

TIDE: Key Empirical Literature

**Talent
Innovation
Diversity
Environment**

Report prepared for
State of Michigan Cool Cities Team

by

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Executive Summary: TIDE

This report was written at the direct request of the State of Michigan Cool Cities team, which asked our research team for information concerning key measures and empirical findings supporting several aspects of economic development of special importance in metropolitan areas: talent, innovation, diversity, and environment. The report is designed to present key findings from the academic research literature concerning these four factors, although we do this in very summary format. In general, we found that all four factors are important, and that no studies satisfactorily compared all four simultaneously (although Richard Florida's work went far in this direction). However "talent" appears to be a more important factor than environment, leading to the policy recommendation that the state and localities place a strong emphasis upon creating, attracting, and retaining an educated work force. "Innovation" is also extremely important, suggesting the need to support entrepreneurship, research, and development. "Diversity" has many facets but the kinds of diversity with the weakest empirical support as prerequisites for economic development are the presence of gay populations and of certain "bohemian" professions; stronger support came for the presence of immigrants. Several forms of amenities are important for economic development, thus supporting the "environment" concept, but problems of measurement hinder our ability to place too much emphasis on quality of place. A positive environment may indeed help attract talent, however, and some support exists for such approaches as new urbanism and tourist or entertainment-driven economies. Here is more information on each of these four, and the report offers greater detail in four separate sections.

Talent

Talent is best understood as skillful human inputs into the economy. Richard Florida created a new model for understanding these human inputs that he calls "creative capital," but this idea is based on previous theories of the importance of human capital and, to a certain extent, social capital. Measurement of human capital is difficult, but the most widely-used means is the number of people with a college degree; Florida uses this as part of his talent Index along with the number of people in certain professions. The main idea of the empirical articles we reviewed is that human capital is a magnet for economic growth, perhaps more important than amenities, and that possible magnets include universities, immigrant-friendly policies, and amenities to a certain extent. Two policies that appear to be especially noteworthy for states and localities in this literature are support for higher education incentives, and targeting of occupations. Other sections of this report will look at strategies for attracting diversity, in the section on diversity.

Innovation

Innovation is the introduction of something new (a product, service, process, input, or organizational form) into the marketplace for economic return. Entrepreneurship is the process of organizing resources to achieve innovation. Economists explain the innovative process in terms of an 'evolutionary competition' in which cycles of innovation and equilibrium result in periodic 'creative destruction' of firms that are no longer competitive. Thus, economists suggest that, in general, open competition rather than a regulated system is likely to result in innovation;

however, certain industries (including telecommunications utilities) are considered by some to be special cases in which deregulation may not increase innovation. Measures of innovation have included R & D investment, patenting activity, high technology industries, scientists and engineers, new products, and new work processes. Empirical results regarding questions about the effects of firm size and industry diversity/concentration have been mixed, but investment in research and development has been demonstrated to increase innovation. The role of universities in innovation is considered critical, but there is considerable variation in how effective universities have been in achieving economic development impacts. Technology incubators are one method that seems to have had reasonable success at fostering entrepreneurial activity.

Diversity

Richard Florida used the Gay index (partnered same-sex households), the Bohemian index (number of artists and similar professionals), the Melting pot index (percentage foreign-born), and the Diversity Index (racial tolerance and segregation) as indicators of the tolerance of a metropolitan area. Of these four elements—gay population, artist population, immigrant population, and racial tolerance/segregation—only a large immigrant population is consistently correlated with economic growth in creditable studies by other scholars. The Gay index has been criticized for its failure to measure gay people not living in partnered households. There is very little literature on bohemians except in popular media, and attempts to replicate Florida's findings have not yet succeeded. The negative effects of racial segregation have been well-documented and may affect the ability of a city or metropolitan area to generate and retain wealth. By contrast, much has been written about the positive economic effects of immigration on the overall economy and on the positive effect that highly-skilled immigrants can have on a local and state economy.

Environment

Environment is becoming increasingly obvious as an important factor in economic development in urban areas. Transition to globalization and a new political culture have been a part of this phenomenon. Although it is not easy to identify one ranking system for communities in terms of amenities, and existing data is rather poor, a number of other sources suggest that this is indeed an important factor. People do seem to flow in part to places which exemplify certain amenities, either natural or constructed, although different groups of people are attracted to different things. One author suggests that creating a participatory process of identifying which amenities are desired is the best way to measure progress. Specific strategies that appear to be helpful in terms of allowing amenities to have an effect include growth management, design enhancements, creating pedestrian neighborhoods, creating special districts such as some which are anchored by sports stadiums, waterfront development, and examination of permitting systems of code enforcement.

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TALENT

Talent

Richard Florida (*The Rise of the Creative Class* 2002, 2004c) has written that talent is an important attractor to the location of businesses, particularly businesses that form the creative economy. Florida specifically feels that people who work in creative jobs—that is, “the creative class”¹—are crucial to growth in the economy. Literature has established a link between human capital acquisition and economic growth. Florida has written that a new form of human capital, creative capital, is what drives economies in the “creative age” (Florida 2002, 2004c, 2005). What makes creative capital distinctive is that it recognizes the importance of creative people who create and synthesize information in the economy. Most of the authors in this review (not Florida) are discussing the traditional view of human capital and how this variable is measured and operationalized when studying regional or national economies. The issue of what model is best to describe this phenomenon is discussed in the section below, “Social Capital v. Human Capital v. Creative Capital.” The other measures employed to assess the “talent” of a region are based on occupational data, because of the desire to better assess what *people* in a region are doing rather than the overall economic output of a region. More of these issues of measurement will be considered in the first section below, “Measurement.” The other assertion of Florida regarding creative capital is that it is related to amenities and other attractors. The articles in the section on “Magnets” address the question of what attracts human capital.

The questions remain: what additional support exists concerning the link between human capital concentration and economic growth? How can cities attract the most talented people to their area? How can cities measure the level of human capital that is in their area?

Social Capital v. Human Capital v. Creative Capital

Florida (2005) suggests that social capital theories do not explain economic growth. He makes his assertions about social capital based on empirical research findings, which find no linkage between social capital and economic growth. He suggested that people are looking for quasi-anonymity offered by many cities, and they prefer weak social ties to the strong ties that Putnam (1995) describes in *Bowling Alone*. Florida writes that there has been a change in the kinds of communities that people create due to their changing desires rather than a lack of “sense of community” itself. Social capital can strengthen bonds between people but it can also “shut out newcomers, raise barriers to entry, and retard innovation” (Florida 2005, p. 31).

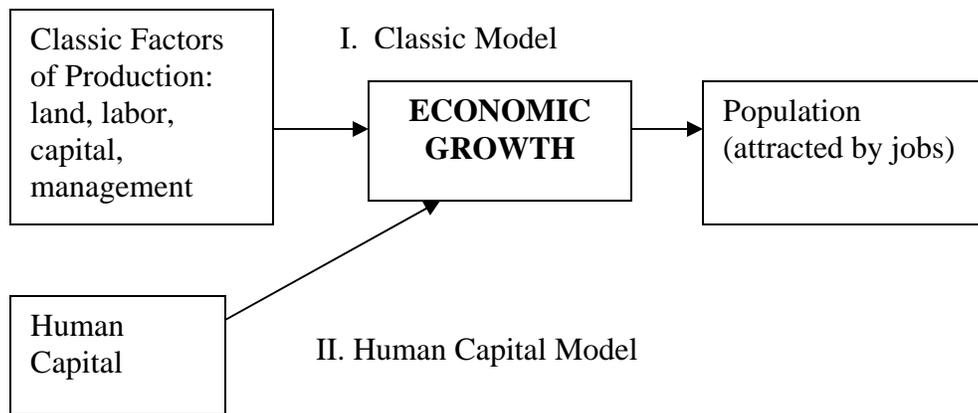
Florida writes that a better theory about regional growth is the human capital theory, which states that people are the force of economic growth in regions. In the past, theories about economies of place were based on access to transportation or proximity to natural resources, and the focus was on qualities of economic efficiency. Instead, Jane Jacobs thought, and Florida agrees, that cities are important because they attract talented and creative people, and this is the process spurring economic growth. This explanation explains the agglomeration effects of firms that cluster—they need to take advantage of a common labor pool that is creative. Terry Clark (2003) uses an

¹ Florida describes four classes: the creative, service, agriculture, and working classes. The “creative class” is composed of two components: a “Super-Creative Core” and creative professionals. The super core includes such occupations as technology, architecture, education, arts, etc. Creative professionals include management, legal, business, healthcare, high-end sales, and similar occupations. See Florida 2004c, p 328.

illustration of these two models that shows the hypothesized flow of events. The “classic” model focuses on factors of production, whereas the “human capital” model focuses on talent (see Figure 1-1).

Figure 1-1

Two alternative economic development models and growth



Source: Adapted from T. N. Clark, (2003a). “Urban Amenities: Lakes, opera, and juice bars--do they drive development?” In Terry Clark, ed., *The City as an Entertainment Machine*, special issue of *Research in Urban Policy*, 9: 103-140. Elsevier, Ltd.

Florida (2002, 2004b, 2004c) elaborates upon this human capital model and says that it is more important where “creative class” people choose to locate than where people not in the “creative class” choose to locate. Furthermore, he states that what matters to the “creative” group of people are lifestyle amenities. These differ for each group, but they may be cultural or recreational outlets, or other urban amenities associated with certain “hip” central cities. “Creative” people also want to locate in places that are inclusive and diverse, and that are job “dense,” meaning they offer access to a lot of different job possibilities. He argues that members of the “creative class” are important drivers of economic growth.

According to Glaeser (2004), human capital theory is highly correlated with Florida’s concept of creative capital. In response to Glaeser’s investigation, Florida (2004b) largely agrees with Glaeser’s assessment of the link between human capital and creative capital.

Measurement

Human capital refers to human inputs into the economy. Investment in human capital means investing in skills or education acquisition for workers in order to produce more value added for

the business or the economy. When doing cross-cultural comparisons, human capital is often measured as the total number of years of schooling or the literacy rate of a country. The most widely-used proxy for human capital in the U. S. is educational attainment, which is why Florida measures people in an area who have a college degree or greater levels of education (Benhabib and Spiegel 1994; Florida 2002). However, data sources offer limited information to those interested in measuring human capital. Nuanced understanding of how much human capital is important for economic growth is not available with conventional data sources. For example, issues of quality versus quantity cannot be assessed easily. Wossmann (2003) writes that education is just one method of accumulating human capital. Other important factors are on-the-job training, informal education, and experience. Measurements of quality could be included in the analysis of human capital by factoring in performance on standardized tests, but this would be difficult to implement (Temple 1999).

Florida's talent index is made up of the traditional measure of human capital, namely people with bachelor's degrees and above, but he has also used, in certain analyses, the total employment of scientists, engineers, professional and technical workers (Florida 2002, 2004b, 2004c). Measuring talent in general may be done more effectively by looking at occupations instead of economic sectors (Feser 2003). For instance, high-tech jobs should be measured by looking at the occupations of individuals rather than the products of certain industries. Florida (2002) uses this method in his creativity index.

Lever (2002) suggests that cities need to look more specifically at measuring the knowledge base of their city. The components of the knowledge base are codified knowledge, which can be recorded and transmitted easily; tacit knowledge,² harder to teach without experience or on-the-job training; and communications infrastructure. Codified knowledge could be measured by looking at the university presence in an area, such as the number of students in the area and the number of papers in refereed journals from a certain geographical area. Tacit knowledge could be measured by concentration of international firms, opportunities for travel and information exchange, and the rate of new enterprise formation. European cities with access to knowledge in the form of research and development grew more than those without similar access (Lever 2002).

To measure economic growth, some researchers use overall population growth or growth in employment. Florida (2002, 2004b) measured growth by looking at "income level and net income change" but concedes that housing prices would more accurately measure the demand for place. Glaeser and Saiz (2004) factor both housing value and wages into their model of economic growth and how it is affected by the educational attainment of a region.

Magnets

Human capital has been shown to predict population and productivity growth both at the city and MSA level, according to Glaeser and Saiz (2004). Cities that have an abundance of skilled and educated people are more able to adapt to changes in the economy and changes in technology (Glaeser and Saiz 2004). In addition, work by Glaeser and Saiz (2004) suggests strongly that cities grow as a result of the skill, or human capital, levels, and not because of amenities. However, Glaeser and Saiz (2004) acknowledge that declining cities are more likely to be cities

² See also section on Innovation, page 21 below, for a more complete discussion of tacit knowledge.

with lower amenity levels than those of growing areas. They found that “warm weather and immigration have been two of the most important drivers of contemporaneous metropolitan population growth in the United States ... the correlation between skills and growth is essentially zero in warm cities ... We also find that skills don’t matter much in immigrant cities” (Glaeser and Saiz 2004).

