CHASING THE PAST

OR | investing in our future

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full report

PLACEMAKING FOR PROSPERITY IN THE NEW ECONOMY

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Chasing the Past or Investing in Our Future: Placemaking for Prosperity in the New Economy

IN THESE DARK ECONOMIC TIMES, COMMUNITIES ACROSS THE UNITED STATES ARE ASKING THIS FUNDAMENTAL QUESTION: "WHAT DO WE NEED TO DO TO SURVIVE— AND, IDEALLY, PROSPER—IN THE NEW ECONOMY?

Executive Summary

Background

In these dark economic times, communities across the U.S. are asking this fundamental question: "What do we need to do to survive—and, ideally, prosper—in the New Economy?"

This report seeks to clarify the answer to this question by "decomposing" economic growth into income-related, employment-related and population-related "elements" of prosperity. Using data from all counties for which information is available nationally, this report teases apart the multiple, integrated economic, social and geographical factors that contribute to prosperity in the New Economy; analyzes their synergistic effect on each other; and then offers economic strategies for communities to command their futures.

The report reviews past studies of drivers of growth, noting that they focused mostly on the specific roles of specific drivers in specific contexts. For example, much of the work of Richard Florida and Ed Glaeser addressed the issue of amenities as attractors of talent and knowledge workers to urban areas, and the economic growth impacts of such workers. The report suggests the importance of an integrated framework that would allow the comparison of the relative effects of alternative growth drivers, the pathways of each to prosperity, and the differences in effects between metro and non-metro areas. In developing the methodology for this study, a "New Economy Growth Theory" is presented, which suggests that new drivers of growth have emerged in

the New Economy from a set of previously intangible drivers in the Old Economy. The implication is that the emergence of these New Economy drivers renders strict neoclassical growth concepts of the economy inappropriate in explaining growth and prosperity. The report contrasts the Old Economy and the New Economy. It further explains the implication of the New Economy for land use, growth strategies, economic development and prosperity. It introduces a new concept of *"place"* in the New Economy, indicating that place can be viewed in the context of a location that is laden with the attributes that people want and view as important, and are willing to move there to attain those attributes. It defines *"economic, social and environmental placemaking"* as "the use of strategic assets, talent attractors and sustainable growth levers to create attractive and sustainable high-energy, high-amenity, high-impact, high-income communities that can succeed in the New Economy."

The report's analyses strongly suggest that local and state policy makers act decisively within the context of the New Economy's realities—which have eclipsed the older model of economic development in Michigan and elsewhere. For example, people today "chase place," not necessarily jobs, as in the past. Additionally, the report's findings suggest that communities can find themselves either in the mode of *synergistic growth* or *synergistic decline*. Economies that find themselves on the wrong side of growth may continue to spiral down if they don't employ effective strategies to avert a free fall. The report also finds that economic development

at the regional level, clustered around assets, looks to afford communities an opportunity to be on the upside of growth.

Key to the report is the nature of relationships among drivers of growth. These include:

- *Green infrastructure*, which include developed amenities, land amenities, winter amenities, water amenities and climate amenities;

- *Gray infrastructure*, which include highways, airports, telecommunications infrastructure and a commuting-related variable;

- *Talent, knowledge and education factors*, which includes 25- to 34-year-olds, the number of people with bachelor's degree or higher and the presence of the creative class;

- *Higher education presence*, which include the number of universities or colleges;

- *Immigrants*;

- *Socio-economic factors*, which include unemployment, poverty and healthcare affordability;

- *Legacy issues*, which includes the extent to which the economy is steeped in manufacturing or agriculture, in contrast to financial and other services;

- *Migration*;

- *Role of government*, which include taxation and public expenditure;

- *Housing market factors*, which includes home vacancy, housing affordability and rental affordability;

- *Demographic factors*, which includes senior citizens, young adults and the percent of urban population;

- *Regions of the U.S.*;

- *Other determinants of how the New Economy functions*, which includes patent issue, creative class employment, racial diversity and returns from investments.

With respect to green infrastructure, developed amenities include such things as parks, playgrounds, swimming pools, campgrounds, fairgrounds, amusement places, museums and tennis courts; land amenities include such things as guide services, campground sites, mountain acres, cropland, pastureland, rangeland, public campground sites, federally owned forest land, state park acres, rail-to-trail miles, acres of private forest land, and The Nature Conservancy acres with public access; water amenities include such things as marinas, inland lakes, bodies of water, wetland acres, rivers, and canoe rental places; climate amenities include such things as average July temperature, the number of days with sunlight and average January temperature; and winter amenities include such things as ski areas, federal land in significant annual snowfall and agricultural land in significant snowfall area.

Findings

Among the report's highlights are important conclusions that economic drivers of choice must fit with a specific place:

- *"Knowledge workers" are key drivers of place competitiveness in the New Economy.* The estimated effects of the concentration of 25- to 34-year-olds (a group expected to possess the newest vintage of knowledge and talent and to be more mobile) support previous findings that knowledge and creativity translate into job creation in metro areas but not in non-metro areas. While attracting knowledge is a viable strategy in metro areas, non-metro communities may want to pursue other strategies that may well be more fruitful in achieving economic development.

- *Education matters in attracting people.* The concentration of college-educated people helps

attract population to metro areas (although no increase in per capita income or jobs accompanies such population).

- *Colleges and Universities matter, but only in metro settings.* Colleges and universities are known to be treasure troves of innovation. They also create jobs and attract population in metro areas. The presence of a university or college is not found to make any difference in non-metro areas.

- *Innovation counts, but more in metro areas.* Patents translate into job opportunities in metro areas but have only modest effects in non-metro areas. Patents, however, have similar per capita income enhancement effects in both metro and non-metro areas. This further supports the notion of university-centered economic development strategies for metropolitan areas.

- *Senior citizens matter, but more in metro areas.* Some communities are considering the attraction of retired or senior citizens as a strategy for economic development. This strategy may work in metro areas but not as well in non-metro areas. In metro areas, the presence of senior citizens translates into job creation and per capita income growth, two key elements of prosperity, although they tend to crowd out other age groups. In non-metro areas, while they are associated with marginal increase in per capita income, they crowd out jobs and other age groups. This finding is intriguing considering the widely held view that if you can't attract the youth in non-metro areas, then attract retirees.

- *Immigrants matter for population attraction and jobs creation in urban areas.* More and more immigrants are knowledge workers and possess greater entrepreneurial spirit. This report finds that immigrants are associated with population growth in both metro and non-metro areas but add to the job base only in metro areas, suggesting that immigration-based strategies for economic

development may suit metro communities. The growing presence of immigrants means a decline in income growth, more so in non-metro areas.

- *Places should try to avoid the wrong side of growth.* Employment, per capita income and population (the growth elements) tend to be synergistic and mostly complementary. They tend to spiral up or down together. The growth or decline machinery is more pronounced in metro areas than non-metro areas.

- *Low taxes attract population, more so in non-metro areas, but do not affect job creation or income growth.* For communities that are focused on trying to keep taxes reasonable relative to services provided, the report finds that such low taxes are associated with population growth (more so in non-metro areas). Local fiscal policy, however, does not seem to have an effect on job or per capita income growth. Therefore, the old strategy of tax-based job attraction only attracts population but does not affect employment or income.

- *Gray infrastructure development means more jobs, income and population.* The Obama administration appears to be correct in targeting some of the 2009 American Recovery and Reinvestment Act (ARRA) money toward gray infrastructure. Report results predict that such investments are associated with population attraction, higher per capita income and jobs creation in both metro and non-metro areas.

- *Green is good for jobs.* Green infrastructure—trails, recreation areas, parks—tend universally to be a very potent driver of growth, particularly in metro areas.

NEW ECONOMY A global, entrepreneurial and knowledge-based economy, wherein business success comes increasingly from the ability to incorporate knowledge, technology, creativity and innovation into products and services.

- *It is easier to bounce back from unemployment than from poverty.* The unemployment rate does not seem to affect jobs, income or population growth. However, the poverty rate does. Poverty contributes to the loss of population in metro area, but not in non-metro areas. Poverty also translates into greater loss in per capita income in metro areas than in non-metro areas.

- *The Midwest may be extra challenged.* The Midwest seems to have a structural limitation, which makes it less attractive for growth in population and jobs than are the Southwest, the West and the Southeast.

- *Metro areas have a natural income growth edge, while non-metro areas have a natural population and employment edge.* Holding other factors constant, metro areas have a natural tendency to grow their average income but lose employment. However, non-metro areas have a natural tendency to grow population and employment but lose income.

- *Housing vacancy and property value declines can attract population and translate into job opportunities in metro areas.* With respect to housing market factors, housing vacancy is associated with far greater population attraction to metro areas than to non-metro areas. Higher housing values, however, detract more from job creation in metro counties than they do in non-metro counties. In metro areas, higher housing values do not affect population and per capita income but are associated with enhancement of population and incomes in non-metro counties.

- *High healthcare costs slow down income growth.* While expensive healthcare is associated with a slowdown in per capita income growth in metro counties, it is not in non-metro counties.

- *Manufacturing and agriculture have legacy costs with respect to growth.* Economies that are transitioned away from agriculture and manufacturing tend to have much faster growth performance in population and income. The ability to grow jobs, however, does not seem to be constrained by legacy, although the ability to grow income and attract population is.

- *Jobs follow the creative class into metro areas but not to non-metro areas.* However, income follows the creative class into non-metro areas.

- *Patents are far more powerful in job creation in metro areas than in non-metro areas.* Patents however have similar per capita income enhancement effects in both metro and non-metro areas.

Policy and Strategy Implications

The policy and strategy implications of this study are significant, suggesting that local and state policy makers act decisively within the context of the New Economy's realities. Among our policy and strategy implications are:

For Metro areas:

- Focus on population attraction, especially knowledge workers, such as 25- to 34-year-olds, the creative class and college graduates, as well as targeted immigrants.

- Harness the inherent knowledge base of universities, especially leveraging the fact that they produce both knowledge workers of the future and intellectual property.

- "Place-make" to attract knowledge workers through such green infrastructure investments as trails, parks, recreational areas, amusement places and so forth.

- Manage urban unemployment to avoid the onset of concentrated poverty as this would prolong economic hardship and make it more difficult to rebound from economic decline.

- Avoid getting into a cycle of decline whereby population, income and employment spiral downward. The synergistic relationship between these growth elements suggest that struggling communities must find creative and innovative ways to jumpstart a recovery cycle.

- Recognize the systemic potential of jobs to be drained out of metro areas over time. Cities in particular must have a unique job creation strategy that leverages their unique assets and that build on their relative comparative advantage, vis-à-vis non-metro places, in the New Economy.

- Old industrial places built on an industrial legacy should be working aggressively to diversify their economies and nurture the emergence of New Economy sectors. High-value services and general service, for example, are expected to be more potent generators of new opportunities than manufacturing.

- Focus more on strategies to attract New Economy growth rather than on strategies that focus on fiscal competition, which are largely ineffective in job creation. In fact, the latter strategies have a tendency to attract population, making the job of economic development more difficult.

- Avoid chasing the past or making old-style investments in growth that will not last. Instead, make strategic investments in New Economy infrastructure, which, on the surface, are more difficult to understand because of their indirect effects on jobs and income, but present valuable pathways to the future.

- Consider population attraction strategies targeted toward senior citizens, especially in metro communities that have shrunk considerably. Recognizing that seniors may crowd out other population groups that may be central to the transition to the New Economy, careful use of this tool is advised.

- Leverage the current high inventory of vacant properties and low property values to target knowledge workers, the creative class, and the 25- to 34-year-olds through marketing programs to attract economic activity into a city.

- For cities in the Midwest and Northeast, consider the possibility that prosperity is more of an uphill battle for your city and develop creative strategies to compensate for your regional structural limitations.

