo, 2007. "The Role of Intraindustry Trade in Interregional Trade in the Midwest of the US" In R.J. Cooper, K.P. Donaghy and G.J.D. Hewings. (eds.), *Globalization and Regional Economic Modeling*, Heidelberg, Springer-Verlag.
- Myrdal, G. 1957. *Economic Theory and Underdeveloped Regions*. London.
- Nyguen, S.V. 1999. "The Manufacturing Plant Ownership Change Database: Its Construction and Usefulness," *Journal of Economic and Social Measurement*, 23, 1-24.
- Okazaki, F. 1989. "The 'Hollowing Out' Phenomenon in Economic Development," Paper presented at the Pacific Regional Science Conference, Singapore.
- Park, Y. and G.J.D. Hewings 2003. "Does Industry Mix Matter in Regional Business Cycles?" *Discussion Paper*, 03-T-29 Regional Economics Applications Laboratory, University of Illinois, www.real.uiuc.edu
- Park, S. and G.J.D. Hewings, 2007a. "Aging and the Regional Economy: Simulation Results from the Chicago CGE Model," *Discussion Paper* 07-T-4, Regional Economics Applications Laboratory, University of Illinois, Urbana, www.real.uiuc.edu
- Park, S. and G.J.D. Hewings, 2007b. "Immigration, Aging and the Regional Economy," *Discussion Paper* 07-T-5, Regional Economics Applications Laboratory, University of Illinois, Urbana, www.real.uiuc.edu
- Park, S. and G.J.D. Hewings, 2007c. "Does a Change in Retirement Age Affect a Regional Economy? Evidence from the Chicago Economy," *Discussion Paper* 07-T-6, Regional Economics Applications Laboratory, University of Illinois, Urbana, www.real.uiuc.edu
- Parr, J.B. G.J.D. Hewings, J. Sohn, and S. Nazara, 2002. "Agglomeration and Trade: Some Additional Perspectives," *Regional Studies*, 36, 675-684.
- Perroux, F. 1955. "Note sur la notion de 'pôle de croissance,'" *Economie Appliquée* 8, 307-20
- Plosila, Walter H. 2004. "State Science- and Technology-Based Economic Development Policy: History, Trends and Developments, and Future Directions," *Economic Development Quarterly*, 18, 113-126
- Poole, Kenneth E, Pofen Salem and Yasmin Bordas. 2004. *Benchmarking Arizona Economic Development: Creating More Strategic Governance and Investment Policies*. Arlington, VA: ACCRA/Center for Regional Economic Competitiveness.
- Porter, M.E. 1990. *The Competitive Advantage of Nations*, New York: Free Press.
- Rappaport, J. 2005. "How does labor mobility affect income convergence?" *Journal of Economic Dynamics and Control*, 29, 567-581.
- Rey, S.J. and B.D. Montouri 1999. "US regional income convergence: a spatial econometric perspective," *Regional Studies*, 33, 143-156
- Rubin, Herbert J. 1988. "Shoot Anything That Flies; Claim Anything That Falls; Conversations with Economic Development Practitioners," *Economic Development Quarterly*, 2, 236-251.
- Sonis, M. J. Oosterhaven and G.J.D. Hewings. 1993. "Spatial economic structure and structural changes in the European Common Market: feedback loop input-output analysis," *Economic Systems Research* 5, 173-184.
- Tiebout, C.M. 1956. "A Pure Theory of Local Public Expenditures," *Journal of Political Economy*, 64, 416-24
- US Department of Commerce (1967) *Long Term Economic Growth: 1860-1965*, Washington, DC, Superintendent of Documents.

Williamson, J.I. 1965. "Regional inequality and the process of national development," *Economic Development and Cultural Change*, 4, 3-84

Yoon, S.G. and G.J.D. Hewings. 2006. "Impacts of Demographic Changes in the Chicago Region," *Discussion Paper 06-T-7*, Regional Economics Applications Laboratory, University of Illinois, Urbana, www.real.uiuc.edu.