Glaeser and Saiz’s economic models suggest that highly-skilled metropolitan areas are gaining people, experiencing higher wages, and becoming more expensive. Their economic models show that falling wages are associated with rising amenity levels but never with rising levels of human capital (Glaeser and Saiz 2004). Although much of their analysis is at the metropolitan level, because the labor market will draw from the larger area, they also talk about implications for smaller units. At the city level, growing human capital should be a focus to encourage population growth (Glaeser and Saiz 2004). “Providing basic quality education (maximizing success rates in high school graduation) may both produce and attract the educated” (Glaeser and Saiz 2004, 43). They counsel attention being paid to basic public services, public schools, and other amenities as a way for declining central cities to begin to attract the human capital necessary to advance.

Recent U.S. immigration policy and other policies such as the ban on federal funding for new stem cell lines has acted to repel talented people from the country. Graduate students and talented faculty from around the world are choosing to go elsewhere, and countries like Canada, Australia and the UK are benefiting (Florida 2004a). Florida (2004a) calls this a “reverse brain drain.” Evidence is growing that other economic gains, such as international conferences, are being located elsewhere because of the stringent requirements for international travelers to enter the United States (Florida 2004a). This assertion is supported by statistics on the percentage of visas that have been denied in the years following the events of September 11, 2001.

Several studies relate to universities and higher education. Florida (1999, 2005) has written that universities should not focus on spinning off companies to add value to the economy. Instead, he writes, universities should concentrate on what they are designed to do, educate and train workers and thinkers. Universities are designed to train people for jobs, but they serve an important function as attractors of talent to an area, both from within the country and across international borders, creating growth poles (Florida 1999). (This work, however, was not accompanied by empirical analysis; it is rather a rhetorical statement supported by selected statistics regarding the goals of universities.)

Mak and Moncur (2003) found that states that invest more in higher education produce higher quality and lower cost education. They also found that more education choice, in the form of a higher number of institutions, attracts more college freshman into states (Mak and Moncur 2003). However, human capital investment is a necessary but not sufficient condition for growth. This implies that it should be part of an economic growth strategy but not the only strategy (Temple 1999).

Hansen et al. (2003) found that amenities did act to retain some college graduates in the area around Pittsburgh. These amenities, including cultural attractions, nightlife, outdoor recreation, ethnic and social diversity, and climate, were important to recent graduates. Strong family ties

acted to retain local students but were also a pull factor away from the city for non-local students. More important to graduates of the local high-tech university programs were competitive salaries and benefits (Hansen et al. 2003). Other factors present in the Pittsburgh area, such as affordable housing, transportation and growing opportunities in science and technology, were also amenities for graduates (Hansen et al. 2003).

A report commissioned by the Michigan Economic Development Corporation attempted to do a similar follow up with graduates of Michigan's universities to find out what factors influenced their location decisions. Their results were somewhat skewed because of the data sources they were able to use (the universities supplied them with lists of alumni). They did attempt to select for graduates that were in certain professions, such as engineering and life sciences. Conducted in 2001, the survey of 800 people studied migration patterns of graduates, areas of Michigan they felt were a good fit with their lifestyles, and factors in selecting a job outside of Michigan. An extremely large 83 percent of responding graduates called Michigan their home state before college. A large number of the sample of graduates (97 percent) reported that they had friends or family in Michigan; an equally impressive 79 percent of those same graduates stayed to live and work in Michigan. In fact, 42 percent of all survey respondents lived within a 30-mile radius of the communities of Detroit and Ann Arbor. Based on this finding, it appeared that most graduates of Michigan universities in the fields of engineering, life sciences and information technology remained in Michigan upon completion of their degrees. The remaining 17 percent of graduates chose careers outside of Michigan.

In this same study, no particularly large concentration of Michigan graduates was apparent in other states with only Illinois, Minnesota, Ohio, South Carolina and Wisconsin registering at two percent among Michigan graduates. Of these out-of-state graduates, 53 percent did consider job opportunities in the state before choosing to leave for the following reasons:

1. 53 percent, better job/better opportunities elsewhere;
2. 11 percent, closer to friends and family;
3. 7 percent, get away from cold/bad weather;
4. 4 percent, better nightlife/social life elsewhere.

Communities that were mentioned as a good place to live included Ann Arbor (17 percent), Detroit (12 percent), Grand Rapids (10 percent), Oakland County (9 percent), and Traverse City (5 percent). One place mentioned as not a good place to live was Detroit, but these questions didn't distinguish between city and metropolitan area. Nearly half of those living and working outside the state would consider moving back into Michigan.

Finally, we should mention that the State of Michigan has carried out an impressive survey of college graduates and others, in 2004. This confirmed the importance of community amenities and led to identification of several key amenity groups (MEDC 2004).

Policy Implications

While all of the above findings have policy implications, the most obvious is that public investment in education is key. This is clearly important at all levels, K-12 and above, because of the need to create talented, that is highly-educated, individuals.

We will highlight two additional approaches to the issue of how government should respond to these trends. One is the creation of special programs to support college education, not unlike Michigan's own initiative to offer Merit monies. The Georgia Helping Outstanding Pupils Educationally (HOPE) Scholarship was one of the programs funded by the Georgia Lottery, beginning in 1993. Eligible students had a "B" average and received a scholarship which covered tuition, fees and books at any public college, university, or technical school in the state. A review of the program by researchers at Georgia State University's Council on School Performance showed that students that received the HOPE scholarship were more likely to be in school after two years than those students who did not receive the scholarship. Traditionally underrepresented groups, such as African-Americans, also had more persistence in school, compared to peers, if they received the HOPE scholarship. Some have criticized the program because it was not a need-based scholarship and was subsidizing students who could afford college, but the evidence for positive effects seems very strong (Bugler et al. 1999). According to the web, the HOPE program is still in force as of 2005.

Second, we should note that the implications of a human capital or creative capital model of economic development, as opposed to an industrial (land/labor/capital) model, suggests that targeting of occupations could become a major approach to local economic development decision-making in the future. Ann Markusen (2004) offers the following reasons for targeting occupations instead of industries:

1. Because of cheaper transportation in new communication technologies, local economies have to specialize. Their ability to do so is based in part on local talent, because firms choose where to locate in part because of the quality of workers.
2. Natural resources are becoming less important as human capital becomes more important. Labor however is different from natural resources because it is able to move around. This again suggests that attracting workers, for example with amenities, makes sense.
3. Firms are less willing to commit to workers, (and vice versa,) and are thus increasingly dependent on labor pools available in specific regions. Training, which is best organized by region, is being handed off increasingly to regional institutions.
4. Functions and skills are becoming increasingly important, and there is a greater crossover of skills among industries than in the past. Occupational groupings then become more important, because many firms use the same kinds of occupations (e.g. clerical, sales, engineers).
5. The newly flexible economy depends increasingly on new firm formation, and several occupations show higher rates of new firm formation as well as high rates of crossover from one economic sector to another.
6. Because of the digital revolution, workers may work at great distances from jobs, and they may be more committed to a region and neighborhood than to a firm or industry.
7. Working with occupations instead of industries as a unit for targeting gives economic development planners access to two major data streams (occupational data from census and workplace-based occupational data from Occupational Employment Survey and various other surveys), and better facilitates the need to address concerns with minority population and underemployed individuals.

These arguments are summarized in Table 1-1 below.

Table 1-1

Possible Reasons for Focusing on Targeting of Occupations Instead of Industries

Key Issues	Implications
Cheap transportation, new communication links	Local economies have to specialize; quality of local workers is key
Natural resources have declined in importance; Labor is mobile	Local economies must focus on attracting labor, for example with amenities
Firms increasingly dependent on labor	Focusing on the quality of a region's labor pool becomes increasingly important
Functions and skills important	Many industries use same types of occupations, and may need to specialize in occupational groups
New firm formation increasingly important	Some occupations show higher rates of new firm formation
Digital revolution has made workers able to work from afar	Highly talented people may be more committed to a region or neighborhood than to a firm or industry
Occupations allows for key targeting, data	An occupational approach may allow planners to get a better sense of socioeconomic dynamics and to focus on key populations.

Source: Gleaned from Ann Markusen, "Targeting occupations in regional and community economic development policy," *Journal of the American Planning Association* 70, No. 3 (2004): 253-68.

Summary

Here is an overview of some of the key findings of the section on talent.

- Talent is an extremely important factor in encouraging economic development. Recent theories of creative capital are really very similar to existing theories of human capital, and all of them indicate that the educational level of the population is very important in encouraging economic growth.
- Although the main way of measuring human capital and some aspects of talent is simply the number of people with bachelor's degrees and above, looking at numbers of other workers, or at other measures, would also give some indication of levels of talent.
- Human capital has been shown, in at least one strong empirical finding, to be particularly important in metropolitan areas which have experienced economic decline. Metropolitan

areas which have higher levels of human capital better survive changes in the economy and in technology.

- Universities are an important magnet for talent. For policy development, supporting education at all levels is key.
- Important as well are immigrants, which poses a problem in the current political environment. The role of immigrants will be discussed in more detail later in this report, under the topic of “Diversity.”
- The studies we examined suggest that levels of human capital are more important than amenities in terms of raising economic development in a region, but that human capital by itself is not sufficient for growth. Amenities may make particularly a central-city locality attractive enough to bring in more talent or to retain college graduates.
- Scholarship or incentive programs like Georgia’s HOPE, which has been studied to some degree by credible researchers, can be an important part of the state’s strategy to make sure that high school students in the state attend college or technical school in the state.
- Some theorists are also thinking that it is important to begin to target occupations instead of industries as an economic development strategy. This might mean, for example, trying to attract engineers, accountants, or graphic artists as a way of ensuring a flexible work force that is responsible to a wide range of firms or economic conditions.

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INNOVATION

Innovation

Innovation is the process of bringing something new into use. Innovation is evident in a variety of economic activities, including the birth and growth of new firms, patenting of intellectual property, and development of new processes, products, or services. Richard Florida (2004) considers the creative workforce as a primary source of economic growth because of its members' capacity to generate ideas, design products, and establish new businesses. Like many scholars, Florida (2004, 2005) considers the presence of high-technology industries as an important indicator of innovation and economic performance. Although innovation and technology are indeed closely related, innovation is not limited to the traditional "high-tech" sector; as communities seek to establish or maintain a comparative advantage in today's highly competitive and knowledge-intensive economy, innovation is important across the economic spectrum.

Competition, technology, and entrepreneurship

Much of the literature situates the discussion of innovation in the context of theories developed over time to explain economic growth. Relevant themes evident in the sources we reviewed include:

1. The nature and significance of competition;
2. Sources and impacts of new knowledge and technologies; and
3. The critical role of entrepreneurship.

The importance of *innovation-based competition* was recognized as early as the 1930s and 40s, when economist Joseph Schumpeter argued that the "creative response" of entrepreneurs is what ultimately drives growth in all capitalist systems (Lambooy 2002, Schumpeter 1947). This diverges from the classical view of competition, in which firms sought advantage by increasing traditional production inputs to achieve greater efficiencies. Instead, according to Schumpeter, innovation results in qualitatively new products, processes, markets, inputs or organizational forms, which leads to a process of 'creative destruction' whereby the old is displaced by the new. The view of competition as part of an 'evolutionary system' continues to receive considerable attention (Lambooy 2002, Metcalfe and Ramlogan 2005, Saviotti and Pyka 2004). Risk-taking is motivated by the temporary monopoly advantage gained by successful innovation.

The impact of *knowledge and technology* on economic growth also has an extensive history in the literature. In a landmark 1957 study, Robert Solow demonstrated that "more than 87 percent of the growth in the U.S. economy could not be explained by the growth in capital and labor" (Audretsch et al 2002, 165). In response to such findings, economists developed new models of economic growth incorporating the role of knowledge and new technologies. Initially technology was considered 'exogenous' (growth results from new technologies entering the economic system from outside); more recent models tend to emphasize 'endogenous growth' (where new knowledge and technologies arise from *within* the system) (Audretsch et al 2002, Furman et al 2002, Mathur 1999). David Audretsch and Roy Thurik (2001) point out that knowledge as an input to production is "inherently different from land, labor and capital" because of its basic uncertainty, an asymmetric distribution across people, and high transaction costs (Audretsch and Thurik 2001, 306). Combined with advanced communication technologies

and a skilled labor force, knowledge-driven growth has meant a transition from “managed” to “entrepreneurial” economies. This ‘New Economy’ involves dramatic change, as “the positive virtues of long-term relationships, stability [and] continuity give way to flexibility, change and turbulence” (Audretsch and Thurik 2001, 306-7). As a result of this transition, new perspectives are necessary to understand economic activity; for example, the failure of individual firms is a more expected and normal result in this entrepreneurial economy (Audretsch and Thurik 2001). Implications of knowledge-based growth for economic development are explored in more detail in the sections on spatial distribution and policy directions, below.