PROSPERITY
A state of stable, reliable and secure growth, with rising employment, income and overall quality of life that ensures transcendental success.

For Non-metro Areas:

- Recognize the structural disadvantage faced by non-metro communities and the possibility that economic growth may be more favorable to metropolitan areas. Furthermore, factor into decision-making the possibility that it may become increasingly difficult for non-metro areas to compete for the drivers of growth in the New Economy.

- Recognize the more limited marginal impacts of such growth drivers as knowledge workers, college graduates, 25- to 34-year-olds and colleges and universities in non-metro areas. Employ other creative strategies.

- Recognize that non-metro communities are still generally more dependent upon traditional industries, such as agriculture. Nurture such industries in order to maintain the economic base they currently afford.

- While agriculture offers little in terms of the potential for additional employment and income growth, the projected effect of intensifying agricultural activities is still positive. Non-metro communities should recognize the fact that agriculture needs an infrastructure of support, which could include favorable policies, agricultural development strategies, agricultural rights protection, industry marketing and favorable zoning provisions. Non-metro communities need to reexamine the role of agriculture in the non-metro economy and how well their policies support the industry.

- Champion a national initiative to thoroughly examine the role of agriculture and manufacturing activities that currently anchor economic activity in non-metro areas.

- Recognize that the New Economy may be more difficult to leverage in non-metro areas, explore the concept of "New Agriculture." For example, agriculture can be better tied to emerging opportunities in information and telecommunication technology, financial services and renewable energy.

- Pursue opportunities for gray infrastructure investments that would result in job creation. In fact, non-metropolitan places were shown to have a high potential for per capita income growth as a result of gray infrastructure investment. The 2009 ARRA legislation presents opportunities for non-metro areas to redefine themselves.

- Pursue opportunities to connect the rural economy to those of nearby metro areas. Rural bed-and-breakfasts, farm-based recreational facilities, non-metro hunting and fishing facilities, outdoor recreation facilities, non-metro roadside stands, well-advertised rural fairs, prepared packaged foods production on farms, assisted-living facilities in rural areas, marinas, horse parks, use of barns as storage facilities, rural business incubators and rural winter amenities that connect rural and metro areas have been pursued successfully by many. Urban farmers' markets and food fairs may also offer opportunities.

- Recognize that the infrastructure needs of non-metro areas may be different than those in non-metro areas. In addition to traditional gray infrastructure, the facilities mentioned above may well be necessary for non-metro communities.

- The fact that favorable tax strategies potentially result in population attraction may offer an opportunity to repopulate non-metro areas. Non-metro communities should, however, note that unless job opportunities are created, such population growth may not bring meaningful benefits.

- Recognize the fact that service activities and manufacturing yield significantly better returns with respect to employment and income. Explore service activities that are synergistic with the asset base of non-metro communities.

- Pursue a national initiative to investigate the New Economy elements that tie in better with non-metro economies.

- While immigrants and first-generation Americans are not expected to be easily attracted to many non-metro areas and may well be less productive in such areas, it is advisable to explore ways of attracting high-net-worth foreign investors whose resources can make a difference. By leveraging the EB-5 Visa provision of immigration law to attract foreign investors who can make a difference through their investments, opportunities may well emerge to grow the non-metro economy.

- Pursue opportunities for partnerships with foundations and others committed to the issue of rural poverty to address rural poverty and prevent further downward spiral in rural economies.

- Data was not available to fully explore the roles of business incubators, emerging farm businesses, bed-and-breakfasts, roadside stands and other market connectors between agriculture and the non-farm public. The roles of these agriculture related strategies needs to be better understood.

Conclusion

The American Recovery and Reinvestment Act of 2009 offers both rural and urban America a unique opportunity to re-invest in themselves. However, what is more important is how various communities spend this money. Clearly, expenditure in shovel-ready gray infrastructure projects will create jobs. However, the effects will only be long-lasting and bring meaningful change in the transition toward the New Economy if the investments are put into infrastructure that can attract New Economy growth. We urge communities across the U.S. to consider the title of this report: "Chasing the Past or Investing in Our Future." Effective "Placemaking for Prosperity in the New Economy" requires an understanding of the critical assets of the community and region and the unique opportunities that they face.

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Part 1: Rethinking Prosperity in a Turbulent Economy

MUCH OF OUR KNOWLEDGE ABOUT LOCAL ECONOMIC DEVELOPMENT HAS COME FROM THE NEOCLASSICAL INDUSTRIAL CONCEPT OF GROWTH. WHETHER SUCH CONCEPTS ARE STILL VALID IS MUCH CONTESTED TODAY.

1.1 New Climate for Local Economic Development

Americans enjoyed unprecedented prosperity since World War II. According to Bauer et al. (2006), the real average U.S. per capita personal income grew by more than 400% during that period (average of almost 4% per year). In more recent years, U.S. growth has slowed down. The World Bank's projection for 2009 is below zero, while the average for the past few years is less than 2% (World Bank, 2008).

The American people are struggling to maintain the types of growth and prosperity that came easily in the past. Communities across the nation are also struggling to develop strategies that are effective today in local economic development. Unlike the past, when national prosperity was almost guaranteed, communities and states in the U.S. are now competing for prosperity, as local growth appears now to be a zero-sum game. The outcomes of local economic development efforts are also less predictable and increasingly more difficult to engineer.

Much of our knowledge about local economic development has come from the neoclassical industrial concept of growth. Whether such concepts are still valid is much contested today. The notion that capital, skilled labor, management and exhaustible natural resources, the so-called basic factors of production, are the key drivers of the economic performance of a place has guided local economic development efforts.[1]

Much of what state and local economic development professionals and planners know about economic development was not only learned in an environment of rapid economic growth, but is also based on these same principles whose basic tenets are being contested.

The realities of economic development seem to have changed. Economic developers and planners must now consider the fact that slow national growth means more aggressive local competition for opportunities. They must also consider the realities of *globalization* and the need for their efforts to rhyme with what is feasible in a new world where the competition is no longer local or national. Economic developers must also consider the structural limits imposed on their growth options and strategies by the emergence of the "New Economy."[2] These three extra considerations suggest the need for greater emphasis on place-based strategies for economic prosperity.[3]

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[1] The neoclassical growth concept, which attributes economic output to capacity utilization (capital), labor productivity (skilled workers), managerial ability (management) and the availability of raw materials (natural resources), accentuates the role of interest rates, wages, salaries and raw material and input prices. The competitiveness and performance of a place, relative to others, was defined largely by its ability to accumulate capital, available skilled labor, quality management and raw materials.

[2] Coined in the late 1990s, the term "New Economy" refers to the impact of information and communications technology (IT) on the economy. The term implies that because IT and other technologies have now changed the world so radically, the traditional measures of value are no longer valid. New products and needs have emerged, which better integrate information and high technology into manufactured goods and services.

[3] By extension, places that provide for greater capacity to integrate technology into products and services can perform better, compared to traditional manufacturing locations that created value through the basic manufacturing process. Hence, innovative and talented people, entrepreneurs and other knowledge workers, are far more

The current national economic recession further complicates the pursuit of prosperity.[4] The meltdown of the financial services and banking industry and the failures in the real estate and housing markets have resulted in a tightening of credit, creating a challenge for the private sector.[5] Businesses across the U.S. are facing reduced demand for their products and services. Combined with the tighter credit market, this has led to the layoff of a record number of employees. Local units of government, which derive much of their revenues from property taxes, are also financially stressed, with their ability to maintain services significantly impaired. The business attraction tools that they have relied on in the past are not only more difficult to fund but evidence is mounting that they are largely ineffective in spurring growth.[6][7]

As local communities have faced significant hardship, states, especially in those old industrial parts of the U.S., have found it difficult to help them. States too are economically challenged. High and rising unemployment, rising poverty, dilapidating public infrastructure, the rising cost of meeting obligations, declining revenues, and, in some cases, declining state population, have resulted in record budget shortfalls. A record number of states are financially strapped and

have aggressively sought assistance from the federal government. The federal government itself has become a funder/banker of last resort.[8] The deficit of the U.S. government is now at $10.7 trillion (or about $35,000 per capita), while its debt to foreign entities now total $3 trillion (or about $10,000 per capita). Unless the national economy turns around and does so quickly, serious concerns exist about the plight of the American people and their communities.

1.2 Understanding How We Got Here

To understand how we got here, we must first understand the basic constructs of the U.S. economy, which sustained the prosperity of its people and communities for at least six decades. We start with metropolitan areas and the cities that anchored them.

Metropolitan areas were the bedrock of the U.S. economy. By featuring significant *gray infrastructure*[9] and perfecting the art of productively combining capital, skilled workers and effective managers, they thrived by leveraging natural resources to produce high-valued manufactured goods. Skilled workers, who also largely constituted the ever growing middle class, purchased a growing share of the U.S. manufacturing output. Thriving metropolitan areas attracted huge populations and became the magnetic center-points for the most prosperous nation on earth.

Since the 1970s, cities began to lose their edge and their outer metro areas grew significantly at their expense. These were the early signs of the fungibility of production and the growing separation of *"communities*

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valuable today than traditional skilled production workers and they are better drivers of the New Economy. The argument also goes that such people are more mobile on the landscape than traditional skilled workers, as they pursue a high quality of life. Hence, capital is more likely to follow knowledge workers to quality places that are rich in amenities, rather than agglomerate in old industrial manufacturing-based towns.

[4] In today's economic environment, local economic performance is highly influenced, if not bounded, by global and national economic opportunities. This suggests less local control over economic outcomes and a more strategic approach to economic development. Adelaja (2008) coined the term *"strategic growth"* to describe this new paradigm.

[5] The real estate sector is currently facing the highest foreclosure rate and the highest inventory of unsold and unmarketable properties in decades.

[6] To address economic development and create jobs, economic developers have relied historically on tax abatement policies and strategies that are based on the notion that these tools affect the location choices of firms. That is, if you attract the firms, jobs will follow, people will follow and prosperity will abound.

[7] Several studies have shown the ineffectiveness of tax abatement policies in generating economic development (See, for example, Sands and Reese (2007).).

[8] In 2008, the U.S. Congress approved some $700 billion for the bailout of financial institutions. The package of almost $800 billion presented to Congress by newly elected President Barack Obama as part of the American Recovery and Reinvestment Act (ARRA) of 2009 was also recently approved (U.S. Congress, 2009).

[9] Gray infrastructure is a term that is often used to describe the class of infrastructure that has characterized the built environment. Such infrastructures include roads, highways, bridges, sewage systems, water utilities and public transportation. The term "gray" reflects the seemingly asphalt and impervious nature of such infrastructure. In contrast, green infrastructure has been used to describe the class of infrastructure that offers more natural amenities. This includes farmland, open space, urban parks, trail systems, waterways, urban agriculture and forest land.

CHASING THE PAST

of production" from *"communities of place."* Many previously thriving U.S. cities have now undergone almost 30 years of downsizing, with those in the old industrial *"Rustbelt"* leading the pack.[10] U.S. cities have been particularly hit by the current economic crisis. Without serious intervention, it is not clear how they will emerge again.

The maturity of the U.S. economy helped set the stage for today's economic realities. Americans achieved one of the highest income and wealth levels of any country in the world. A consequence of economic maturity is the shift in consumption from basic manufactured goods to advanced goods and services.[11] The advent of the information and communications technologies (IT) made it possible for new high-value products to emerge, which bear little value-resemblance to those manufactured products that were the hallmark of the U.S. manufacturing economy.