Innovation is closely linked in the literature to the process of *entrepreneurship*. A number of sources point out that new ideas and technology alone are not sufficient to drive economic growth. The importance of entrepreneurship is documented at multiple scales, including the performance of individual firms (Audretsch et al 2002), prospects for regional or national growth (Camp 2005, Furman et al 2002, Porter 2000, Slaughter 1996), or shaping global structural change (Audretsch et al 2002, Audretsch and Thurik 2001). The literature distinguishes between invention (creating something new) and innovation (putting something new to use). According to Metcalfe and Ramlogan (2005), innovation goes beyond new ideas and technologies, requiring in addition “an ability to identify possible markets, an ability to lead and organize the business process, and ready access to productive inputs” (Metcalfe and Ramlogan 2005, 231). Camp (2005) points out that “the processes for generating innovations are not the same as those required for their commercialization” and notes that “commercialization is key to capturing the economic value embedded in innovation” (Camp 2005, 5). Audretsch et al (2002) describe an initial view of the “process of entrepreneurship” in terms of a firm’s strategic direction, its competitive environment, and the resources available to support innovation (represented by the bolded elements in Figure 2-1).

Their comprehensive model includes additional elements and feedback loops (see Figure 2-1). Such a model suggests potential policy goals, such as supporting necessary infrastructures and promoting R&D and research partnerships.

Empirical Measures

Researchers measure entrepreneurship and innovation in numerous ways. This section reviews common indicators used for measuring these concepts and summarizes empirical findings exploring their impacts.

Innovation and new technology are often considered one and the same. Researchers as well as community leaders tend to consider industries, firms and workers with a “high-tech” focus as indicators of regional innovative capacity or success. High-tech firms appear to pay higher wages and experience faster innovation-driven growth than firms in other industries, so development initiatives often target high-tech industries (Hackler 2003). Florida’s (2005) Technology Index incorporates the Milken Institute Tech-Pole Index, which combines a region’s regional *concentration* of high-tech industry with its *share* of national high-technology industry output. Despite concerns about their misuse (Cortright and Maier 2004), high-tech rankings of communities are common in the literature. Karen Chapple et al (2004) discuss several prominent ranking systems, including the Metropolitan New Economy Index of Rob Atkinson and Paul

Gottlieb (1999), the American Electronic Association index, and Cortright and Maier's Silicon Forest index.

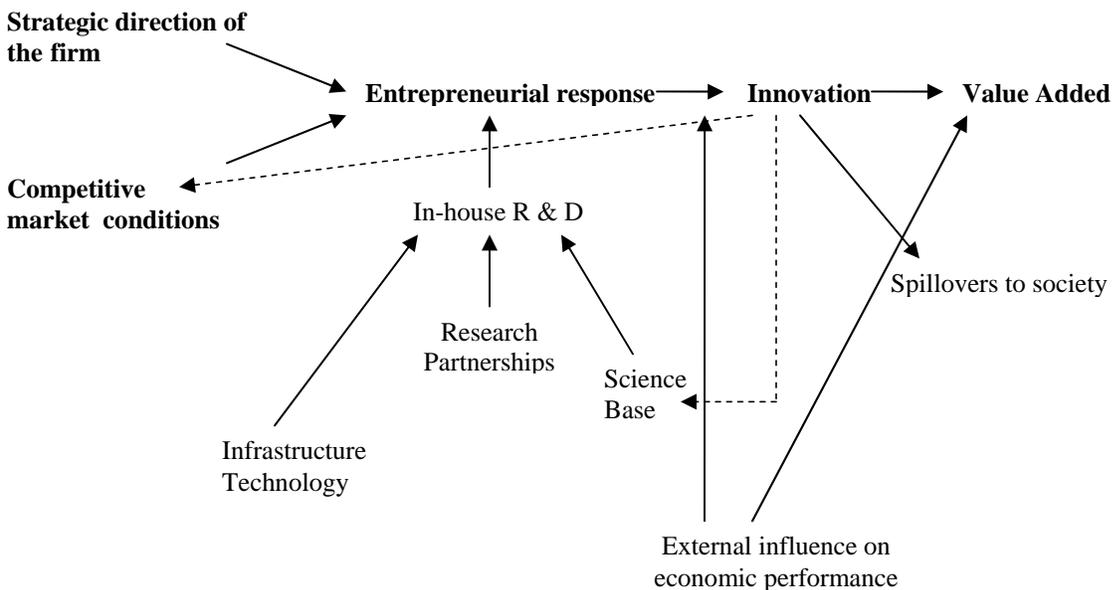
Indicators related to the innovation process may be classified into three general categories:

1. Inputs, including financial and human capital investments in R&D;
2. Intermediate outputs, usually in the form of patents; and
3. Ultimate outputs, such as new products or processes.

Of these, input and intermediate output measures are more common than final outputs (Audretsch et al 2002). Below we will consider each of these three in more detail.

Figure 2-1

The entrepreneurial process: an integrated look.



From David Audretsch et. al. 2002. "The economics of science and technology." *Journal of Technology Transfer* 27(2): 165.

Concerning *inputs*, many studies consider the level of investment in research and development (R&D); this is separated into R&D investments made by private corporations and R&D conducted at public research universities and laboratories (Audretsch 2004, Audretsch et al 2002). Atkinson and Gottlieb (1999) also include venture capital investment to assess innovation. High-risk and venture capital investment, like investment in R&D, is an *input* measure of the innovation process; even so, the level of such investment does represent the availability of this necessary input in a given locale. Another approach to measuring R&D investment considers inputs of human capital, rather than financial investments. For example, in their Metropolitan New Economy Index, Rob Atkinson and Paul Gottlieb (1999) include the concentration of R&D scientists and engineers as a measure of innovation capacity.

Another *intermediate* measure often used as an indicator of innovation is patenting activity. Because patent records are readily available and include the location of the individual or firm credited with a new idea or technology, it is possible to compare patenting activity in the U.S. across space and over time. Patents can be measured in absolute numbers, per capita rates, and changes in numbers or rates over time (Florida 2004, Porter 2003). A related line of research considers the diffusion of new ideas, by measuring the frequency and spatial distribution of subsequent patent applications in which a breakthrough patent is cited (Bee 2003). Because many patented inventions never result in innovative products reaching the marketplace and having economic impact, patenting activity is best considered an “intermediate output” of the innovation process (Feldman & Audretsch 1999, 413).

A few studies do incorporate final *output* measures of the innovation process. *Product innovation* is quantified by several authors using a database of new product introductions in industries across the manufacturing sector, gleaned by the Small Business Administration from professional and trade journals (Audretsch and Thurik 2001, Feldman and Audretsch 1999). To meaningfully compare the performance of firms of different sizes, David Audretsch (2004) recommends measuring the “total innovation rate” (product innovations per 1000 employees) (Audretsch 2004, 175). Measuring *process innovation*, such as self-directed work teams, quality teams, worker rotation, and just-in-time delivery, is even less evident in the articles we reviewed. A notable exception is the Midwest Manufacturers Survey, in which nearly two hundred small and medium size manufacturing firms responded to a mailed survey measuring the adoption of such new forms of production organization and supplier relations (Florida 1996).

These three categories of indicators are interrelated. A considerable body of empirical research has demonstrated a strong and positive correlation between R&D investments and output measures of innovation such as patents and products (Audretsch et al, 2002). Acs et al (1994) conducted a state-level analysis using both patents and product innovations as outcome measures, finding a strong positive correlation between levels of R&D investment and innovation outputs as measured by patents and new products. Michael Porter (2003) found the number of patents per capita to be positively related to a region’s average wages, implying that successful regions will be those that can build innovative capacity. Studies comparing the relative impacts of corporate and public R&D have found that university and corporate R&D tend to be utilized differently by different sized firms; university-based research is used more frequently by large firms, but more efficiently and effectively by smaller firms (Acs et al 1994).

Florida (1996) found that the rate of adoption of innovative production processes (self-directed work teams, quality teams, worker rotation, etc.) among small and medium size Midwest manufacturers compared favorably to an earlier national study using similar measures. While he acknowledges that his study does not directly test the assumed link between process innovations and productivity gains, Florida cites others’ research that partially confirmed this assumption. He attributes what he considers a surprising degree of process innovation in the older industrial Midwest to increased foreign direct investment (Florida, 1996).

Indicators of entrepreneurship have emphasized the emergence and growth of firms. Florida (2004) employs rankings of “entrepreneurial hot spots” generated by Cognetics in discussing his creative class theory, but provides little detail about the nature of the rankings. In an article in

Inc. magazine, Emily Barker (1999) describes Cognetics' system for identifying "the best cities in which to start and grow companies," based on two measures:

1. *Significant starts* – businesses started in the past 10 years and employing at least five people, as a percentage of total businesses
2. *Young growers* – firms less than 14 years old recently showing significant employment growth (combining absolute and percentage growth measures).

Camp (2005) developed a measure for comparing regional entrepreneurship that considers the number of new firms per capita, the average annual change in new firm births between 1990 and 2001, and the percent of firms in a region experiencing rapid growth. Considering US regions' innovation, entrepreneurship, and economic growth, Camp concludes "innovation without entrepreneurship yields minimal local economic impact" (Camp 2005, 5).

Spatial Distribution

The geographic location and diffusion of innovation and its benefits are particularly relevant for local economic development. Despite predictions to the contrary, most scholars now agree that 'place still matters' in the digital economy. However, many central questions in the literature on the geography of innovation remain unresolved. This section summarizes the literature on the ways in which knowledge spillovers and industry clusters operate to affect the spatial distribution of growth.

Fundamental to the geography of innovation is an understanding of the concept of *tacit knowledge*. Tacit knowledge, unlike explicit or codified knowledge, is often gained through experience; for example, driving a car requires knowledge of a set of coordinated activities not easily taught at a distance. In contrast, codified knowledge, like a recipe or blueprint, can be easily transmitted and acquired at a distance. A key idea in the new economy is that much of the knowledge now essential is tacit. Meric Gertler of the University of Toronto states, "in a world in which access to codified knowledge is becoming ever easier, a firm's ability to produce, access, and control tacit knowledge is most important to its competitive success" (Gertler 2003, 83). Audretsch and Thurik (2001) make this connection on the national scale:

... the comparative advantage of high-wage countries is no longer compatible with routinized economic activity, which can be easily transferred to lower-cost regions outside Western Europe. Maintenance of high wages requires knowledge-based economic activity that cannot be costlessly diffused across geographic space (272).

Three characteristics of tacit knowledge make it relevant to the geography of innovation:

1. It is *not easily articulated* and thus difficult to exchange over long distances
2. Tacit knowledge is *context-specific* and thus requires a shared social context, which is often local
3. It is *part of a process* involving interaction and knowledge flows between firms, organizations, and other agencies (Gertler 2003).

Because of these characteristics, tacit knowledge is often diffused in a limited geographic area. However, Gertler argues that we do not yet sufficiently understand how tacit knowledge and its related social context are produced and shared. He suggests that ‘communities of practice’ may have a sufficiently shared social context in which tacit knowledge may spread widely (e.g., a global network of scholars with a similar expertise). This suggests that tacit knowledge, while essentially local, may be shared widely with specific patterns of association and communication.

A related issue explored in the literature on the distribution of innovation is how knowledge ‘spills over’ from its firm or industry of origin, to be exploited or adapted by others. Studies have examined spillovers from place to place, between industries or firms, from universities to the private sector, and across organizational boundaries as individuals with specific knowledge change jobs or start new firms. Table 2-1 summarizes some of the key findings about each type of spillover, according to Audretsch et al (2002).

Table 2-1
Selected findings on knowledge spillovers.

Spillover Source	Findings
Industry Spillovers	Spillovers vary across industries; greater spillovers in knowledge-intensive industries
University Spillovers	University spillovers more important to small firms than large firms
Firm Spillovers	Firm spillovers more important to large firms than small firms
City Spillovers	Diversity generates more spillovers than specialization; localized competition more than monopoly
Individual Spillovers	Spillovers shaped by role and mobility of knowledge workers

Source: Adapted from David B. Audretsch, Barry Bozeman, Kathryn L. Combs, et al. 2002. “The economics of science and technology.” *Journal of Technology Transfer* 27(2): 171.

Universities are one obvious source of new knowledge and innovation, but empirical findings regarding the economic impact of university-based spillovers are mixed. University based R&D investment has been positively correlated with both patents and product innovations (Acs et al 1994). Feldman and Desrochers (2003) examine the role of research universities and contend that, despite numerous initiatives to support it, “most research universities have not yet been particularly successful at technology transfer and have not yet generated significant local economic development” (2003, 5). Technology transfer is not automatic. “History and institutional context matter,” conclude the authors, in the economic impacts of university activities, as do regional attributes such as the nature of the workforce, the types of industries and their connection with the university, and the level of social capital within the region (2003, 21).

Harloe and Perry (2004) argue that if universities are to contribute in the new economy they must adopt “a new role ... in which priority is placed upon extracting economic and competitive

benefit from knowledge production” (2004, 214). Such universities, they suggest, would share four characteristics:

1. be closer to government and the market and responsive to specific teaching research and enterprise needs;
2. conduct research that is interdisciplinary and based on economic and social relevance;
3. be innovative, connected to multiple networks and engaged in regional and local governance systems; and
4. experience internal turmoil, reorganization, and restructuring (Harloe and Perry 2004, 217).

Concerning the last point, the transition to such a role, according to Harloe and Perry (2004), will be complicated and difficult for universities to achieve.

Another question has been whether regional growth benefits from a more specialized or diversified mix of industries. Regions in which there is a concentration of firms from similar industries are said to be specialized, while those with a wide variety of industries represented are diversified. The studies of the effects of specialization versus diversity have had mixed results. For example, as shown in Table 2-1, research has shown diversity to lead to more knowledge spillovers. Some sources have also argued that regions with a greater diversity of industries may be more adaptable in an economic downturn. Benefits of specialization include agglomeration effects, efficiencies of scale, and an ability for industry to share a workforce with a common set of skills.

Similarly, research has examined the effects of firm size on innovation. At one time, a consensus had been reached that large corporations were the dominant source of innovation, but more recently researchers have discovered that small and medium size enterprises are an important and growing source of innovation and growth (Acs et al 1994 , Audretsch 2004, Audretsch et al 2002, Bee 2003, Mohd Yunos 2002).

Industry clusters, such as financial services in New York, medical devices in Boston, and IT in Austin and Silicon Valley, are another way of thinking about the regional economy. Porter defines clusters as

geographic concentrations of interconnected companies, specialized suppliers, service providers, firms in related industries, and associated institutions (e.g., universities, standards agencies, trade associations) in a particular field that compete but also cooperate (Porter 2000, 16).

Such interconnections are opportunities for knowledge spillover effects and other synergies. Porter (2000) suggests that it is better to think in terms of fairly narrowly defined clusters, rather than broad categories such as manufacturing or high-tech. He suggests that otherwise we miss crucial interconnections which may contribute to knowledge spillovers. He asks rhetorically, “Why view economies using the lens of clusters instead of, or in addition to, more traditional groupings, such as ... industries [or] sectors?” (Porter 2000, 18). Porter suggests that clusters fit better with the nature of competition and capture important linkages. Clusters have three key effects on competitive advantage:

1. increasing current productivity;

2. increasing capacity for innovation and productivity growth; and
3. stimulating new business formation that supports innovation and cluster expansion (Porter 2000 , 21).

Porter identifies three categories of industries: local industries that provide common goods and services to all regions; resource dependent industries that are located in proximity to essential resources, such as logging and mining; and traded industries which sell products and services across regions. Of these, traded industries are seen as most critical to regional economic performance. Analyzing the effects of industry clusters at the regional level, Porter finds that strong clusters of traded industries, regardless of the particular industry clusters present, tend to influence regional wage levels. This is similar to traditional economic theories of ‘economic base.’ It also seems to contradict the idea that high-technology industries are the sole path to regional economic growth.

Policy Directions

Research into innovation and its diffusion suggests that communities should strive to become places in which entrepreneurship and innovative enterprises can thrive. In addition to several specific policies (discussed below), the sources we reviewed share a general agreement that government policy should continue to shift focus toward enabling innovation and entrepreneurship rather than emphasizing the regulation and control of private enterprise (Audretsch and Thurik 2001, Metcalfe and Ramlogan 2005). An enabling approach would reflect the basic issues of competition, technology, and entrepreneurship, and would result in policies that:

1. favor open competition over regulation,
2. target knowledge or technology-based development opportunities
3. facilitate entrepreneurial activity among individuals and firms.

Although the policies that can achieve such ends – such as those governing intellectual property rights, immigration, or international trade – are often implemented at the national level (Furman et al 2002), state and local authorities also contribute to these conditions. In particular, scholars identify training and educating the workforce (Audretsch and Thurik 2001, Hospers 2003), financing entrepreneurial activity (Bee 2003), and providing necessary technical and social infrastructures (Furman et al 2002, Leamer and Storper 2001, Malecki 2002), as important goals to be emphasized.

Scholars warn that ‘copycat’ behavior should be avoided and local regions should instead build upon and promote existing “roots of creativity” (Hospers 2003) or existing regional assets or “distinctiveness” (Cortwright 2002). Not all regions are positioned to specialize in information technology; most are better served by identifying and developing their local and regional strengths. For example, Cortwright (2002) observes industry clusters in the case of Portland, Oregon, that appear related to the distinctive behaviors of its residents. Cortwright uses private consumption data sources to identify several distinctive characteristics of Portlanders (e.g., more recreation and fitness focused, literate, environmentally conscious than most places) and identifies related industries with Location Quotients that indicate concentration (e.g., sporting goods, bookstores, ornamental floriculture). While only suggestive, these examples provide the

basis for Cortright to recommend that regional decision-makers understand and build upon existing distinctiveness, and cultivate a ‘culture of innovation.’

Some of the best studies of innovation are concerned with high-technology development, and there may exist opportunities to cultivate innovation and technology incubation even in the absence of a research university. Heike Maier (2005) carried out a case study of high-tech firms in the Portland region serving as the principal incubators for such innovation. From this case she draws four lessons for planners:

1. attract R&D intensive firms;
2. maintain information on key firms;
3. support an innovation milieu, and
4. set realistic goals.

Other specific policy recommendations that follow from the literature emphasize research and development, industry clusters, and technology incubators.

Research and development policy can involve encouraging financial investment in R&D and ensuring an available labor force of scientists and engineers (Audretsch et al 2002). Several policy mechanisms are available to pursue this goal, including patent laws, tax incentives, improved environment for collaboration, and direct subsidies to fund research (Audretsch et al 2002, 175). Audretsch et al (2002) identify several barriers to attracting scientists and engineers to industry, and suggest that providing information about employment opportunities, creating training grants directly to students, and reshaping graduate education to provide greater attention to career prospects and opportunities to work in industry while in school may all serve to overcome such barriers (Audretsch et al 2002, 176).

Michael Porter (2000) advocates *cluster initiatives* as a development strategy. He identifies the following characteristics of successful cluster initiatives:

1. a shared understanding of competitiveness and the role of clusters in competitive advantage;
2. a focus on removing obstacles and easing constraints to continued cluster upgrading;
3. a structure that embraces all clusters rather than setting priorities, including traditional and declining clusters as well as emerging and established ones;
4. appropriate cluster boundaries that reflect economic reality, not necessarily political boundaries;
5. wide involvement of cluster participants and associated institutions;
6. private sector leadership, independent of government but with active government participation;
7. close attention to personal relationships that involve open communication and trust;
8. a bias toward concrete action; and
9. the institutionalization of concepts, relationships, and linkages (Porter 2000, 31-32).

Lalkaka (2002) and Mohd Yunos (2002) discuss *technology business incubators* as another example of the “innovative structures” that governments should promote to help build an “innovation-led economy” in today’s competitive, entrepreneurial and technological economic environment (Lalkaka 2002, 168). Lalkaka cites affordable work space, shared facilities,

counseling, training, information, and access to external networks as key benefits of business incubators of any type. Lalkaka notes the distinct roles of government (technical infrastructure, policy framework, and initial finance) and the private sector (e.g., mentoring, in-kind support, subcontracts) in incubator efforts. He notes the potential to achieve synergies in co-locating technology-based incubators, technical universities, and technology parks, but also identifies possible conflicts that could emerge from the different core purposes and calendar cycles between incubators and universities. Lalkaka also observes a trend towards “sector specific, corporation sponsored, and venture capital/angel networked” incubators in the United States (2002, 172).

Summary

Here is an overview of key findings on innovation:

- The importance of innovation has been well established in the economic development literature for a number of years.
- Economies are becoming more entrepreneurial because of knowledge-driven growth. Entrepreneurial responses to market conditions can become more innovative with stronger infrastructure technology, research partnerships, and science base.
- Using high-tech firm rankings as a measure of innovation is incomplete but common. An intermediate measure is patenting activity, and output measures include new product introductions and process innovations.
- Entrepreneurship is key to insure that innovation yields economic impact. Birth of new firms is one way of measuring entrepreneurship.
- The importance of tacit knowledge in the new economy suggests that geography does matter; industry clusters may be important focal points in this context.
- Knowledge spillovers are important to encourage, but different conditions lead to different effectiveness of spillover types (Table 2-1).
- Key policy initiatives include such activities as educating the workforce, providing technical infrastructures such as technology business incubators, building on regional distinctiveness, encouraging firm research and development, and undertaking cluster support initiatives as described by Michael Porter.

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DIVERSITY

Diversity

Much of Florida's (2002; 2004) work on tolerance is based on his own data collection. The challenge is to find other empirical confirmation of his assertions, and to determine the implication of these arguments for the economic development of cities and metropolitan regions. Florida used the gay index, the bohemian index, and the melting pot index as indicators of the tolerance of a metropolitan area, and later he began to use an index that measured racial integration as an indication of diversity. Most of these measures were arrived at through analysis of U. S. Census data and by looking at occupations information from the Bureau of Labor Statistics.

Diversity by Gay Status

The gay index, developed by Gary Gates and colleagues, measures the representation of gay couples in cities compared to their representation in the United States, and is based on the decennial U. S. Census (Florida 2004). Gay couples, as reported by the U.S. Census, are used in this analysis as a proxy for gay people in a community. Florida found that the gay index was highly correlated with the high-tech Index and therefore he suggested that an environment which signals its tolerance of gays increases its chances of gaining a greater share of the creative class. Gates and his colleagues, Dan Black, Seth Sanders, and Lowell Taylor (2000), used major national surveys (the General Social Survey and the National Health and Social Life Survey) to confirm that the 1990 US Census report of same-sex partner households was not a result of measurement error (Black et al. 2000). Black et al. (2000) found that "sixty percent of partnered gay men in the United States are concentrated in only 20 cities," most of them large, while lesbian couples are less likely to be similarly concentrated.

Black et al. (2000) further suggest that the Census may undercount the number of gay couples and gay people in the country. Bell and Binnie (2004) criticize the method of measuring the gay community that Florida (2002) uses because it fails to count gay people who are not living in partnered households. They feel strongly that this actually marginalizes parts of the gay community (Bell and Binnie 2004). Some other measures that Bell and Binnie (2004) speculate could be used are: "levels of arrest for public sex, or number of tea rooms or backrooms" and they claim that the measurement of couples is itself marginalizing and promotes assimilation of gay culture (Bell and Binnie 2004, p. 1817). Cities may already be actively marketing their cities to tourists around gay spaces and villages in cities as an economic development strategy, regardless of research findings (Bell and Binnie 2004).

The literature doesn't support the connection that Florida (2002) found between gay population and the creativity index. In fact, recent work by Clark (2004) suggests that gay populations are highly correlated with populations with a high number of college graduates and also with greater populations in general. Using data provided by Florida and Gates, Clark (2004) found that when the percentage of college graduates and population size were included in the analysis, no significant link occurred between gay population and high-tech. When the college graduate and population variables are excluded, Clark found the same link between gay and high-tech that Florida (2002) found. The explanatory power of college graduates may therefore be more important than the concentration of a gay population. Because those two variables are highly

interrelated and therefore should not be used in the same model, he suggests that a concentration of gay population may not be as important as the number of highly-educated people in a local economy. Although when Clark (2004) first ran his metropolitan area regression analyses he duplicated Florida's findings, he began to note that apparent empirical connections in the analysis did not hold up with further manipulation, or with examination of smaller units such as counties or individuals. He developed a concept about what might cause gays to be associated with economic growth and tested each theory, using simple correlations. Potential relationships and actual findings are in Table 3-1, further demonstrating the weak empirical support for the importance of gays in economic development.

In sum, it may indeed be true that in certain large cities that the gay population is associated with the presence of high-tech industry, but there is not yet evidence to support that this is true with the county level or at the individual level. The smaller the place, the less the association. As a policy strategy, it might be better to focus on the more reliable variable, people with a high educational level, as a target for recruitment.