The IT age allowed the production of technology-intensive goods, technology-intensive services and integrated services and goods. These now command more value than traditional manufactured goods. People and places that specialized in producing basic manufactured goods now capture much less value than before (e.g., such states as Michigan, Pennsylvania, Ohio and Indiana; and such cities as Detroit, Flint, Cleveland and Pittsburgh). A result is a changing nature of the

middle class and a shrinking cadre of employable skilled workers.[12]

This leads to the issue of *globalization*. The increased liberalization of global trade, finance and harmonization of policies lowered barriers for the mobility of labor, talent, capital and other resources and has elevated the economies of emerging countries that were previously constrained by the lack of access to these resources. The same process has led to phenomenal growth in developing and emerging nations, while developed economies have *outsourced* some of their manufacturing activities. In 2006 and 2007, for example, 124 countries grew their economies at rates greater than 4%, including 30 African countries. Gross Domestic Product (GDP) growth rates for the U.S. and selected emerging economies is depicted in Figure 1.1.[13]

Emerging country businesses are featuring huge returns on investment, so much so that they have become attractive to global investors.[14] The world share of poverty (people earning less than $1 per day) declined from some 40% in 1981 to 18% by 2004,

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[10] Rustbelt cities, which were among the leading U.S. cities through the 1960s, began to decline. Today, these cities are at the bottom nationally. For example, according to the Milken Institute's ranking of American large metropolitan areas, with the exception of one North Carolina metro, Michigan and Ohio metros occupy all spots in the bottom 10 and most spots in the bottom 20 (Milken Institute, 2008). Detroit, for example, has seen its population and level of economic activity drop by 50% and 75%, respectively, since their 1950 peaks.

[11] The service sector includes such previously "soft parts" of the economy: insurance, legal practice, healthcare, media, consulting, hospitality, government, tourism, banking, retail, education and social services. Today, service workers deploy knowledge and collaboration assets to create value. Their products include information, service, experiences, attention, advice and/or discussion. In the wisdom of traditional economic developers, these products were considered "intangibles." This sector has now come to account for 60% to 80% of the economy, depending on the metric used.

[12] The middle class is emerging as one of the fastest-growing segments of the global population. By 2025, India's middle class is expected to be 10 times larger than today, and China will have the world's largest middle class (Naim, 2008). In Brazil, the middle class accounted for 69% of consumption in 2006, compared to 51% a decade earlier (*The Economist*, 2007). In Russia, consumer spending grew by 24% in 2007 alone, and disposable income is expected to double by 2010 (Aginsky Consulting Group, 2008). The inability of U.S. skilled workers and their manufactured goods to penetrate the middle class in emerging and frontier nations is a major constraint to the growth of the U.S. economy.

[13] The International Monetary Fund (IMF) forecasted that the global growth rate would be 4.1% in 2008 (IMF, 2008). It projected the following for specific developed countries: U.S. (1.3%), Japan (1.5%), France (1.6%), U.K. (1.8%) and Germany 2%). The estimates for emerging economies are as follows: China (9.7%), Russia (7%) and India (9%). Between 1997 and 2007, the U.S. share of world growth fell from 19% to 12% (Cooper, 2007).

[14] An indicator of the growing global mobility of capital, venture capital and private equity is the return of financial assets. From January 2005 to June 2008, the New York Stock Exchange (NYSE) composite index rose by 29%, compared to 150% in India, 152% in Brazil, 166% in China and 330% in Russia. In 2007 alone, the average return on stock markets in Africa was 36% (Salami, 2008). This global change in return on assets has altered the movement of scarce global capita to high-return locations, altering growth paths of many countries. For example, a 2007 article in *The Economist* declared Africa the new frontier of investment banking (*The Economist*, 2007).

and is estimated to decline further to 12% by 2015 (*Newsweek*, May 12, 2008). The reduction in poverty has led to a burgeoning of the ranks of the middle class in many developing economies. These economies are also committing significant resources to infrastructure development.[15] This global economic change has posed numerous challenges to more developed economies. In the U.S., for example, states that relied heavily on manufacturing faced significant economic decline as a result of *outsourcing*.[16]

One noteworthy consequence of globalization is the failure of the financial market brought about partly by the flight of global capital from U.S. markets. Due to the reliance on foreign wealth and capital, excessive utilization of sub-prime lending of mortgage products, speculation in financial derivatives that lacked adequate underlying market value, and speculation in real estate continued even when the U.S. economy was waning. The passage of the U.S. Patriot Act following the September 11 crisis in 2001 encouraged some flight of foreign capital from a nation that had relied on the foreign reserves of wealthy people and governments of various other countries. This also helped slow down the economy.[17]

Another noteworthy precursor to the current economic climate is the alarming deficit spending needed to support and maintain two major wars at a time when the nation needed to focus on building stronger linkages to emerging markets. As of October 15, 2008, the U.S. government had spent or approved $864 billion to support the global war on terror (Belasco, 2008). Yet another is the failure of many U.S. businesses to leverage the growing opportunities emerging due to globalization.[18] In a global environment, where more economies are thriving globally, U.S. companies have not effectively pursued the global markets opportunities for their goods and services. Finally, an often ignored cause is the recent turbulence in the U.S. financial market, which makes it difficult to attract foreign capital to reposition the economy.

1.3 Communities Need Solutions, Not Convolutions

What is important is not how we got here, but how we return our communities, states and nation back to prosperity. Obviously, the nature of global competition and how emerging and other countries perform will affect our recovery. The nature and timing of the nation's recovery would also largely determine the successes of places and communities across the country. But equally important are the strategies that state and local economic developers employ to position themselves.

At the state level, the primary agency tasked with the responsibility for economic development is the Economic Development Corporation (or department). At the local level, these agencies range from downtown development corporations, brownfield authorities, and city or township economic development agencies. Bauer et al. (2006) contend that the primary goal of these organizations is to boost the average per capita income levels of constituents and that their economic

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[15] Collectively, emerging countries will spend over $22 trillion on infrastructure over the next 10 years, of which 43% will be in China (Garner et al., 2008). In 2007, Gulf Coast countries earmarked $1.4 trillion in civil construction projects, and Dubai alone has $300 billion in infrastructure development underway (DeRamos, 2008). American companies and people are well trained to participate in these opportunities, but the increasing isolation of our businesses in recent years has created incredible opportunities for competitors, such as China and India.

[16] In Michigan alone, the last eight years saw a loss of more than 400,000 manufacturing jobs. Significant impacts were also felt in Ohio, Pennsylvania, Indiana, Delaware, New York, etc., or the Rustbelt states. Even though it is difficult to attribute these losses entirely to outsourcing, there is no doubt that global changes in the economic landscape have had profound impacts. The need for a broader understanding of the economic structural changes occurring is urgent. The need for new ways of conceptualizing and implementing strategic economic policies and development programs is self-evident.

[17] Business leaders reported that the Patriot Act is a key hindrance to the success of industry. In a letter to Congress in 2005, the real estate industry and the National Chamber of Commerce lobbied for the repeal of the Act.

[18] U.S. corporate earnings abroad rose by 21% from 2006 to 2007, while domestic profits rose by 1% (*BusinessWeek*, 2007). A significant problem in the U.S. economy is limited earnings from foreign activities. Countries, such as China, India and Brazil, are increasingly occupying space that previously prominently featured U.S. businesses.

CHASING THE PAST

policies are driven by this goal. We contend that the primary goal is to boost prosperity, which Adelaja (2008a, 2008b) defined as: *"a state of stable, reliable and secure growth, with rising employment, income and overall quality of life that ensures transcendental success."* By this definition, prosperity encompasses income, employment and quality of life. Adelaja's definition ties prosperity to place competitiveness, which Malecki (2000a) defined as the ability of the local economy and society to provide an increasing standard of living (or quality of life) for its inhabitants. The ability to create and sustain jobs, with adequate pay levels, is a typical output criterion of competitiveness (Malecki, 2000a).[19] Quality of life is not only a function of income and employability, but also a function of access to critical environmental, social, cultural, recreational, educational, leisure and other amenities. Obviously, the most effective levers and drivers of economic development will vary, depending on the goal being income or prosperity. While prosperity itself is immeasurable, its components are known. For enunciation purposes, we identify from the sustainability literature three components that economic developers seek to maximize:

1. Economic well-being, which is essentially the ability to afford goods and services that add to quality of life. This is related to income and employment. We consider the notions of economic equity and fairness to be embedded in economic well-being.

2. Social well-being, which is the ability to access social amenities. This is determined by amenity purchasing power and the availability of such services. We also consider the notions of social equity and fairness to be embedded in social well-being.

3. Environmental well-being, which is the ability to access environmental amenities. This is determined by amenity purchasing power and the availability of such services. We also consider the notions of environmental equity and fairness to be embedded in environmental well-being.

Hence, prosperity encompasses elements that are fungible or are mobile across the landscape. The economic and social components are particularly mobile, while the environmental elements are more likely to be location-fixed. Location-fixed assets include fixed natural assets and built-fixed assets.[20]

In a tight economy (one mired by significant hardships), communities and states must compete for those elements of prosperity that are mobile (e.g., jobs and income). To be effective, regional economic growth now involves more aggressive strategies, as competition now exists with other places, in and outside the country. The interest in growth strategies also goes beyond local economic development professionals. Land use planners, civic organizations, foundations, universities, major hospitals and other local entities are now focused on this one agenda: "strategies for achieving prosperity in the New Economy."

1.4 What Information is Available to Communities and States?

When communities seek answers, what they can get are various examples and case studies of successful places and initiatives, and various conclusions that can be drawn from the writings of individual researchers about things that contribute to growth and prosperity. Much of the work of the research community was done in the context of inquiries into the effects of a particular variable or driver of growth, or one or two hypotheses about the "significance" of a driver. In many cases, the findings actually conflict. In some cases, they are context specific. This makes the practice of implementing new strategies difficult at the local level. The absence

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[19] According to Frey (1995), this ability includes not only inward investment in conventional offices and manufacturing plants but also international tourism and local entrepreneurship. Kresl (1995) identified determinants of competitiveness into two: (1) economic determinants, which include factors of production, infrastructure, location, economic structure and urban amenities; and (2) strategic determinants, which include government effectiveness, urban strategy, public-private sector cooperation and institutional flexibility.

[20] For example, forest land and lakes will be considered fixed natural assets, while trails and parks are built-fixed assets.

of an integrated framework that provides knowledge about the relative payoffs from alternative strategies is a major gap between science and practice in *strategic placemaking* for the New Economy. We examine briefly some of the alternative ideas about growth and the sources of such ideas.

The traditional focus of economic development policies was to attract business to urban and rural areas (Greenberg and Reeder, 1998). Economic developers employed three basic types of incentives: (1) fiscal incentives, including loans, below market level interest rates, direct grants and loan guarantees; (2) tax reductions, including the use of credits, deductions, abatements and specialized rates; and (3) direct grants of goods or services, including land, labor, labor training and infrastructure (See Fisher (1997)). Their reliance on these tools is consistent with the Old Economy notion that the cost of doing business is a relevant driver of business location and therefore economic activity. Wasylenko (1997) argued that significant differences must exist among states in their incentives in order for an impact to be felt as a result of the incentives.

Consistent with the New Economy notion that companies and jobs now follow talented people, Edwards (2007) argued that the economic development incentives that communities have used are largely ineffective. He suggested that the important driving forces in firm location decisions are: (1) product market proximity; (2) labor quality; and (3) quality of transportation networks. Edward (2007) also concluded that government incentives distort markets and lead to inefficient outcomes. In an LPI funded study, Sands and Reese (2007) demonstrated the ineffectiveness of these tools in the case of Michigan. The message contained in Sands and Reese's report is very difficult for a generation of economic developers who were trained in the Old Economy.