Diversity by Race

A surprising few studies actually address the potential strategy of enhancing a city's racial diversity as a proven way of enhancing economic growth. David Rusk's *Cities Without Suburbs* (1993) suggests that the most important characteristic of cities' success is their degree of elasticity. Rusk (1993) claims that elastic cities have a number of qualities including: economic prosperity and less economic and racial segregation. Critiques of Rusk's methodology seem to undermine many of these claims. Many studies have documented the negative effects of racial segregation. We also know that enlarging municipal boundaries may serve only to dilute the actual condition of people in poverty and minority residents (Blair et al. 1996). Flippen (2001) studied the effects of different dimensions of racial segregation—evenness, exposure, concentration, centralization, and clustering—on minority home ownership. Flippen found that “segregation undermines minority home ownership” and that highly segregated cities have significantly lower levels of minority home ownership (Flippen 2001). Fischer and Massey (2000) studied the effect of segregation on ethnic entrepreneurship. They found that “beyond very moderate levels, segregation actually works to reduce the odds of entrepreneurship.” Both of these effects of segregation act to reduce wealth in segregated cities such as Detroit. This has implications for wealth accumulation in cities with segregated minority populations.

The difficulty is in whether a strategy to reduce racial segregation is also a strategy to encourage economic growth and development. Little literature looks at the question in this fashion, except for the Moving to Opportunity literature which is based on the Gautreaux experience in Chicago, which shows some evidence of the benefits to low-income public housing residents who are dispersed to suburban locales.

Table 3-1

Clark's Attempts to Confirm Supposed Influence of Gays: Analysis of County and Individual Survey Data

Potential reason for apparently high correlation of gays and high-tech	Pearson's r	Comments
1. The more gays in a city, the greater the stress on amenities, because of the selective migration of gays.	0.27 for gays with natural amenities; .07 for constructed amenities	These are positive but modest figures. There is an association between gays and natural amenities, but with constructed amenities such as opera, association drops.
2. Persons working in high tech industries may enjoy the same amenities as are found in locations with many gays.	See above	See above
3. High tech persons are more risk-taking and tolerant, and so cities high in these factors should encourage both gays and high-tech growth.	Near zero	Residents of counties with more gays were not more favorable toward risk, based on several questions in the survey.
4. High-tech persons may come disproportionately from foreign areas and have more cosmopolitan tastes than average.	r=0.38 between high-tech patents and Asian-Indian or Korean, but:	Correlation of gays with these Asian groups is barely significant, close to zero
5. Localities with numerous college faculty may be tolerant on social issues	Near zero	% gays is unrelated to college town indicators such as percentage of workforce in educational services
6. Locations with several amenities might attract new residents who are freewheeling types who also go into high tech jobs	Several possible measures but for BA degrees, 0.07	Looking just at the simple measure of % residents with a B.A. or higher degree, the correlation with percent gays is very low.

Source: Summary of text by Terry Clark, "Gays and Urban Development: How are they linked?" *The City as Entertainment Machine*, special issue of *Research in Urban Policy*, 9 (2004): 221-234.

Diversity by Bohemians

Florida defines bohemians as people in occupations that include such categories as authors, designers, musicians, composers, actors, painters, photographers, dancers, and performers (Florida 2004). He looks at whether such populations are over- or under-represented in a particular metropolitan area, and he found association of the presence of such populations with metropolitan economic growth.

The bohemian dimension of what Florida (2002, 2004) calls tolerance is the least supported in academic literature; Florida's book cites articles from *The Economist*, which is a popular publication with short articles and little empirical research. These articles suggest that "bohemian" neighborhoods in cities around the world follow a similar pattern of neighborhood succession. The articles describe this process in London, New York, San Francisco, and Berlin (*The Economist* 1999, 2000). These districts come into existence as a result of low cost of housing that attracts immigrants, young people, and artists. This mix of cultures and art is unique and attracts more people; businesses spring up to serve such a unique neighborhood and it becomes a "hot spot." The area then goes through a process of gentrification which causes property values and rents rise, the theory goes, forcing out the very element that made these areas so desirable. Those immigrants, young people, and artists seek other areas with affordable housing and the process begins again (*The Economist* 1999, 2000).

One exception to the general lack of evidence concerning the importance of bohemianism in the literature seemed to come from the work of one of Florida's critics. In an empirical assessment of whether or not Florida's regression analyses held true, Edward Glaeser (2004) ran several analyses that looked at factors such as the super-creative core, patent citations per capita, the gay index, and the bohemian index, looking at the same 242 metropolitan areas that Florida examined. He found that the bohemian index was the only one of the above variables powerful enough to eliminate the effects of schooling as a more important variable. When he looked further, however, he found that two metropolitan areas skewed the data: Las Vegas, Nevada, and Sarasota, Florida. When he repeated the analysis excluding these two metropolitan areas, bohemianism no longer became important.

Diversity by Immigrants

The "melting pot" index is the relative percentage of foreign-born residents in a metropolitan area, and looking at foreign-born is a common way of defining immigration. Immigration literature is considerable and the economic consequences of immigration have been well-documented. Koser and Salt (1998) used education as a proxy for skill-level and found that highly-skilled immigrants are overrepresented in a few "global cities" because these areas have concentration of "high-level and specialist jobs." This means that highly skilled international migrants are more likely to locate in global cities with highly skilled work. These cities then attract firms in need of a diverse and highly-skilled workforce, in this way, "highly skilled migration is a process contributing to the production of the global city" (Koser and Salt 1998).

Saxenian (2002) examined Asian immigrants to Silicon Valley who work and are entrepreneurs in the high-tech industry. Foreign-born engineers and scientists are locating in Silicon Valley at high rates. Saxenian (2002) found that immigrant entrepreneurs in Silicon Valley have created strong networks that provide assistance (venture capital, professional advice) to new co-ethnic immigrant entrepreneurs. Ethnic business networks and associations work to provide business connections, advice, and, in some cases, venture capital or angel investment funding. In addition, their ties to a home country continue to encourage immigration and produce economic gains for California (Saxenian 2002). Those gains include jobs as a result of new firms being created or established firms expanding as a result of capital investment from co-ethnic business associations. In addition, these immigrants have an advantage in creating global connections to

markets and workers in their home country. Research has documented the connection between first-generation immigrants from a given country and exports from California; for every 1% increase in the number of first-generation immigrants, exports from the state increase nearly 0.5%. Saxenian (2002) concludes from this that skilled immigrants are an economic asset to California, creating jobs, exports, and wealth for the region as well as linking the state to global markets. Contrary to the fears about increased immigration taking jobs away from native workers, immigrants are responsible for a portion of the job creation in the region.

Table 3-2, from Saxenian, shows the connection between certain immigrant groups and high tech firms in Silicon Valley. This demonstrates that the influence of these groups increased over time. Ivan Light (2002) uses Figure 3-1 to demonstrate how the connections between immigrants and their home country can influence a local economy.

Some immigration literature examines the effects of immigration policies that encourage highly-skilled and entrepreneurial immigrants. Ley (2003) reviews the Canadian immigration policy which offered benefits to three streams of immigrants: 1) entrepreneurs who would buy or establish businesses in Canada and create jobs for Canadian workers, 2) investors, who would provide a minimum investment in approved Canadian projects and 3) self-employed people--artists, athletes and wealthy people--to encourage them to establish businesses. The hope was that these new immigrants would bring high technology jobs and industry to Canada. Many wealthy Chinese from Hong Kong did move to British Columbia. This study found there are a few stellar successes, many failures and many questions about this policy that still need answers (Ley 2003). Most importantly the government did not adequately follow all of these immigrants to ensure that the economic benefit that was hoped for was produced. A few success stories stand out and have produced gains for the Vancouver area and British Columbia. Overall, the program may have failed to bring economic benefits that were projected or promised to the citizens of Canada.

Consider the literature on immigration in general and its economic effects. George Borjas (1994) found that “the economic impact of immigration will vary by time and by place and can be beneficial or harmful.” In subsequent work concentrating on the benefits of immigration, Borjas (1995) found that the demand side of the economy (capital) benefits from unskilled immigration which has the effect of lowering wages. Individual native workers may be harmed by the immigration surplus, but the economy overall benefits from an influx of unskilled immigrants. An analysis of immigration’s effects on cities in general reveals that as Borjas (1994, 1995) found, immigration has weak negative effects on wages overall but may have a more pronounced negative effect on low-skilled native workers (Saiz 2003). Saiz (2003) writes that the most important impact of immigration on cities may be the consequences for the housing market. Immigration increases demand for housing and where the housing market is not elastic, this demand raises prices and rents. In areas where demand exceeds supply immigrants may be more willing to invest in refurbishing their homes, an action which can revitalize neighborhoods (Saiz 2003). Immigrants pay more in taxes than do natives and consume fewer welfare programs because in many cases they lack access. Overall, then, immigration has a positive impact on the economy of the United States.

Table 3-2**Chinese- and Indian-run companies as a share of total Silicon Valley High-technology start-ups, 1980-1998**

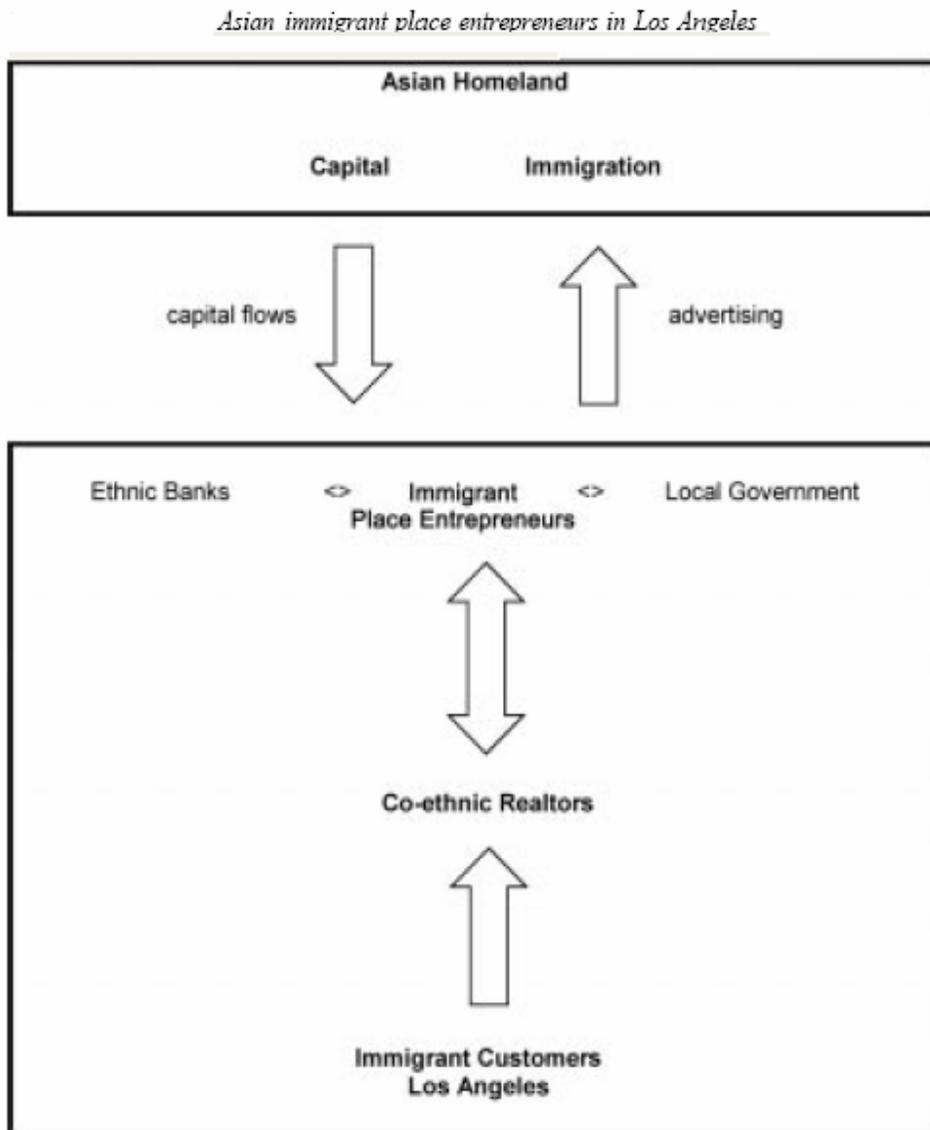
	1980-1984		1986-1989		1990-1994		1995-1998	
	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>
Indian	47	3	90	4	252	7	385	9
Chinese	121	9	347	15	724	19	809	20
White	1,181	88	1,827	81	2,787	74	2,869	71
Total	1,349	100	2,264	100	3,763	100	4,063	100

Source: Dun & Bradstreet (1998). Reproduced in AnnaLee Saxenian, “Silicon Valley’s New Immigrant High-Growth Entrepreneurs. *Economic Development Quarterly* 16, No. 1 (February 2002): 25.