If these incentives no longer work, then what does? Blakely (1994) suggested the solution of attracting high-tech companies who pay high wages, and that such companies are attracted when a technology, research, invention and innovation base already exists. Does this apply to all communities, urban and rural? Hackler (2003) offered the solution of "economic gardening," which is the promotion of the growth of targeted industries or clusters (See also Bradshaw and Blakely (1999) Porter (1998)). She suggested that telecommunications may be a sector to be leveraged to enhance the performance of existing companies. Some researchers argued that expenditure on public infrastructure is an important growth factor (Aschauer, 1989; Evans and Karras, 1994; Wylie, 1996). Johnson (1990) and Graham's (1999) work suggested that infrastructure is necessary for growth but is not a sufficient condition for growth. Many American communities are geared up to spend American Recovery and Reinvestment Act of 2009 (ARRA) funds on *gray infrastructure* projects that may not intensify their innovation assets. Will their expenditures result in long-term economic repositioning or only offer short-term relief?

> The absence of an integrated framework that provides knowledge about the relative payoffs from alternative strategies is a major gap between science and practice in strategic placemaking for the New Economy.

According to Easterly and Sergio (1993), the way communities raise and spend tax revenue is thought to influence economic performance. Wu (2005) also suggested that tax regimes matter. The works of Mofidi and Stone (1990) and Phillips and Gross (1990) would lead one to believe that low taxes can lead to better performance. This is consistent with Bartik (1991), who showed that, for business location decisions, the long-run elasticity of business activity with respect to state and local taxes is between -0.1 to -0.6. The work of Fry (1995) suggested that favorable fiscal and regulatory

climate, strong intergovernmental cooperation, quality education, and workforce training would lead to better place performance. Will ARRA funds be spent in ways that will foster intergovernmental cooperation? Will the training elements focus on gray infrastructure rather than other, more transformational, New Economy infrastructure? What will be the emerging tax structure of communities after these ARRA investments are made?

Consistent with the New Economy paradigm, the work of Barro and Sala-i-Martin (1991, 1995) suggested that barriers to the flow of capital, labor and information are low between states and, therefore, that entrepreneurs and knowledge workers may also be geographically mobile. Several studies highlighted the role of financial markets in economic performance (King and Levine, 1993; Levine, 1997; Montgomery and Wascher, 1988; Rousseau and Wachtel, 1998). Abrams et al. (1999) suggested that the extent and size of financial markets influence economic performance, implying that seeding or targeting financial-related companies will help. Also, hinting on the legacy issue, several researchers argued that past industry structure may inhibit future economic development (Higgins et al., 2006). Wu (2005), however, suggested that the presence of more traditional industries may be a stepping stone to the success of a new creative industry. What does this mean for Rustbelt states that are steeped in the Old Economy?

Consistent with the New Economy paradigm, Glaeser et al. (1992, 2000) argued that knowledge and human capital are determinants of economic growth because the structure of the economy has changed from manufacturing dominated to information/service dominated. In the special case of cities and urban areas, Clark (2003) and Florida (2002a) argued that urban amenities attract knowledge workers, thereby spurring economic growth. Florida (2000) and Scott (2000) included cultural activities among the amenities that add to the competitiveness of a city. Lucas (2002) acknowledged the productivity effect of the clustering

of human capita on regional economic growth. The works of Eaton and Eckstein (1997) and Black and Henderson (1998) suggested that worker productivity is enhanced when they are co-located, while Glaeser et al. (2000) suggested that such clustering results in the attraction of knowledge firms. One question that local economic developers have is "how effective is talent attraction?"

Studies by Mathur (1999) and McGranahan and Wojan (2007) suggested that attracting knowledge workers is a desirable employment and income growth strategy for a community, region or state. The explanation can be found in Bauer et al. (2006), who suggested that places that accumulate knowledge workers will tend to perform better because: (1) Workers with more knowledge are more productive; (2) Education and technology allow more people to be employed in high-productivity jobs (See also Rangazas (2005)); (3) Education and technology allow people to adapt in response to negative economic shocks; (4) Education and technology make people more creative (See also Glaeser and Saiz (2004)); and (5) Education and technology allow people to adopt new technology from other places (See also Benhabib and Speigel (1994) Barro (1997)). While the research of Clark (2004) and Florida (2001) were focused on urban areas, Simon (1998) and Glendon (1998) found a strong relationship between the average level of human capital and regional employment growth, suggesting that knowledge attraction can be a universal strategy. Donegan et al. (2008) suggested that attracting knowledge workers is no substitute for traditional strategies, such as investing in quality education, upgrading worker skills, creating new businesses or expanding existing industries (See also Clarke and Gaile (1998)).

Florida's (2002a) work has attracted the attention of many policy makers. Following Romer (1990) and Mokyr (1990) who suggested that human capital is important to drive growth, Florida argued that the creative class is a source of growth and that they tend

to concentrate in metropolitan areas with amenities. Creativity, knowledge and urban economic growth are tantamount to each-other (Glaeser 2005). Florida (2002b, 2002c) and Florida and Gates (2001) suggested that regional openness to creativity would lead to regional innovation and, therefore, to economic growth. They contended that enhancing diversity would be an appropriate growth strategy as it attracts the talent required to support the high-tech industry and generate regional growth. Will diversity attraction work in rural communities as well? Will the productivity of minorities improve when they move to rural areas? These are questions that have been raised by state and local economic developers, but remain unanswered by the research community.

Etzkowitz et al. (2000) highlighted the role of universities, suggesting that in a knowledge-based economy, the university is a key element of the innovation system, both as a human capital provider and a seed-bed of new firms. Wu (2005) and Glaeser and Saiz (2003) suggested that the presence of leading research universities and a high share of college graduates are essential elements of economic growth. Research centers, educated workers and the educational attainment of population help competitiveness (Kresl and Singh, 1999). As places where knowledge is patented, where specialized research is housed, and where scientist and industry work together on product commercialization, universities can become incubators for startup firms (Abdullateef, 2000; Mayer, 2003). How well will ARRA funds target the university/ community innovation transfer process? Not every community has a university or community college. What should such communities do?

Wu (2005) highlighted the role of venture capital. Because venture capital drives the creation of new firms and the growth of creative employment, he argued that it tends to accentuate existing technological differences among cities. Does seeding a venture capital firm or group work? If so, where?

Rural economic structure has changed significantly and service-producing sectors are growing in rural areas where quality of life plays a role in rural community economic development (Dissart and Deller, 2000; Halstead and Deller, 1997; Rudzitis, 1999; Deller et al., 2001). Consistent with the argument by Florida (2002a) and Clark (2003), Greenwood (1985) suggested that amenities and quality-of-life factors affect people and firm location choice in rural areas. McGranahan and Wojan (2007) suggested that the creative class can now also cluster in rural locations due to more effective and cheaper infrastructure for telecommunications (Beyers and Lindahl, 1996), and better access to outdoor recreation, natural amenities and quality of life (See Goe (2002); McGranahan (1999); Deller et al. (2001)). Considering the previous findings on the benefits of clustering knowledge workers, would rural communities have the critical mass to benefit from talent attraction?

Benedict and McMahon (2002) defined green infrastructure as an interconnected network of green space that conserves natural ecosystem values and functions and provides associated benefits to human populations. One would expect the development of the stock of green infrastructure to be an economic development strategy, depending on the location and status of existing green assets. A number of cities are considering urban agriculture. Which green assets will work well in spurring economic activity and in what locations?

Finally, some researchers highlighted the role of such things as climate differences and the affordability of air-conditioning (Barro and Sala-i-Martin, 1991). Are cold places doomed, or do they have options? Can other factors mitigate the adverse effects of weather in cold places? Economic developers in the Rustbelt region are trying to grapple with this same issue.

1.5 The Need for a Comprehensive and Integrated Framework

Given the large number and specific nature of the questions that communities, leaders and their residents are asking, it is clear that many of their questions may well remain unanswered, due to the contrast between how research on policy issues are conducted and the context within which policy makers need information or make decisions. From the above, it is apparent that a framework is needed for understanding how drivers of growth work together—one that allows communities to better understand the relative responsiveness of various forms of growth (income, jobs, population, etc.) to investments in alternative assets (green infrastructure versus gray infrastructure), to the implementation of alternative strategies (e.g., attraction of knowledge workers versus immigrants), at alternative climates and weather settings (cold versus warm places) and under alternative scenarios (urban versus rural settings). To be valuable, such a framework must also provide information on relative impacts and elasticities of alternative policy tools and strategies. This is particularly important today as the nation stands on the verge of major infrastructure investments that will come from the ARRA. If it is true that the paradigm has shifted from the Old to the New Economy, the impacts of ARRA expenditures will depend on how much of these go into New Economy infrastructure.

1.6 Study Goals and Objectives

This report presents the findings from our research to decompose recent growth in income and employment into the various drivers of growth. The analysis explores the contributions of a variety of growth drivers, based on traditional growth literature and more recent literature on the roles of alternative New Economy drivers. The study zeroes in on the roles of talent, knowledge workers, universities, gray infrastructure, globalization, tax policy, creativity, various amenities, industrial clusters, entrepreneurship, culture, information technology, weather or climate, and green

infrastructure. We not only address the issue of relative responsiveness of growth to alternative strategies, but also the issue of the contexts (urban or rural) within which certain factors are more potent in driving growth and prosperity. The theoretical framework is an expansion of the traditional neoclassical growth model, expanded to account for the contributions of Old Economy factors vis-à-vis New Economy factors.[21]

This study is part of the *New Economy Research Initiative* of the Land Policy Institute, whose main goal is research and outreach to support the choices of policy makers as they struggle to transition their communities into the New Economy. LPI's *New Economy Research* topics cover a variety of areas, including:

1. Identification of New Economy Assets and their current and potential clustering;
2. Asset assessment, which involves the effectiveness of community assets in contributing to economic growth and prosperity;
3. Growth accounting and decomposition, which involve the estimation of models designed to explain the link between "New Economy" drivers of growth and prosperity itself;
4. The construction of *"place indexes,"* which allow policy makers to assess the readiness of their communities for place-based prosperity; and
5. The analysis of factors that drive rapid "gazelle" growth, which some U.S. communities are experiencing today.

> Communities need a framework for understanding how drivers of growth work and to understand its responsiveness.

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[21] A major limitation has been the absence of data necessary to complete an integrated analysis. Data on many of the proposed new drivers of growth are not consistently available at scales or levels that would allow the type of scientific inquiry and policy analysis that is needed. In the study, we have developed a comprehensive database, which will continue to be expanded as more information becomes available.

LPI Research is also involved in substantial work in population dynamics. This work focuses on:

1. The impact of population change on the service economy and the growing ability of local economies to follow people.
2. The mobility of different components of the knowledge community, and effectiveness of various strategies in attracting population.
3. The marginal productivity of various age and population groups across communities.
4. The implication of place-based talent competition for national economic growth.

1.7 Organization of the Study

This report includes nine parts. Part 2 presents the New Economy paradigm and its implications for growth decomposition. It also presents a framework for understanding the mechanisms of *prosperity* and *place* in the New Economy. Part 3 presents the theoretical framework for this study. It specifically revisits the neoclassical growth theory and explains how New Economy variables fit into that model. It also explains the decomposition of growth to account for new factors that are presumed to be now more relevant in the New Economy. It further presents a methodological framework for isolating these factors and establishing their overall contribution to total growth.

Part 4 presents the empirical framework for this study. It presents the hypothesized drivers of economic growth used in this study, based on a review of past studies on the sources of economic growth. It particularly focuses on drivers identified in the literature as crucial in the New Economy. Part 4 also presents the empirical framework for growth decomposition and the data utilized in the subsequent analysis. It also further explains the empirical models used in our growth decomposition analysis.

Part 5 presents the results from applying the study's approach to data from counties in the U.S. from 1990 to 2000. It presents specific coefficients and

elasticities that explain the roles of demographic factors, initial conditions of places, housing market factors, socio-economic factors, educational and knowledge asset factors, government, gray infrastructure, green infrastructure, legacy issues, regional factors and other factors in explaining economic growth and prosperity. The analysis shows distinct differences in the impact of causal factors on performance between metro and non-metro counties. Therefore, by applying the models and analyses presented in Part 5 for different subsets of data from metro and non-metro counties, new results were obtained that show differentials in policy effectiveness by type of location. The results for metro and non-metro counties are presented in Part 6 to highlight the need for urban and non-urban locations to consider differential strategies for achieving prosperity.

Part 7 contains the summary of this study, conclusions and policy and strategy implications. Part 8 contains various appendices, which include the beginnings of a theoretical model of prosperity and placemaking (Appendix 1), a proposed growth decomposition framework (Appendix 2), a framework for measuring the contribution of each growth driver to overall growth (Appendix 3), and depictions of various elasticities related to the impacts of various policy tools and target variables (Appendix 4). The report ends with Part 9, which contains a list of references.

Figure 1.1: Comparison of Real GDP Growth Rates for Select Countries

Percent Growth from Previous Year

Year
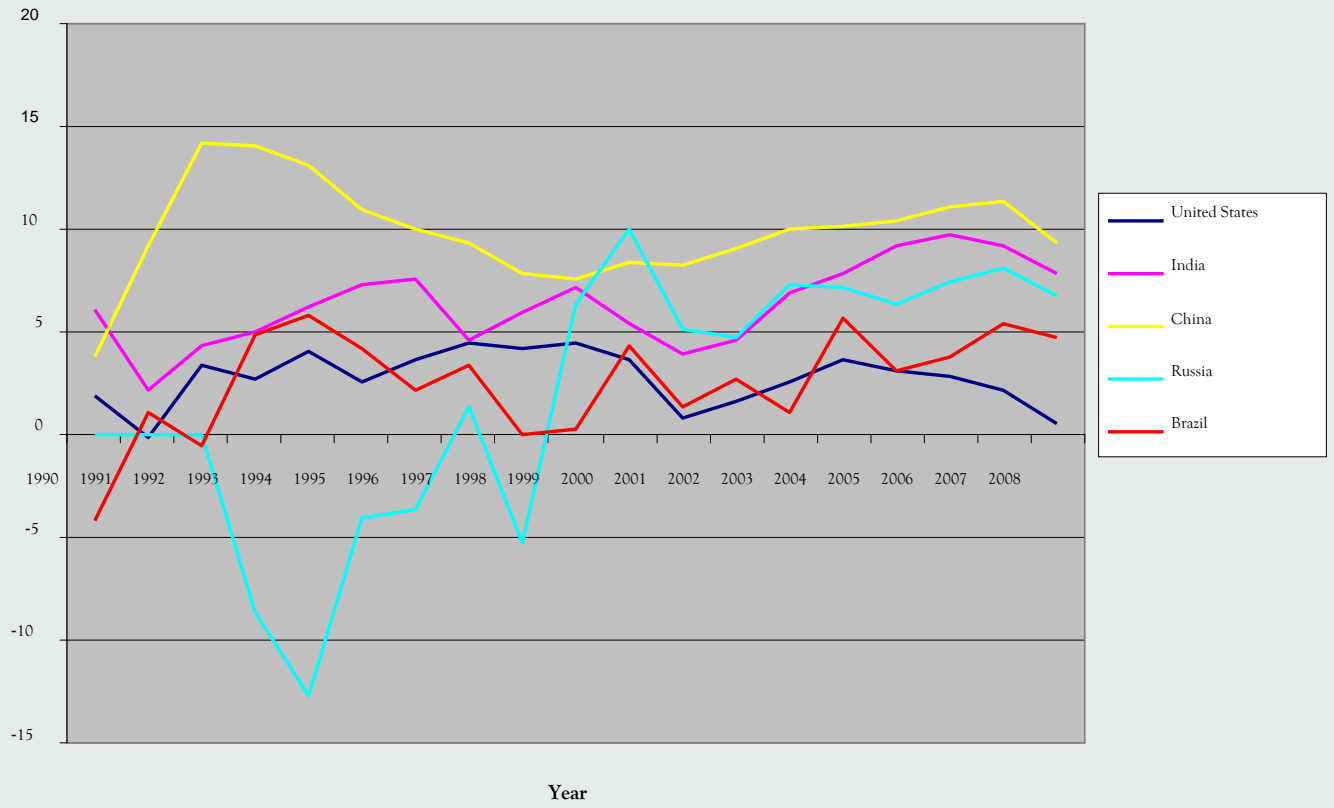
Source: World Bank data.

Part 2: The "New Economy" Paradigm

THE "OLD ECONOMY" IS A TERM THAT WAS COINED TO DESCRIBE THE PREVAILING
ECONOMY IN THE U.S. THROUGH MUCH OF THE 19TH AND 20TH CENTURIES. ON
THE OTHER HAND, THE "NEW ECONOMY" REFERS TO THE PREVAILING ECONOMY
FOLLOWING THE ADVENT OF ADVANCED INFORMATION AND COMMUNICATIONS
TECHNOLOGY IN THE 1990S. THE MAGNITUDE OF THE DIFFERENCE BETWEEN THE
OLD ECONOMY AND THE NEW ECONOMY IS SUBSTANTIAL, AND THE IMPLICATIONS
FOR PLACES REPRESENT A MAJOR PARADIGM SHIFT IN HOW WE MUST THINK ABOUT
REGIONAL ECONOMIC GROWTH AND PROSPERITY.

2.1 The Old Economy

In the pre-industrial era, before manufacturing activity started, access to agricultural, mineral, marine, and forest materials defined where people settled and, therefore, the economic prosperity of places. Communities settled in places that were well endowed with natural assets and offered advantages with respect to location. These communities set the stage for the industrial economy that emerged in the mid-1800s and which characterized the U.S. through much of the 19th and 20th centuries. That economy is now referred to as the Old Economy.

A good example of an Old Economy story is the city of Detroit, which started as a trading post in the 1800s because of its strategic location at the base of the Great Lakes. Its population in 1800 was about 1,000. Detroit's access to corn and wheat from Ohio and Michigan allowed it to take advantage of production technology in the 1820s, burgeoning into a flour mill town in the 1820s. In the 1830s, Detroit became one of the leading hubs for flour export in the nation. By the 1840s, major shipyards had emerged and Detroit had become one of the leading steam engine production centers for boats. By the 1860s, Detroit was known for its exports of these engines to locations around the country. The 1870s and 1880s witnessed its specialization in copper, copper alloys and associated exports, based on its access to copper in the region. This set the stage for the birth of the U.S. machine industry in Detroit.

Naturally, Detroit became the center of manufacturing for internal combustion engines for boats in the late 1890s. It evolved to exporting these engines by the early 1900s. Simultaneously, horse-drawn carriages emerged to move people and goods around and into the City. It is no surprise that it was in Detroit that the automobile industry was birthed by the likes of Henry Ford in the early 1900s. Ford's genius was to figure out how to transmit power from internal combustion engines to wheels, instead of boat propellers, thereby replacing horses as the power that drove horse-drawn wagons.

As the birthplace of the automobile industry, Detroit produced cars and trucks that were eventually sold worldwide. Its demand for labor swelled and people from across the country came to Detroit in search of jobs, opportunities and prosperity. Detroit led the perfection of assembly-line technology, where capital and labor were combined with natural resources to produce cars, tractors, trucks, machinery, tools and other equipment that were in ever-growing

> In the pre-industrial era, before manufacturing activity started, access to agricultural, mineral, marine, and forest materials defined where people settled and, therefore, the economic prosperity of places.

demand by the American people and companies. As Detroit's companies thrived, so did their workers, who had become increasingly skilled. Detroit became the birthplace of America's labor movement, which protected workers to ensure their fair share of the emerging prosperity. At the height of Detroit's success in 1950, its population had swelled from under 2,000 in the 1800s to more than 1.8 million. It was the epitome of prosperity. Significant wealth was amassed by auto workers, managers and the owners of the companies that underpinned Detroit. The wealth was poured into museums, hospitals, arts, theatres, roads, parks and other built assets that go along with prosperity.

The story of Detroit may be unique for automobiles, but a similar story can be told for almost any city or industrial town in America. Camden, NJ, emerged through the pathway of lumber dealers, manufacturers of wooden shingles, blacksmiths and harness makers, iron works, manufactured carriages and wagons, railroads, railroad cars, trolleys and coaches. Minneapolis, MN, emerged through the pathway of sawmills, flour mills, grain marketing, grain trading, grain processing, cereal processing and cereal exports. Pittsburgh, PA, emerged through the pathways of iron and silicate mines, aluminum and steel, smelting and bottling, foundries, steel rail, steel armaments and boats, food canning and bottling, and electronics. In the Old Economy, communities, cities and regions were largely defined on the basis of what they produced (e.g., steel in Pittsburgh, automobiles in Detroit and Cereals in Minneapolis).

Companies were successful in the Old Economy by specializing in areas of competitive advantage with respect to manufacturing. For a company to be competitive it had to be located where access to raw materials was easy and skilled labor was abundant. It also had to maintain a technological edge, maximize labor productivity through training, and effectively manage the huge risk associated with its capital outlay and labor commitments. For a company to be successful,

it had to be located in a low-cost community where skilled labor was abundant (or expandable) and taxes were low. The most successful American communities were the ones with successful companies. In essence, the American industrial genius of the 20th century came from the ability to effectively combine capital and equipment, skilled labor and raw materials, and manage them well to manufacture products that its growing middle class of skilled workers demanded. With the advent of the automobiles and road systems, cities grew into city-regions that became the centers of the national economy.

The Old Economy industrial model was quite prosperous and Americans came to experience one of the highest wealth levels and quality of life in the world. America's city-regions generated great wealth. They created a well-paid middle class that could afford the very goods they produced as skilled workers. With a growing and increasingly prosperous middle class, economic growth and prosperity were almost guaranteed. Uncertainties were few and small. Risk was low. This economy attracted the wealth of other nations that, in turn, further fueled the American economy. By this process, America leveraged global capital and natural resources, and gained easy access to credit. As a result, the working class was able to buy homes, cars, television sets and an unprecedented amount of services previously not achievable.

This economic model worked to a large degree until the 1990s, when information and communications technology created new opportunities for a new global economic network. Goods are still manufactured, but much of the value created through information technology, telecommunications and the global economic network far exceeds that of the

> In the Old Economy, the sustained ability to effectively combine skilled labor, land, capital and able management to produce things resulted in place-prosperity.

manufacturing content. A whole new set of high-valued services are now available. The creative ideas that go into product development, design and distribution, not the production of the product itself, are what lead to the high-wage advanced industries of today. For example, the manufacturing components of the $250 Windows Vista product, the CD and packaging, probably costs less than a dollar.

In the Old Economy, people migrated to the city-regions where there were growing job opportunities. In the New Economy, jobs are not necessarily tied to manufacturing locations. Jobs now tend to follow people. People and capital are migrating to knowledge centers (such as university towns) or other desirable places. One example of this is Silicone Valley, which has evolved an exceptional "entrepreneurial spirit." There are other places, such as Eugene, OR; Madison, WI; and Boise, ID, which have become attractive centers because of the quality of life they offer.

The Old Economy relied heavily on production activities (traditional agriculture, coal mines, breweries, auto-assembly plants, etc.) as major drivers of prosperity. In the Old Economy, the sustained ability to effectively combine skilled labor, land, capital and able management to produce things resulted in *place-prosperity*. Since the requirements for place-prosperity were largely fixed (factories, skilled labor pool, etc.), and not significantly fungible, it was easy for communities with "Old Economy infrastructure" to achieve sustained *place-performance.* Policies aimed at manufacturing job attraction bore fruit. Most local economic development practitioners tried to leverage tax abatements and related incentives to attract new manufacturers.