The final section of the literature on the economics of immigration examines the effect of ethnic enclaves on the local economy. Kotkin (2000) describes the energy that immigrants bring to a new city and the fact that immigration has traditionally been the catalyst for international trade. He also points out that the city is no longer the traditional point of entry for immigrants, some are bypassing the city for the suburbs (Kotkin 2000). Light (2002) studied ethnic enclaves and found they may be formed by “place entrepreneurs” who market the city to their home country. Place entrepreneurs are people who market a location to a home country and buy and sell land and property in a neighborhood to immigrants. This creates a concentration of a certain ethnic group in a city that supports businesses and housing for those immigrants. See Figure 3-1 for an illustration of the linkages.

Logan, Alba and Stults (2003) examine the efficacy of ethnic economies within immigrant enclaves and whether immigrants are better off working inside their niche or outside it. Ethnic economies offer work to those whose English skills would not allow them to work elsewhere. In many cases they find a guaranteed job and workers are insulated from the competitive labor market even though they might easily earn more outside the ethnic economy (Logan, Alba and Stults 2003). The benefit of immigrant enclaves becomes the ability to absorb and provide a safe place for immigrants to assimilate to the local culture. Pamuk’s (2004) study of immigrants in San Francisco found that enclaves are often segregated areas where immigrants live because they cannot find housing elsewhere. However, immigrants may choose to live in ethnically homogeneous communities. Immigrant communities have higher levels of home ownership than do enclaves. The example Pamuk (2004) found was a Chinese immigrant community that was separate from Chinatown in San Francisco.

Figure 3-1



Source: Ivan Light, "Immigrant Place Entrepreneurs in Los Angeles, 1970-99," *International Journal of Urban and Regional Research*, 26, No 2 (June, 2002): 224.

Summary

The research based literature offers an impressive array of findings about the various dimensions of diversity. As Florida noted, diversity does have a number of different definitions, but the main idea is that an atmosphere of tolerance may be needed to promote economic growth. Unfortunately, it is not exactly clear that all kinds of diversity are indeed important for metropolitan development.

- One indication of tolerance for diverse viewpoints, according to Florida, is the presence of gay populations. One problem with this concept is that he measures gay population by the presence of gay couples in the latest census. The measurement problem makes it difficult to accept his premise that the gay index is a strong determinant of economic growth.
- Other scholars have not been able to replicate this linkage, even when they used Florida's own data. It may be that gays are simply a proxy for highly educated populations, and that it is best to target the highly educated, in a talent-oriented strategy.
- Diversity of race makes common sense as a goal, since racially segregated metropolitan areas are often associated with a number of other ills, but promoting racial diversity and overcoming racial segregation may not serve to promote economic growth. In fact, two of the most highly segregated metropolitan areas, Chicago and Detroit, have vastly different economic experiences.
- The exception to diversity by race is that set of findings which suggest that mixture may be the best policy for public housing residents, as happened with the Moving to Opportunity program sponsored by the U.S. Department of Housing and Urban Development.
- A number of anecdotal experiences confirmed Florida's suggestion that the bohemian presence is important for economic turnaround of certain neighborhoods. However we could not find evidence that other research scholars have been able to verify this hypothesis using empirical data.
- A great deal of evidence existed, however, that immigration can be associated with the economic growth and development. This is true for highly skilled immigrants, such as those moving to Silicon Valley, but it is also true, ironically, for unskilled immigrants.
- Of all the aspects of diversity that may lend themselves to policy intervention, immigration might be the surest bet. However the attempts of the Canadian government to use a conscious strategy to attract immigrant entrepreneurs has had mixed results.
- Ethnic enclaves of modest income also appeared to provide many benefits, however. Not the least of these is that they serve as a receptacle area for new immigrants. Encouraging immigrants who live in this state to prosper and to attract their families and friends may well prove to be a wise strategy.

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ENVIRONMENT

Environment

'Environment' refers to the *place-based amenities* that shape a community's economic competitiveness. As highly skilled people and knowledge-based firms become more 'footloose' and able to choose locations based on nontraditional factors, quality of life considerations increase in importance. The economic development community has come to expect the presence of high-quality community amenities to improve a city's ability to attract young, skilled workers and other urban pioneers considered essential for sustaining urban economic development. The Michigan TIDE model incorporates an expansive definition of 'Environment' that includes "natural, recreational, cultural and lifestyle amenities" (www.coolcities.com).

Growing Relevance to Economic Development

Traditional economic development practice was directed primarily toward attracting firms, to provide jobs for current residents and to encourage future population growth. In such a model, economic factors important to business leaders were considered the most relevant 'location-specific' features for economic development purposes. As evidence has emerged to support a relationship between 'quality of life' and competitiveness, local economic development practice increasingly incorporates arts and culture, entertainment, and other amenity-based approaches. Using Chicago as an example, Clark et al. (2002) describe an emerging paradigm among political leaders in cities that prioritize cultural projects and amenities:

... consumption and aesthetic issues have increasingly supplemented production concerns ... Chicago's largest industry has become entertainment (restaurants, hotels, conventions). ... Mayors and city governments respond to such consumption concerns by developing policies that enhance a distinct urban life style and neighborhood amenities. These policies encourage spending rather than earning money. They also stress lake-front aesthetics, concerts, restaurants, parks, boulevards, recreation programs, improving the schools, and reducing crime. The objective is to do all those things that make a city a livable and pleasant place (Clark et al 2002, 512).

This emphasis on consumer amenities is not unique to Chicago. McGovern (1997) describes Mayor Ed Rendell's deliberate strategy to shift Philadelphia's economic development investments to projects that emphasized cultural and entertainment opportunities throughout that city. Many cities and states continue to make massive public investments in sports facilities, at least in part with the vision of entertainment as a viable alternative to attracting new manufacturing firms (Bachelor 1998, Chapin 2004). The proliferation of casinos, in Michigan and across the country, may also reflect this growing emphasis on entertainment-based economic development.

Economic development research and theory also reflects this shift in emphasis. Betsy Donald, of the Williams Research Group, reviews the literature published through early 2000 and notes increasing attention over time to the linkages between quality of life and economic development while at the same time calling attention to the limited availability of empirical studies

demonstrating such impacts (Donald 2001). Only a year later, Clark et al (2002) confirmed the growing attention to amenities:

The more general importance of amenities for urban life, and even as a major cause of urban economic growth, is starting to become recognized by a few economists and urban policy analysts. For example, Glaeser (2000a) stresses non-market transactions like crime, education, and beautification. Other research seeks to measure these processes using national urban data and analysts report substantial impacts of many different amenities from high quality restaurants to bicycle paths on development, population growth, and high-tech jobs (513).

In developing his ‘creative capital’ theory of regional economic development, Richard Florida (2000, 2004, 2005) identifies the growing importance of ‘quality of place’ to development. He asserts that regions are successful “largely because creative people want to live there” and that members of the creative class “are not moving to these places for traditional reasons” (2004, 218). In Florida’s view, the creative class is drawn to “*abundant high-quality amenities and experiences, an openness to diversity of all kinds, and above all else the opportunity to validate their identities as creative people*” (Florida, 2004, 218, emphasis added). Although a number of scholars raise concerns about the rigor and precision of Florida’s methods (e.g., Lewis and Frisch 2004), most agree with Florida that ‘place matters’ and quality of life is increasingly important to economic development outcomes. Clark et al. (2002), among others (see discussion of Glaeser and Saiz 2004, in “Talent” review), concur that the high-talent workforce enjoys sufficient mobility to exercise considerable choice in deciding where to live.

Despite this recent strong and growing interest in amenities and ‘quality of life’ in economic development, the topic is not entirely new. Rutgers University researcher Clinton Andrews (2001) considers the current discussion of ‘quality of life’ and ‘quality of place’ as a continuation of prior work on the themes of ‘livability’ and ‘sustainability.’ Nearly twenty years ago, Dowell Myers (1988) published an article entitled “Building Knowledge about Quality of Life for Urban Planning,” in which he notes the complex “connections between quality of life and economic development” (348) and provides an overview that retains much of its relevance today. Myers describes a system (see Figure 4-1) which contains many of the same elements (urban design, arts and culture, entertainment, etc.) and relationships (e.g., urban amenities positively influence quality of life, which in turn attracts migration) that are currently being discussed in amenity-oriented economic development.

What is new in the current discussion of amenities is the shift in attention from attracting firms to attracting talented individuals. Florida identifies certain individuals – the creative class and its ‘super creative core’ – as key targets for regions to attract (Florida 2000, Florida 2004, Florida 2005). While Florida seeks to differentiate his ‘creative capital’ theory from explanations of growth based on ‘social capital’ and ‘human capital,’ Clark (2003) is probably more accurate in describing the amenities approach as a clarification of the human capital theory:

Classically, a location rich in production factors would generate more jobs, which in turn would attract people. Human capital theory stressed that talented persons create

innovations and jobs. Amenity theory builds in turn on these and suggests that amenities attract especially talented and innovative persons, who are more mobile (105).

...amenities act jointly with human capital. ... They transform a location into a scene. Sometimes a cool scene. Human capital theory is thus not incorrect, but contextually incomplete, underspecified, in that it does not explain where and why human capital locates. And since talent is in fact highly mobile, our amenities theory enters critically to close the causal loop, joining jobs with human capital (106).

Figure 4-1

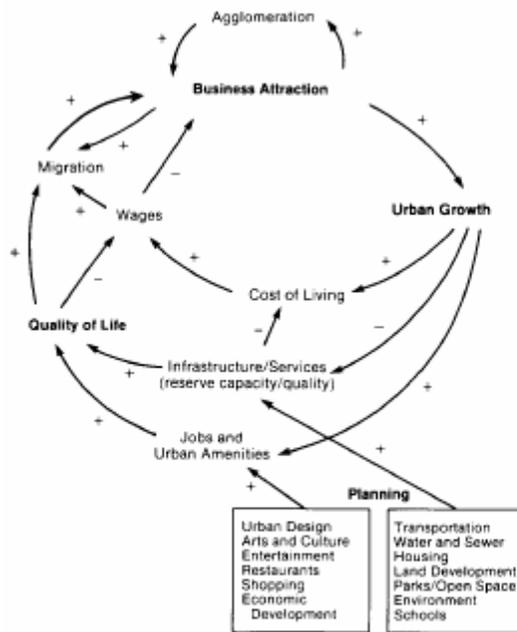


Figure 1. System of relationships linking development processes, quality of life, and urban planning.

Source: Myers, Dowell (1988) "Building Knowledge about Quality of Life for Urban Planning," Journal of the American Planning Association 54(3): 374.

This matter of economic theory is an important one, and several others have mentioned it. Clark (2003) has presented several other models that update Myers' model, above. We will describe one of these below. At this point, we will simply note the one model that most involves political decision-making.