2.2 The New Economy

The New Economy refers to a global, entrepreneurial and knowledge-based economy where business success comes increasingly from the ability to incorporate knowledge, technology, creativity and innovation into their products and services. New capital is flowing to businesses where knowledge and creativity are highly valued and abundant. As shown in Table 2.1, which is adapted from Atkinson and Andes (2008), several features characterize the New Economy.

While the *markets* for Old Economy products were *stable*, they are now *dynamic*. Local, regional and national markets were stable because product destinations and demand were predictable, especially in an environment where prosperity was almost guaranteed. Raw material producers, manufacturers, shipping companies and retailers were better able to predict market demand. In the New Economy, just as places with allure attract knowledge workers and the economies that get pulled along with them, market demand is also dynamic. Information technology also allows greater arbitrage and trading and not necessarily with any significant movement of goods.

While the Old Economy was, at best, national in scope, the New Economy is *global*. Information and communications technologies have lowered, and in some cases eliminated, some of the boundaries between nations, creating a whole new set of market networks that span the entire globe. Integrated high-tech and information technology-based products and services have much less of a manufacturing component, and these products are easily shipped. Besides, heavy manufacturing is locating closer to consumers, which are increasingly appearing in other parts of the world. Today, a person or company can create value without producing a physical product, have that product transmitted across the world, and get paid for it almost instantly. This applies to such things as legal work, engineering design, manuscripts, film and entrepreneurial concepts, or their combinations. Even the distribution of goods today is now managed through more expensive software, creating an interconnected system or a global supply web. Manufacturers, their suppliers, their shippers and everybody connected with the production and delivery of their goods are globally integrated through advanced information technologies.

In the Old Economy, organizations were most effective when their *industrial organization* were *hierarchical* in structure. Since markets were stable, the large assembly-line production structure required managers who could keep things on track to ensure the meeting of deadlines. Inputs were largely physical (corn), and so were outputs and products (corn flakes). The distribution network was also physical (trucks, highways and ships). So, a management system was required to handle transportation, logistics, warehousing and retail delivery. In the New Economy, much of the end product can be distributed through the global network of computers and electronically controlled shipping and delivery systems. Hence, in the New Economy, production is optimized through *networking*, as ideas, creativity and knowledge have become the central drivers of productivity. Two firms do not have to be in close proximity with each-other to generate a lot of value today.

The Old Economy was characterized by *assembly lines* that steadily *mass produced* predictable goods. The New Economy utilizes flexible production systems that combine values generated from various sources. In the advent of high-tech and IT-laden goods, the physical restriction on production is significantly reduced. Knowledge workers, not machines, add the bulk of the value and the nature of labor has changed from that requiring a fixed skill set to one requiring the knowledge to integrate ideas. In the New Economy, the production of a good or service could take place at numerous locations as the manufacturing content, which requires a physical facility, becomes relatively minimal for most high-valued goods and services.

Skilled workers and managers were critical to the success of a firm in the Old Economy. However, *knowledge and creativity* is critical to success in the New Global Economy. Since knowledge workers can more readily integrate IT into goods and services today, they capture high shares of the values of goods and services. And now, even these workers must constantly expand their knowledge and skills. In the Old Economy, skilled workers could bank on a life-long career based on the basic skills learned at college or trade school. In the New Economy, the ability to learn and adapt (life-long learning), not basic skills, define success. Entrepreneurial ability and computer skills also contribute to success.

The New Economy thrives on *digitization*, not *mechanization*. Computers, cellular phones, wireless intercom, and other new IT tools have drastically changed the nature of society. Computers are integrated into every thing we do: from banking to insurance to bill payment and automobiles. They allow companies and people to produce, transform, store, transmit and manage goods and information more effectively today. Offices and homes are networked around the globe. In Africa, for example, rural villagers now conduct transactions through their cellular phones with banks in cities they have not been to before.

In the Old Economy, *competitive advantage* arose from *economies of scale*. In the New Economy, the quality of innovation and knowledge trumps economies of scale. As ideas, creativity and knowledge have become the central drivers of productivity, the need for traditional skilled workers and capital has dwindled. Venture capital, not traditional banking services, is far more relevant to the burgeoning number of small but productive firms that are emerging on the economic landscape. Traditional skilled labor has also lost some of its value, as the job market is demanding people with better education, better computer skills and a better ability to network.

> The New Economy refers to a global, entrepreneurial and knowledge-based economy where business success comes increasingly from the ability to incorporate knowledge, technology, creativity and innovation into their products and services.

In the Old Economy, companies did not have to partner to succeed. The economy was largely local, with the exception of their exports, and workers were largely confined to their locations unless they travelled. In the New Economy, *collaboration and partnership*, not the *go-it-alone mentality*, yields better results. Companies do not have to be in the same line of business or be involved in related businesses to partner. The value products that consumers want are less tied to a physical product that comes from manufacturing partnership. They are more likely the result of collaboration. Therefore, in the New Economy, many previously abundant job categories have been eliminated due to their irrelevance, while others have emerged for which traditional workers are not well trained.

Three decades ago, a college or trade-school student would graduate and expect a guaranteed life-time career in one field or even in one town. *Jobs* were *specific* (planner, engineers, chemist, marketing representative, teacher, legal aide, economist, etc.) in the Old Economy. In the New Economy, the best paying jobs are *broad and ever changing*, designed to allow a person to adapt and learn, and to leverage their talent against new knowledge in order to create increasing value. Dee Hock, the founder of Visa, has coined the term "Chaordic Organization" to describe a new generation of organizations that combine chaos and order in their business models (Hock, 1999). What might have been considered a dysfunctional organization two decades ago is emerging as a mainstream business model today.

In the Old Economy, people with specific skills filled the work place and managers were needed to integrate their skills. Individuals developed specific knowledge about their work with a company and those skills were not always transferable. People specialized and were largely indispensable. An employee could expect to spend a whole career in one company. The individual was an *organization man*, and job changes were almost always driven by the desire for better wages in a different town or a disagreement with co-workers. In the New

Economy, the entrepreneur, who leverages ideas and innovation, is more valued and is more likely to succeed professionally and financially. Companies today thrive on employees with *entrepreneurial spirit* and creativity.

In the Old Economy, the typical employee wanted *security*. In the New Economy, successful companies value *risk takers*. Today, small entrepreneurial companies dominate the economy and employ the majority of workers. Wage increases are associated with people who are flexible and can grow.

Table 2.1 highlights the distinction between the Old Economy and the New Economy. In a nut shell, the New Economy has several distinct characteristics with respect to place: it is global, not local or national; it is based on previously intangible factors like tolerance for new ideas, creativity, entrepreneurship and the ability to grow and learn, not manufacturing plants and their fixed assets that are tied to place; and its elements are interlinked and networked, rather than isolated and tied to place (Adelaja, 2008b). In the Old Economy, most economic activities took place in metro areas where most of the U.S. population was located. In the New Economy, information technology and mobility of capital allows firms and households to have more location choices. For example, the share of employment in the largest 61 metro areas declined by 1.5% between 1988 and 1997 (Atkinson and Gottlieb, 2001). Knowledge workers are more important ingredients of a "place." Wherever they go, companies and jobs follow, and economic prosperity follows. The fact that the number of professionals and technical jobs grew 68% faster than the overall rate of employment between 1999 and 2005 in the U.S. (Atkinson and Correa, 2007) suggests that society is also growing this employment class. Unfortunately, however, this spells unemployment for traditional skilled workers and a decline in prosperity for those places that are over-endowed in such workers and are not effective in attracting the knowledge class.

2.3 Prosperity in the New Economy

The shift from the Old to the New Economy has had significant implications for land use, growth strategies, economic development and prosperity. For one, the New Economy is characterized by a significant reliance on what might have been considered intangible economic drivers in the past (e.g., high-tech services, knowledge workers, entrepreneurs, etc.) that, however, have become highly mobile on the landscape. Hence, places must grow, retain or attract knowledge workers in order to be competitive for prosperity. Knowledge workers, the talented and entrepreneurs are said to be attracted to quality-of-life features, which include green infrastructure assets, leisure amenities, cultural amenities and other amenities (Benedict and McMahon, 2002). Venture capital and private equity are expected to follow knowledge workers to these quality places. Therefore, the natural, environmental and social assets of a place may well be important levers for economic developers to pull to position their communities for prosperity in the New Economy.[22]

[22] Many old industrial places are transitioning faster into the New Economy and are more competitive for growth. Examples include

The list of New Economy assets that have been tied to economic performance include: green infrastructure assets (Benedict and McMahon, 2002; Deller et al., 2001), talent and human capital (Florida, 2002b; Florida, 2002c; Florida, 2001; Simon, 1998; Glendon, 1998; Malecki, 2002), venture capital (Abrams, 1999), telecommunications infrastructure (Hackler, 2003), the creative class (Florida, 2002a; Florida, 2002b), innovation (Florida, 2002b; Florida, 2002c; Florida and Gates, 2001), entrepreneurship (Kresl, 1995), recreational amenities (English et al., 2000), natural amenities (McGranahan, 2004), and other environmental and social amenities (Florida, 2002a; Scott, 2000; Florida, 2000). Some assets, such as rivers and lakes, are natural and will never leave, except may become depleted. We refer to these as *fixed local assets* (FA). Other assets, such as parks and trails are fixed, but can be added to or enhanced. We call these *quasi-fixed local assets* (QFA). Still other assets, such as knowledge

the high-tech job growth in North Carolina resulting from the Research Triangle; the high-tech and high-knowledge service driven growth in Northern Virginia; the high amenity-based growth in such places as Boise (Idaho), Salt Lake City and Provo (Utah) and Charleston (North Carolina); and the good performance of Boulder (Colorado), Atlanta (Georgia) and Austin (Texas).

Table 2.1: Differences between Old and New Economy

ISSUE	OLD ECONOMY	NEW ECONOMY
Markets	Stable	Dynamic
Scope of Competition	National	Global
Organizational Form	Hierarchical	Networked
Production System	Mass Production	Flexible Production
Key Factor of Production	Capital/Labor	Innovative Ideas
Key Technology Driver	Mechanization	Digitization
Competitive Advantage	Economies of Scale	Innovation Quality
Relations between Firms	Go it Alone	Collaborative
Skills	Job Specific	Broad and Changing
Workforce	Organization Man	Entrepreneur
Nature of Employment	Secure	Risky
Source: Adapted from Atkinson and Correa. (2002), [available at www.kauffman.org.].		

workers and entrepreneurship are truly mobile. We refer to these as *mobile assets* (MA). We suggest that the ability to leverage these assets under-pin *place-prosperity* in the New Economy. This will require a different pattern of investment in a place and attraction strategies for a place. We also suggest that sustained place-prosperity is no longer assured without places pursuing a *New Economy competitiveness edge*, since most old industrial communities are over-endowed or entrenched in those Old Economy assets economic structures that probably hold them back. Appendix 1 summarizes our conceptual framework for modeling prosperity, which will be expanded on in subsequent reports on population attraction, placemaking theory and asset leveraging for the New Economy.

2.4 "Place" in the New Economy

In the New Economy, there is increasing evidence that fixed local assets, quasi-fixed local assets and mobile assets could agglomerate to create prosperous *place*, with attractive and high-quality living environment. "Place" can be viewed in the context of a location, which is laden with the attributes that people want and view as important, and are willing to move there to attain those things. Therefore, a desirable, or "good" place, has a high concentration of things that are most important to knowledge workers and the necessary mobile capital to make them successful. A good place is a prosperous place for knowledge workers. Adelaja (2008a) defined *"economic, social and environmental placemaking"* as "the use of strategic assets, talent attractors and sustainable growth levers to create attractive and sustainable high-energy, high-amenity, high-impact, high-income communities that can succeed in the New Economy." *Effective placemaking* in turn attracts talented and entrepreneurial people that will foster a critical mass of such concentration to support the growth of new ideas and new growth.

Relying on the above concept, in his 2008 article in the *Planning and Zoning News,* Adelaja (2008a, 2008b) made the point that the New Economy changed the land use paradigm in the U.S. significantly, so that the

purpose of land use planning and policy must essentially shift from "growth management to maintain or enhance quality of life" to *"placemaking for prosperity,"* especially in a slow-growth environment. He argues that in a slow-growth environment, the planning profession loses much of its relevance and value (no growth to plan for) if such planning can not achieve prosperity. The growing number of unemployed planners today is perhaps an indication of this point. On the other hand, economic development professionals know little about the design elements using the assets of communities. Because the New Economy implies that growth is now more contestable and fungible, an expanded role of planning is to work with economic developers.

> "Place" can be viewed in the context of a location, which is laden with the attributes that people want and view as important, and are willing to move there to attain those things.

Adelaja suggested that land use and placemaking must be factored into any attempts to map out new local strategies for prosperity. To the extent to which the creation of place can attract sustainable economic activity, communities can plan for the New Economy. To understand what options communities have and what placemaking strategies would be effective, it is important to understand the dynamics of growth and population and which assets, amenities and other factors affect them.[23] The New Economy paradigm implies that a whole new set of strategies must be employed today to achieve local prosperity. This is because economies are glued together differently today such that things that worked in the past no longer do.

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[23] According to Adelaja (2008), individual communities are too small to have national and international visibility or gravitas. To the extent to which the assets of a place make it more attractive and relevant to knowledge workers, the larger the context of place, the larger the assets that could be agglomerated and strategically connected, and the easier it is to be globally relevant. The economy does not follow jurisdictional boundaries, which were constructed well before substantive parts of the economy emerged. An economic region, therefore, crosses jurisdictional boundaries, making it necessary to plan for prosperity at the regional level where assets can be better leveraged for regional economic growth.

Part 3: New Economy Growth Theory

HOW ECONOMIC GROWTH HAPPENS IS CHANGING FROM PLACE-BASED PRODUCTION ACTIVITIES TO NEW ECONOMY ASSET-BASED ACTIVITIES. A NEW GROWTH THEORY THAT ACKNOWLEDGES THE EXPANDING ROLE OF THESE ASSETS IS REQUIRED.

3.1 Background

Structural shifts in economies over time are not new. If one looks back to the 18th century, the major sources of growth were generated through increased division of labor and specialization. In his famous book "Nature and Causes of the Wealth of Nations," Adam Smith (See 1904 publication) argued that specialization, minimal government intervention and functional legal systems are the sources of wealth of nations. Another famous economist, David Ricardo (1821), subsequently argued that international trade is beneficial and leads to economic growth. His concept of trade on the basis of comparative advantage reveals that free trade benefits all participants, and that free trade is the source of growth. This foundational work has motivated the emergence of free trade areas and the promotion of international free trade.

The transformation of economic systems since then has affected the way growth happens. Neoclassical growth models particularly emphasized the role of capital accumulation as a source of economic growth. For example, the Solow-Swan growth model (Solow, 1956; Swan, 1956) stipulates that output is produced by capital and labor, where labor and capital productivity determine growth, given an exogenous technical progress factor (measured by the Solow residual). These growth models were further expanded by considering the roles of technological progress and human capital in explaining differences in growth across countries.

Endogenous growth models expanded traditional growth modeling by explicitly considering the role of technological progress in economic growth. These

models highlight the roles of research and development and innovation as important drivers of long-term economic growth. For example, Eaton and Kortum (1996) identified that more than 50% of productivity growth in OECD[24] countries is due to innovations in the U.S., Germany and Japan.

Other theories have also been forwarded to explain the sources of economic growth over time. Evolutionary growth theories particularly argue that growth is dependent on a long-lasting adjustment process in the economy that is determined by the institutional framework under which such growth happens. This theory highlights the defining role of institutions in accelerating growth and change. There are also a number of ideas that are forwarded to explain the sources of economic growth in a changing economic environment, including labor force expansion, entrepreneurship, government policies, etc.

> Structural shifts in economies over time are not new and will continue to change over time.

By suggesting the importance of new factors that drive growth and prosperity, the New Economy paradigm offers, perhaps, the most significant paradigm shift in how we think about places. New factors discussed extensively in recent works include talent assets and human capital (Glaeser and Saiz, 2004; Rangazas, 2005; Barro, 1997; Romer, 1990; Goe, 2002), communications infrastructure (Hackler, 2003), urban and rural green infrastructure (McGranahan, 1999; Deller et al., 2001; English et al., 2000; Clark, 2004;

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[24] OECD countries refer to the Organization for Economic Co-Operation and Development among developed countries.

Florida, 2001; Graham, 1999); cultural assets and diversity (Florida, 2000; Scott, 2000; Florida, 2002a) and the role of universities (Wu, 2005; Etzkowitz et al., 2000; Mayer, 2003; Abdullateef, 2000).

Many of the studies that identified New Economy growth factors were conducted by observing spatial concentration and correlation, without a comprehensive economic framework and model that fits these factors into an existing or new growth theory. For instance, the mechanisms through which cultural assets and diversity translate into economic performance are not explained through an economic framework and theory that predicts such an outcome. New Economy growth drivers are, thus, often presented based on associations and observations, and with limited multivariate statistical analysis (McGranahan and Wojan, 2007). This study aims to provide a theoretical and empirical framework under which New Economy growth sources are understood and explained. It also aims to decompose the contribution of identified factors in explaining new growth.

3.2 Old and New Economy Growth Hypotheses

3.2.1 Conceptual Framework

In the Old Economy, locational cost differences were important drivers of growth and job creation. The costs of factors of production, i.e., labor, capital, management and land, were key factors that constituted locational cost structure and competitiveness. Thus, *place-competitiveness*[25] in the Old Economy was driven by cost competition. Places that offered competitive cost structure, in terms of lower wages, low cost of capital, cheaper land, and an attractive tax and regulatory environment, succeeded in attracting manufacturing jobs. Once manufacturing jobs were attracted to such locations, high-paying jobs were created. Job opportunities, in turn, attracted migration of labor to

such ample opportunity areas, resulting in increasing tax base and competitiveness, eventually leading to prosperity. This process is demonstrated in Figure 3.1. Cost-competitiveness is one factor that led to tax-based competition, resulting in the "race to the bottom."

In the New Economy, the basic structure of what both attracts jobs and people, and results in prosperity has changed. The forces of globalization have expanded opportunities to manufacturing firms by opening new places with attractive low-cost environments. Lower costs of capital, labor and land in emerging economies, and transition of these economies to open and market-based societies, provided the impetus for *outsourcing*. If the source of competitiveness was a low-cost environment, the global market opened new markets with such advantages abounding. The New Economy has also brought new opportunities. The competitiveness of places in developed economies, among other things, has increasingly depended on quality of life and talent attraction capabilities. Places that are rich in quality-of-life opportunities have managed to attract high-quality talent. Concentration of such talent has enabled the creation of knowledge-based jobs that pay higher wages. These places have also attracted population and provided an expanding tax base. This self-perpetuating competitiveness results in a new form of prosperity.

3.2.2 Distinction between Old and New Economy Growth Determinants

Now consider how the Old and New Economy growth factors, discussed above, fit into a fundamental economic theory. As discussed above, Old Economy growth is mainly driven by the cost and accumulation of capital (K), labor (N), managerial ability (M) and land (L). The productivity of these factors of production determined the speed of economic growth.

Equation (1) demonstrates this relationship by indicating that the total output (production) in a given place (Q) is dependent on the utilization of capital, labor, management and land. This relationship is what

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[25] We define *place-competitiveness* as the ability of a place to attract or retain knowledge workers and other mobile and desirable New Economy assets.

is called an aggregate production function. Equation (1) suggests that growth in economic output depends on the utilization of the indicated assets.

(1) Old Economy: $Q = f(K, N, M, L)$

Equation (2) demonstrates the structure of the aggregate production function in the context of the New Economy. In this equation, total output (Q) is a function of not only capital (K), labor (N), managerial ability (M) and land (L), as in the Old Economy, but is increasingly affected by other relevant assets, such as venture capital and private equity (v), talent or the pool of knowledge workers (t), entrepreneurship (e) and place quality or place (p).

(2) New Economy: $Q = f(K, N, M, L \mid v, t, e, p)$

If, indeed, the structure of the economy—in terms of how growth happens—is shifting from the one indicated in Equation (1) to the one indicated by Equation (2), then what is the nature of the relationship between assets relevant in both the Old and the New Economy? Equation (3) provides the answer. Note that the Old Economy asset capital (K) is increasingly replaced by the New Economy counterpart of venture capital (v). Similarly, labor (N) is increasingly replaced by talent (t); managerial ability (M) is increasingly replaced by entrepreneurial ability (e); and land (L) is increasingly replaced by place (p). Also note that venture capital, talent and entrepreneurial ability are attracted to places. The ability of places to attract such New Economy assets, through effective strategies, is what we call placemaking. Therefore, the eventual transition in prosperity creation from Old Economy assets (that are undermined by outsourcing and forces of globalization) to New Economy assets is a key element of new economic strategies.

(3) New Economy: $Q = f(K, N, M, L \mid \underline{v, t, e}, p)$

Understanding the relationship between these Old and New Economy assets and economic growth is also crucial. To understand the growth performance of states that are characterized by agricultural, industrial or high-scale service economies, it is important to relate Old and New Economy assets to growth outcomes. Equation (4) provides such relationships. Old Economy assets constitute a bulk of the stock of economic assets in many states. Therefore, such assets represent the size of the existing economy. New Economy assets increasingly determine the rate of growth of the existing economy. This implies that while agricultural and manufacturing-based economies might have large stock and economic size, their growth rate could be low compared to states that have a better endowment of New Economy assets.

(4) New Economy: $Q = f(\underline{K, L, M, N} \mid v, t, e, p)$

Stock of Old Economy Assets

New Growth
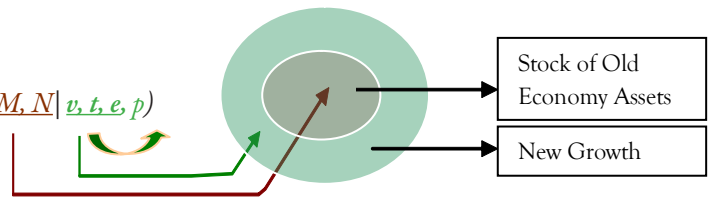
It can also imply that states that are stuck in manufacturing or agricultural activity, with minimal effort to attract New Economy assets, can suffer from a lack of fast growth. It is also important to note that if the economy continues to undervalue New Economy assets, agricultural and manufacturing states may not only experience slower growth but, in fact, could experience economic decline and shrinking of their economic size. The transition from

Old to New Economy performance, therefore, is critical and requires structural transformation and attraction and utilization of new forms of assets.