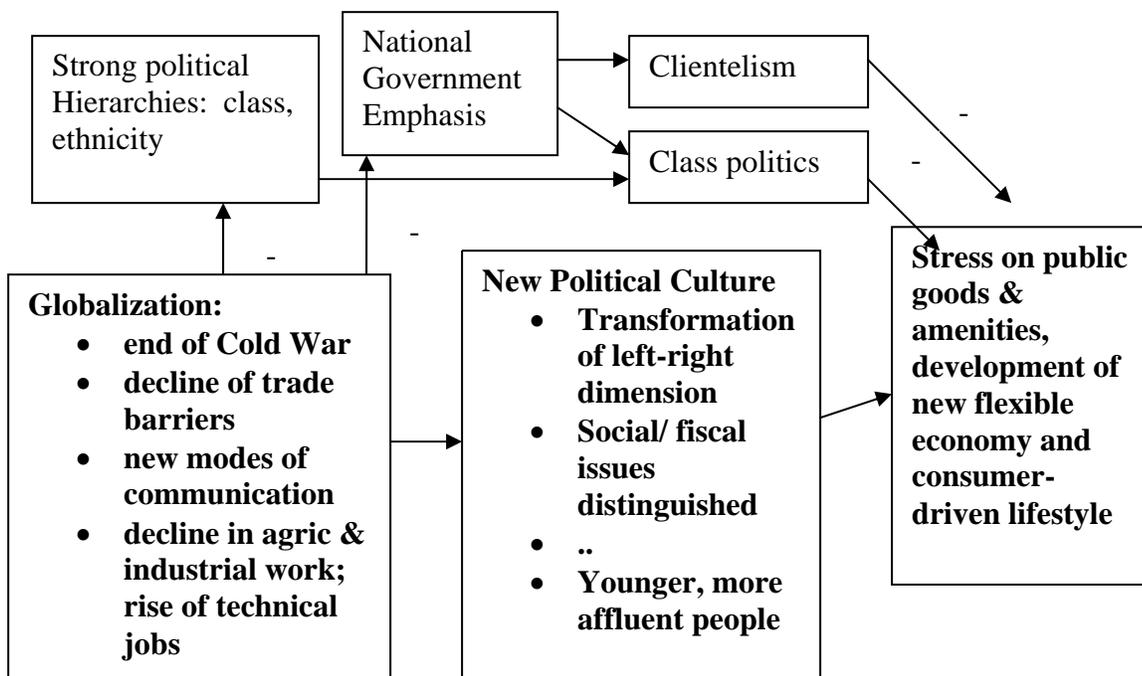
Clark et al. (2003) suggest that classic urban theories are no longer relevant, because of the processes of globalization and because of the role of amenities. Their analysis comes from an ongoing study of 35 countries in over 10,000 cities, plus in-depth study of one city, Chicago. They feel that amenities are a key factor in contemporary economic development, and they suggest that the growth machine model for urban redevelopment is no longer relevant. A new economy has emerged as well that focuses on information technology. The postindustrial

economy has been greatly changed by the rise of the individual citizen who is creating new markets, by the decline in the importance of large bureaucracies in both the public and private sectors, and by a decline in the power of classic economic base factors such as “distance, transportation costs, local labor costs, and proximity to natural resources and markets.” At the same time leisure pursuits have arisen in importance, such as the role of arts and aesthetics in people’s lives, as has the resulting desire for local officials to meet these demands in the form of public goods such as clean air and attractive views. It will become increasingly important to focus on the choices of citizens and workers themselves. Some mayors recognize that changing situation and have changed their style of governance; they could be called representatives of the “new political culture.” A few aspects of this culture are as follows:

1. Although people speak in terms of left and right, left has come to mean social issues rather than traditional class politics.
2. People often have different positions on social issues than they do on fiscal economic issues.
3. Hierarchical political organizations have declined, along with traditional bureaucracies.
4. These views are more the norm among younger, more educated individuals.

See Figure 4-2, below, for a graphic illustration of how this new political culture is influenced by globalization and, in turn, influences decision-making. The negative signs refer to influences that are no longer strong, and the bold type refers to phenomena that are having a major effect.

Figure 4-2

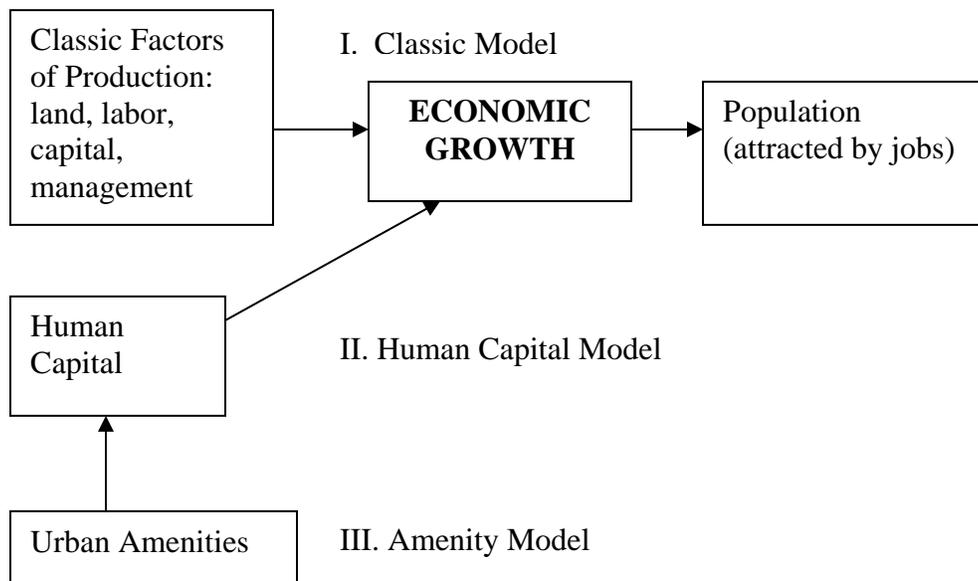


Source: Revised from Clark, T. N. with R. Lloyd, K. K. Wong, P. Jain. (2003). “Amenities Drive Urban Growth: A New Paradigm and Policy Linkages,” In Terry Clark, ed., The City as an Entertainment Machine, special issue of Research in Urban Policy, 9: 291-322. Elsevier, Ltd.

As described in a separate report, Chicago is the city that best illustrates the shift from old economy and old politics to new. The explicit policies of Mayor Richard M. Daley are an important factor in this change. His focus on continuing to move away from client-based politics and powerful bureaucracy and towards building amenities, particularly in the schools system and parks, has been a major factor in turning around what was once proclaimed a dying industrial city (Clark et al. 2003). Clark presents Figure 4-3 as an illustration of the emergence of a new amenities-based model. Note that this version simply expands our report’s Figure 1-1.

Figure 4-3

Clark’s Theory: Relationship between economic development models and growth



Source: T. N. Clark, (2003a). “Urban Amenities: Lakes, opera, and juice bars--do they drive development?” In Terry Clark, ed., The City as an Entertainment Machine, special issue of Research in Urban Policy, 9: 103-140. Elsevier, Ltd.

Definition and Measurement

Evaluating evidence for the relationship between place-based amenities and economic development is complicated by the broadly defined concepts and wide variety of methods and data sources involved.

A number of popular sources routinely generate rankings comparing communities as places to live, work, or visit (e.g., *Places Rated Almanac*, *Fortune* magazine, *Travel & Leisure* magazine) and communities often use these rankings for local planning and promotion (McCann 2004). Media representations of the “most livable” cities have influence on policy and a city’s marketing; cities actively work to “move up” in the rankings despite the fact that the

methodology of these ranking systems is often manipulated to favor certain traits (McCann 2004; Edmondson 1998). Scholars, however, consistently challenge the meaning and utility of these rankings, identifying problems of accuracy and reliability that result from the methods used to define and measure relevant concepts (e.g., Andrews 2001, Blair 1999, Edmondson 1998, McCann 2004, Wall 1999).

Richard Florida distinguishes between ‘quality of place’ and the “more traditional concept of quality of life” (Florida 2004, 231). He defines quality of place as “the unique set of characteristics that define a place and make it attractive” (Florida 2004, 231). Florida identifies three dimensions of quality of place: *what’s there* (built and natural environment), *who’s there* (diverse people interacting), and *what’s happening* (arts/culture/music scene, outdoor activities, street life).

Clark (2003) classifies amenities into two categories, *natural* and *constructed*. In proposing a theoretical model for understanding income distribution within regions, Brueckner, et. al., (1999) distinguishes between “historical” and “modern” constructed amenities, and asserts that modern amenities, because they reflect existing conditions of income distribution, are not useful in predicting location decisions.

Andrews (2001) describes ‘quality of place’ as the aggregated environmental factors of a location, which may impact the feeling of well being, or ‘quality of life,’ experienced by an individual resident or visitor. Because they are comprehensive and multidimensional, these concepts “offer much potential for forging consensus on plans and policies,” but for the same reason are problematic to define (Andrews 2001, 201). Andrews notes that quality of place “is at best a minor and subjectively interpreted subset of the factors affecting individual QOL [quality of life]” (Andrews 2001, 212).

Here are some major issues associated with measurement and Quality of Place [QOP], posed by Andrews (2001) as questions.

1. *Can we measure QOP?*
2. *Do links exist between QOP measurements and QOL perceptions?*
3. *Do links exist between public policy decisions and QOP outcomes?*
4. *Do useful tools exist which support local decision-making about QOP?*

Can we measure? Yes, a number of studies exist that measure quality of place. Some of these are cited in the Andrews (2001) article. The problem is that some desired indicators are not available because no one collects necessary data, because the data they are using are of the wrong scale, or because the data are not reliable. Almost entirely missing from data banks are valid aesthetic measures, although human health threats are agreed upon. Some political, social, economic, and physical factors are well measured, but others such as social cohesion depend upon proxies.

Links between QOP measures and QOL perceptions? It is also not clear that factors in the external environment contribute significantly to quality of life. An individual’s perception of quality of life, that is, may differ from whatever objective measures researchers might create about the environment. Many people have come up with ratings, but they sometimes use

arbitrary weighting of indicators, and don't take into consideration relative psychological values about what is important. Actually, no neutral measures exist that can allow us to assess QOP without making assumptions of some kind.

Links between public policy and QOP? This also is not clearly determined by empirical research. Scholarship is just being built up in this area, and it is still not quite clear exactly what decisions have the most effect. We do know that sprawl has negative fiscal impacts, that community policing improves trust, and that access to transportation assists property values. We also know that infrastructure quality, good schools, and good public services increase property values. Certainly the effects of negative amenities such as poor policing and physical decay have a demonstrably negative effect. New urbanism offers an increasingly popular theory about the connection between public decisions and QOP. But we also know that the most important QOP outcomes may be "unintentional," the effects of national policies, such as income tax and FHA policies. Furthermore, local actors have diverse views about which particular assortments of amenities are desirable.

Tools for local decision-makers? Because of the above situation, Andrews suggests that the issue of indicators and quality of place is not really a research question so much as a consultative one. No one's specific model is value free. He suggests that instead it's better to have a community dialogue about what indicators are important, in a process that is participatory and involves key stakeholders. This should be undertaken in a way that evaluates the consequences of various plans and policies. Universities can help with analytical capacity, but only if the analysts see themselves as providing a service to local decision makers.

Economic development impacts of amenities

This section considers the empirical research into the relationship between amenities and economic growth. Although evidence tends to support the assertion that quality of place does matter – to the spatial distribution of development in general and to the location decisions of talented individuals in particular – the implications for cities seeking to implement amenity-based development strategies are not entirely clear.

From research conducted during the 1970s and the 1980s, Myers (1988) concludes, "quality of life is one of the three most important factors in location decisions, particularly for knowledge-based industries" (1988, 357n). Blair (1999) notes that, as measured by surveys of executives in 1987 and 1994, the relative importance of 'quality of life' factors to business location decisions had increased over that period. Salvesen and Renski (2002) review the literature on business location and site selection and draw similar conclusions. Of particular interest is evidence that suggests knowledge-intensive and high-technology firms are most likely to consider quality of life factors in location decisions (Salvesen and Renski 2002).

Most of the reported studies of the influence of amenities on the location decisions of individuals are of the 'stated preference' approach. Florida, for example, cites a number of surveys and focus groups in which recent graduates, people changing jobs, and high tech workers express strong preferences for amenities in selecting where to live (2004, 2005). The Michigan Cool Cities Initiative conducted an online survey about preferred community characteristics, which

identified basic community attributes such as safety, affordability, and walkability as most important to respondents while also providing the basis for developing a series of ‘development targets’ based on a factor analysis of the 31 community attributes included in the survey (MEDC, 2004).

A few published studies consider the actual location decisions of individuals with regard to amenities. Florida (2004, 2005) correlates the presence of certain amenities to human capital and high technology concentration, and concludes that climate, cultural, and recreational amenities are each important, with cultural amenities having the strongest correlation of the three (Florida 2004, Florida 2005). Florida’s analysis and conclusions have sparked extensive discussion and debate, and have not been accepted without criticism. Lewis and Frisch (2004) summarize much of this criticism, arguing that Florida’s methods “are flawed at best, lack rigor, and often misrepresent causality” (Lewis and Frisch 2004, 9).

The most rigorous, and relevant, test of the hypothesis that amenities matter to the location of individuals is reported by Clark (2003). Clark used a regression analysis to test the effects of selected “natural” and “constructed” amenities upon the level and change in population for 1,311 counties nationwide. His analysis compared overall population change between 1980-1990 and 1990-2000, confirming the expectation that people, in general, are indeed drawn to places with more amenities. Of particular interest to the Cool Cities discussion are Clark’s findings about selected subgroups of the population (which were available for 1980-1990 changes only). Clark examined population concentration and growth based on education, occupation, age, and ethnicity, as well as those filing high tech patents.

Clark “considers how different urban amenities attract or repel different types of residents” (104). The amenities measures used are natural amenities (climate, humidity, temperature, water); and constructed amenities (big – operas, research libraries, used/rare bookstores; and smaller – juice bars, Starbucks, brew pubs, Whole Foods stores, bicycle events). A factor analysis (results on Table 3., p. 121) supports combining all constructed amenities into a single factor, while sorting the natural amenities into three factors.

More total growth was found in locations with more amenities (both natural and constructed); counties with more gay households (with qualifications; a finding he questioned in another section of this same book, Clark 2003b), with smaller populations, and with higher median family incomes also show more growth. For subgroups, results change: college grads are more numerous where fewer natural but more constructed amenities are present; elderly population growth occurred with more natural and fewer constructed amenities; residents filing high tech patents lived in places with more of both kinds of amenities.

Based on his research, Clark concludes that both human capital and amenities act jointly, to “transform a location into a scene,” leading him to propose Figure 4-3.

Other topics of interest

This section offers a brief overview from the literature related to several specific topics relevant to the Michigan Cool Cities Initiative. Included are summaries on issues related to growth

management, smaller cities, transit and walkability, and specific strategies and policies such as stadium projects, waterfront development, and local building code enforcement.

Growth Management

Research by Dawkins and Nelson (1999) evaluated the impact of state-level growth management legislation on the share of new construction activity ‘captured’ by central cities. This is a unique technique that has looked specifically at the effects of land use controls on building permit activities, particularly focusing on a number of states where growth management has been implemented.

The authors examined 293 metropolitan statistical areas (MSAs) for nineteen time periods, 1980-1998. Their measure for central-city housing investment was the primary central city’s share of new residential building permits within an MSA for a given year. Using their definition of growth management programs, several states had statewide programs at the time of their study: Florida, Maine, Maryland, and others listed in Table 4-1. Those with *vertical consistency* had a connection between local planning and state land use policy goals. Those with *horizontal consistency* had consistency across jurisdictional boundaries, while those with *internal consistency* had a level of consistency between local comprehensive plans and land use decisions.

Table 4-1
U.S. states with statewide growth management programs

State	Legislation	Date of adoption	Consistency requirements ^a
Florida	Local government comprehensive planning and land development regulation act	1985	V, H, I
Maine	Comprehensive planning and land use management act	1988	V, H, I
Maryland	Economic growth, resource protection, and planning act	1992	V, I
New Jersey	State planning act	1986	I
Oregon	Land conservation and development act	1973	V, I
Rhode Island	Comprehensive planning and land use regulation act	1988	V, H, I
Vermont	Growth management act	1988	H, I
Washington	Growth management act	1990	H, I

a. V=vertical consistency; H=horizontal consistency; I=internal consistency.

Source: Casey Dawkins and Authur Nelson, “State growth management programs and central-city revitalization, *Journal of the American Planning Association* 69, 4 (Autumn 2003): 381 – 395.

Dawkins and Nelson (1999) found that, on the average, primary central cities in the US have been losing their share of MSA residential construction over time. They found no evidence in their more recent data that the suburban share of new housing was connected to the central city's share of African Americans. However they did find that larger, older industrial cities have been losing new construction in their metro areas compared to smaller, newer Sunbelt cities. They also found that two variables, central-city annexation and the length of time a state growth management program has existed, were strongly related to central-city share of new construction. They suggested that these two approaches have similar effects. A strong growth management program and annexation, they suggest, both motivate developers to try to find land to develop within central cities. Such strategies have succeeded in places other than in the West. They concluded that state growth management programs have a strong potential to contribute to central-city revitalization.

Smaller cities

For smaller cities and towns, approaches to attracting both investment and population will be different than for larger metropolitan areas. While there is limited research on revitalization specific to smaller cities, a few studies do examine the issue. To identify key problems and common strategies being used to address them, Robertson (1999) surveyed planners in 57 cities with populations between 25,000 to 50,000, and conducted case studies of five such cities. Filion, et al (2004) surveyed professional planners to identify successful cities and the qualities that contribute to downtown success, in metropolitan regions between 100,000 and 500,000 population.

Robertson (1999) concludes that effective revitalization of small cities may include reinforcing the downtown's distinctiveness and sense of place, ensuring that downtowns are as multifunctional as possible, building on existing assets, enforcing design regulations, and using public/private partnerships dedicated to the downtown. Filion, et al (2004) found that planners rated only a small number of cities as highly successful: fewer than 30 in the United States and Canada. Attributes that were considered 'very important' to success included active retail scene, pedestrian environment, cultural activities, street-oriented retail, people on sidewalks, and employment. From interviews in 24 cities rated as successful, Filion, et al (2004) found that traditional downtown attributes continue to make successful downtowns. The cities were often home to 'extraordinary assets' such as a university or seat of government, but the authors conclude that cities can capitalize on existing assets by accentuating historical character, encouraging street-level activity, and enhancing retail opportunities (Filion, et al 2004).

Transit and walkability

A few empirical studies have also begun to confirm the importance of walkability and transit. For example, Lund (2003) evaluated the claim that new urbanism's strategy of encouraging pedestrian travel through better design would change the way people interact within the neighborhood. The study compared suburban and inner city neighborhoods in the Portland metropolitan area, and some of the studied neighborhoods met the selection criteria of direct routes to local destinations, pedestrian environment that included sidewalks and shallow setbacks, and local shopping in proximity. Surveys of residents revealed that greater access and

pedestrian environment did have an effect on resident interaction in the neighborhood, but that a better predictor of that “neighboring” interaction was an individual’s attitude toward the importance of an activity such as walking. She did find that residents appeared to be using, and walking to, local shopping areas at a higher rate in “new urbanist” neighborhoods. She concluded that locating amenities such as shops and parks within a neighborhood, in a pedestrian-friendly streetscape, can increase pedestrian traffic and neighboring behavior (Lund 2003).

A number of studies are also beginning to explore the relationship between urban form and use of automobiles. This literature suggests that compact urban form leads to less use of automobiles by urban populations. Krizek (2003), for example, documents this for the Seattle, Washington region, using the Puget Sound Transportation Panel.

A number of case studies have also been developed to which show the clear benefits of population density in retaining urban life. Based on the concepts of Jane Jacobs, these theories suggest that enhancing density and reliance upon both pedestrianism and public transit are necessary for urban survival.

Sports facilities

An extensive empirical literature has been written on sports stadiums, much of it suggesting that a sports stadium strategy is limited in its effectiveness. This literature is so extensive and well established that we will do little more than cite an article which reviews other studies, by Chapin (2004), and a book by eighteen other authors who have written extensively on the subject with a focus on Indianapolis, Rosentraub (1997). We will note one important thought, however, by Chapin (2004). Cities continue to build stadiums in spite of the research findings that stadiums do not generate economic growth for a reason. He has suggested the reason they are actually looking for the stadiums to help create a redevelopment district. The stadium itself might be a losing proposition, but the desire is to stimulate growth and development in the surrounding areas. He suggested three indicators of urban redevelopment that should be evident in such districts:

1. Reuse of existing buildings or spaces;
2. New construction within the surrounding district;
3. Emergence of a new sports district or entertainment district.

Chapin then looked at two case studies in depth: Baltimore’s Camden Yards and Cleveland’s Gateway. He assessed each in terms of whether are not these indications of redevelopment were present as a result of construction of the sports stadium. He concluded that Camden Yards could not be considered a successful catalyst in Baltimore, but that Cleveland’s Gateway project could be considered a success in Cleveland. He pointed out that other districts in other cities have had similar success, possibly San Diego and Columbus. He suggested that marketing a sports stadium district could indeed be a successful strategy, if carried out carefully enough.

Waterfront redevelopment

Cities with locations along rivers, lakes, or oceans often focus revitalization efforts on the waterfront (Clark et al 2002). Gordon (1999) presents detailed case studies of the financial aspects of implementing four extensive waterfront redevelopment projects (in Boston, London, New York, and Toronto). Based on interviews of nearly 100 key implementers, Gordon constructed histories of the structure, process, and financing of project activities. He considered issues of assembling start-up funding, attracting private development, and adjusting to real estate market cycles over the course of the project. Gordon applied the “conventional discounted case flow analysis used for real estate investments” (261) to these waterfront redevelopment projects and found that all were ultimately dependent on public subsidies. Gordon offered general lessons that might be applicable in case of the Detroit riverfront redevelopment. Implementers should:

1. be aware that revitalizing an urban waterfront is expensive;
2. expect first private investments to be small;
3. plan for real estate market cycles;
4. consider long-term leases rather than land sales;
5. aim to minimize government start-up cash cost, and
6. design approval processes to act quickly on opportunities when market conditions favor, and plan to span several market cycles.

Tourism

A catchall phrase for summarizing several of the above strategies, including sports stadiums and riverfront development, is tourism. Some of the major work on this field has been done by Dennis Judd (2003). Although most of the material comes in the form of case studies, Judd oversaw a major survey that indicated that a cross section of U.S. cities are looking at the creation of convention centers, festivals, cultural districts, and other events as a major strategy for economic development. Creating the infrastructure for such activities has turned out to be a successful strategy for several cities, most notably places like Baltimore, New Orleans, and Indianapolis.

Code enforcement

One study was found that examined the impacts of local policies to promote development through ‘development-friendly’ code enforcement. Burby et al (2000) measured the extent to which building code enforcement may help central cities compete for economic development within metro regions. Using a sample of 155 central cities, the authors examined the effect of policy variables related to code enforcement upon central city “capture” of construction activity (per capita, ratio of central city to MSA).

The independent variable included two dimensions (rigid/systematic and facilitative) to distinguish four enforcement strategies (strict, creative, facilitative, and accommodative). This was measured via a 1995 survey of local building officials, with dependent variables obtained from building permit data. They included the number of units and value for six types of construction activity (new single family, new multifamily, industrial, office, and retail

construction, and, commercial rehabilitation). These were controlled for population by using per capita values.

Using multivariate regression, they found no effect on four types of construction, but did detect effects on single-family housing and commercial rehabilitation construction. Finding of significance: systematic enforcement had negative effects on construction of single-family housing and on rehabilitation of commercial structures. On the other hand, more permissive policies did not consistently encourage construction; facilitative philosophy had positive but not statistically significant effect. They concluded that cities should avoid strict enforcement of regulations and should rather adopt a business-friendly approach to enforcing codes if they want to encourage new construction.

Summary

Although environment does not stand alone as the most important factor in economic development, it is becoming obvious that it is increasingly important. Contemporary theories of economic development in urban areas have increasingly referenced amenities and other environmental factors. This is becoming true in part because of globalization, in part because of the new political culture, which is changing cities and the people who work in them. Here are some summary findings from the section on environment:

- A number of popular sources routinely rank communities as places to live, but these tend to be on the whole fairly subjective. Actual measurement of the concept of amenities or quality of place has proved to be very difficult.
- Although a number of typologies are used in various sources, one distinction is between the natural environment, such as waterfront proximity or weather, and the constructed environment, over which people have some control.
- The linkage between public policy and quality of place is also not clear from the research, except in certain obvious areas, such as sprawl, community policing, and transportation. A number of quality of place outcomes may be unintentional, caused by national policies.
- One scholar therefore suggests that the real issue for indicators is not how to create a defensible research project that measures change, but rather how to create a community dialogue about what key stakeholders want to see and which measures they would accept as indications of desired change.
- The most rigorous test of the hypothesis that amenities matter is reported by one author, Clark. He confirmed the expectation that people are in general drawn to places with more amenities. Results varied, however, by subgroup and by locale. For example, college graduates seem to be more numerous where constructed amenities were present instead of natural amenities.

A number of specific topics of interest provided further insight into the role of environment in enhancing urban growth and development.

- Growth management, where established at a state level, appears to be a clear factor in encouraging urban revitalization. A very reliable study of several state growth management programs shows that building permit activity has increased where growth management policies have been in place the longest.

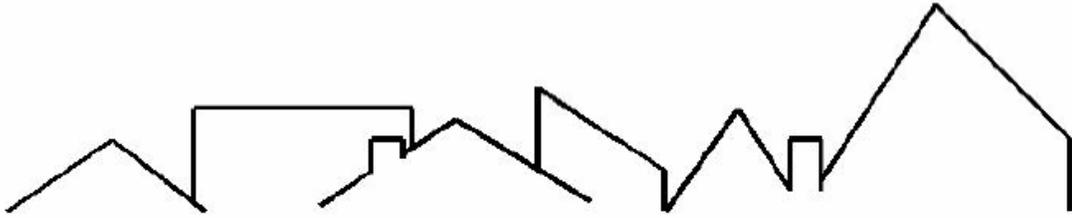
- Limited empirical research exists on small cities. However surveys of planners indicate that the expected kinds of amenity enhancements, such as a distinctive downtown with a sense of place, as well as strategies such as design regulations, could indeed have an effect on improving small cities.
- A few studies also seemed to document the positive effects of creating pedestrian neighborhoods for livability, neighboring, and support for local retail.
- Studies of sports stadiums have consistently shown that such strategies do not in themselves bring about economic development. However at least one study suggests that the reason localities continue with this strategy is to be able to support redevelopment districts. In some cities such districts can be very successful spurs for surrounding areas.
- Waterfront development can also be very effective as a strategy, although it can be very expensive and has to be planned to carefully.
- One other potential strategy would be to look at the nature of building regulations and to make sure that these are not too oppressive.

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