3.2.3 Old and New Economy Growth Theory

3.2.3.1 Growth in the Old Economy

As discussed above, the Old Economy growth model can be specified by relating aggregate economic output to capital, labor, managerial ability and land. This general growth model can be specified as:

(5) $\quad Y_t = f(K_t, N_t, L_t, M_t \mid \overline{T})$

where Y_t is the aggregate output or aggregate income at time t, K_t is economy-wide stock of capital used in production, N_t is the labor force, L_t is the amount of land devoted to production, M_t is the managerial skill available in the economy, and $\overline{T}$ is a given state of technological advancement. To determine the rate of growth of output or income, Equation (5) can be totally differentiated. This gives:

(6) $\quad dY_t = \dfrac{\partial f}{\partial K_t} dK_t + \dfrac{\partial f}{\partial N_t} dN_t + \dfrac{\partial f}{\partial L_t} dL_t + \dfrac{\partial f}{\partial M_t} dM_t$

Further decomposing Equation (6) by introducing growth rates (through log transformation) and elasticities, Equation (6) can be expressed as:

(7) $\quad \dfrac{d \ln Y_t}{Y_t} = \varepsilon_{K_t} d \ln K_t + \varepsilon_{N_t} d \ln N_t + \varepsilon_{L_t} d \ln L_t + \varepsilon_{M_t} d \ln M_t$

where $\varepsilon_{K_t}, \varepsilon_{N_t}, \varepsilon_{L_t}$ and $\varepsilon_{,}$ are elasticities of output with respect to capital, labor, land and managerial skills, respectively, and $d \ln K_t$, $d \ln N_t$, $d \ln L_t$ and R^2_R are log transformations of capital, labor, land and managerial skills. Note that $\varepsilon_{K_t} dK_t$, for instance, represents the share of capital in total economy-wide output or income growth. The same applies to all the other factors of production in the economy. In essence, this framework explains the sources of economic growth.

Given technology, economic growth can be enhanced either through increasing the stock of capital, labor, land and managerial skills, or through improving the productivity of each of these factors in contributing to economy output or aggregate income. As such, capital market policies and management (such as monetary policy targeting interest rates, investment and the stock of capital), labor market policies (such as minimum wage, wage growth, income tax, immigration policy and other labor codes targeting labor compensation and size of the labor force), land policies (targeting land use, land values, land productivity and targeting land supply across sectors) and segmented labor market policies (such as managerial skills and training, managerial compensation and other policies that enhance managerial skills supply) are all sectoral policies that can result in economic growth and prosperity in the Old Economy. In the Old Economy the rate of technological change averaged a low but positive number over time. Other than differences in the stock of Old Economy drivers of growth between places, opportunities for place-competiveness were limited.

3.2.3.2 Growth in the New Economy

Now consider how growth happens in the New Economy. The previous sections discussed that economic growth and prosperity can be sustained by attracting and retaining New Economy assets, such as talent, venture capital, entrepreneurship and placemaking. Using this framework the sources of aggregate economic output and income can

be re-specified as:

(8) $\quad Y_t = f(K_t, N_t, L_t, M_t, v_t, t_t, p_t(x) \ e_t | \overline{T})$

where all variables remain as defined earlier, v_t is the stock of venture capital at t^{th} time period; t_t is talent-endowed labor supply in the economy, p_t is the degree of placemaking defined by many factors, including the ability to leverage green infrastructure and other place-based amenities (x), and e_t is entrepreneurial skills supply in the economy. To determine the rate of growth of output or income in the New Economy, Equation (8) can be totally differentiated. This gives:

(9) $\quad dY_t = \dfrac{\partial f}{\partial K_t} dK_t + \dfrac{\partial f}{\partial N_t} dN_t + \dfrac{\partial f}{\partial L_t} dL_t + \dfrac{\partial f}{\partial M_t} dM_t + \dfrac{\partial f}{\partial v_t} dv_t + \dfrac{\partial f}{\partial t_t} dt_t + \dfrac{\partial f}{\partial p_t(x)} dp_t(x) + \dfrac{\partial f}{\partial e_t} de_t$

Further decomposing Equation (9) by introducing growth rates (through log transformation) and elasticities, Equation (9) can be expressed as:

(10) $\quad \dfrac{d \ln Y_t}{Y_t} = \epsilon_{K_t} d \ln K_t + \epsilon_{N_t} d \ln N_t + \epsilon_{L_t} d \ln L_t + \epsilon_{M_t} d \ln M_t + \epsilon_{v_t} d \ln v_t +$

$\qquad \epsilon_{t_t} d \ln t_t + \epsilon_{p_t} d \ln p_t + \epsilon_{e_t} d \ln e_t$

where all variables remain as defined; $\epsilon_{v_t}, \epsilon_{t_t}, \epsilon_{p_t}$ and ϵP_n are elasticities of output with respect to venture capital, talent, placemaking and entrepreneurial abilities, respectively; and $\ln v_t$, $\ln t_t$, $\ln p_t$ and ϵP_{nm} are log transformed venture capital, talent, placemaking and entrepreneurial ability. The share from economy-wide output or income for each factor is given by the respective elasticity multiplied by the log-transformed change in each factor. Note that in this framework at least three components are fundamentally and structurally different from the more conventional growth models.

One, in the New Economy growth model presented in Equation (10), growth is determined by both Old and New Economy factors. New Economy drivers of growth were not explicitly recognized in Old Economy models of growth and were not systematically utilized in the policy arena to bring about prosperity and sustained quality of life.

Two, the new framework of growth and prosperity given by Equation (10) provides a wide array of policy options for prosperity that are often overlooked in old prosperity strategies. Talent can drive new growth, and policies that enhance education, training and high-quality labor, and targeted talent development can pay significant dividends in long-term competitiveness and prosperity. Policies that target and promote venture capital will also have an impact on new growth and prosperity, as does the ability of the economy to foster entrepreneurial development and maturity. Placemaking is also a crucial New Economy prosperity strategy. Creating an economy that leverages green infrastructure, combined with attributes that enhance a place's quality, such as cultural assets, quality-of-life enhancing activities and outdoor opportunities, are all important in generating sustained prosperity.

The extent to which New Economy assets are highly mobile and competitive adds policy challenges regarding their long-term management.

Three, the interdependence among the New Economy factors give added impetus to prosperity. For instance, places with high quality-of-life attributes attract talent, which then attracts venture capital that moves in search of bright ideas, which leads to the development of entrepreneurial spirit and capital, which further promotes talent attraction

and further venture capital investment, etc. Neoclassical growth theory highlights the substitutability of traditional production factors, but New Economy drivers appear, at least, to be complementary or synergistic.

The extent to which New Economy assets are highly mobile and competitive adds policy challenges regarding their long-term management. However, deliberate strategies to attract and retain these strategic assets using appropriate policies and strategies will be crucial in determining the success of states and their places in maintaining their standard of living and promoting new sources of growth and prosperity.

Figure 3.1: Structural Change in Sources of Prosperity and Place Success

| Low Cost Location | Companies & Employers | Manufacturing Jobs | Population Growth | Prosperity |
| Old Economy |

| Amenities QOL | Talented Knowledge Workers | Knowledge Jobs | Population Growth | Prosperity |
| New Economy |
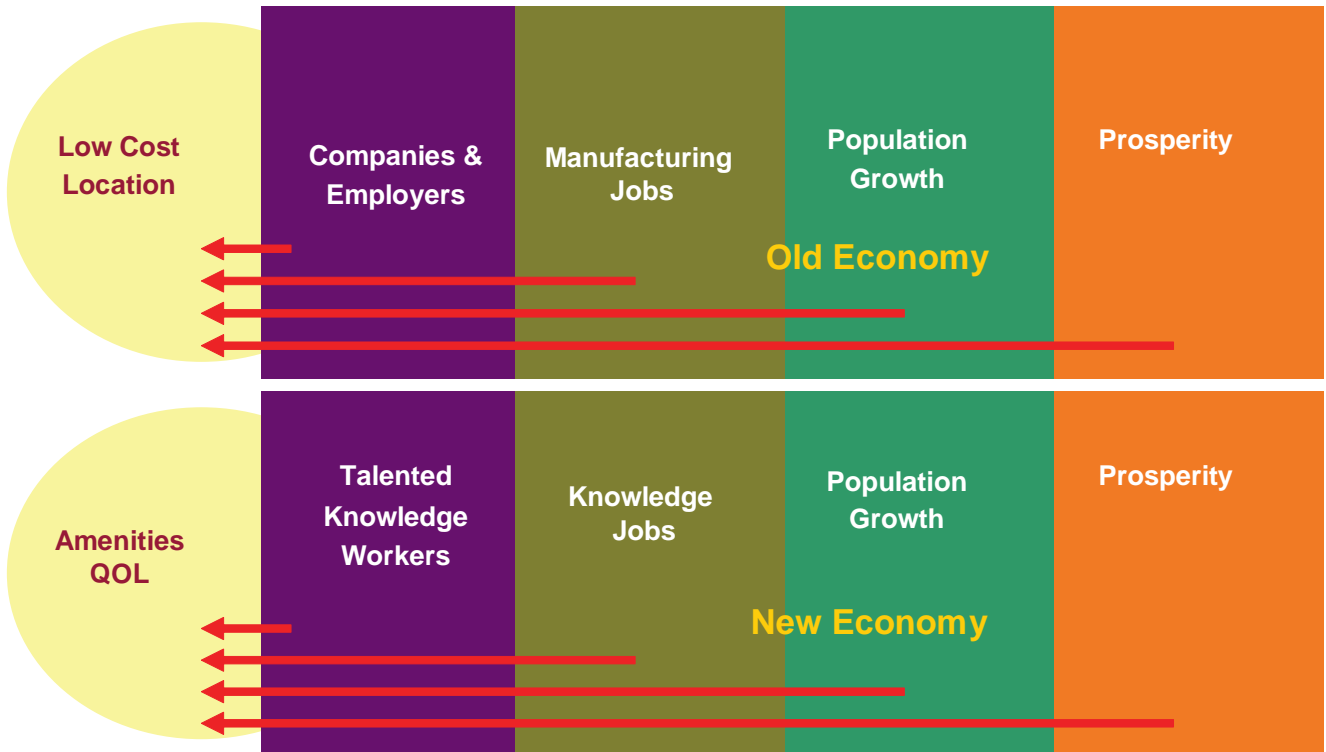
Source: Adelaja, 2008a.

Part 4: Empirical Framework
The Sources of Growth in the "New Economy"

PLACES WITH PROPSERITY HAVE ALLURE, WHICH RELATES TO THE DRIVERS OF
EMPLOYMENT AND INCOME AND, THEREFORE, TO POPULATION.

4.1 Background

The basic proposition from Parts 1 and 2 is that the mechanism of growth, or prosperity, has shifted as a result of the "New Economy,"[26] and that this dynamic economic transition has redefined place-competitiveness.[27] To operationalize the theoretical framework in Part 3, we identify in this Section some of our hypothesized drivers of economic growth in the New Economy. These drivers were determined based on various findings and conclusions from the literature on New Economy, sources of economic growth, knowledge workers, talent, and state and local government.

4.2 Drivers of Economic Growth

The following are some of the factors identified as causes of economic growth:

A. *Public Finance and Government:* Differences in local tax structures have been offered as explanations for differences in economic

performance at the state or metropolitan level. Some studies have focused on the differences in tax policy (Easterly and Sergio, 1993; Mofidi and Stone, 1990; Phillips and Goss, 1995) to explain the differences in growth patterns. There is growing debate as to the effectiveness of these instruments in attracting economic opportunities in the New Economy.

B. *Investment in Gray Infrastructure:* Investment in such public goods as infrastructure can enhance economic growth (Aschauer, 1989; Evans and Karras, 1994; Wylie, 1996), and can help explain growth differences across regions and states. Infrastructure development facilitates commerce and integration to broader markets; hence, it can help facilitate economic activity. Johnson (1990) and Graham (1999) note that such infrastructure are necessary, but not sufficient conditions for growth.

C. *Initial Conditions and the Cost of Structural Legacy:* The intensity of and entrenchment in past industrial (economic) activity can limit the rate of long-term economic growth (Higgins, Levy and Young, 2006). Inflexibility in adapting to a new economic structure can partially explain differences in growth patterns across states and regions.

D. *Development of Financial Markets:* The development of financial markets can determine economic growth (Abrams et al., 1999; King and Levine, 1993; Levine, 1997; Montgomery and Wascher, 1988; Rousseau

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[26] The Old Economy was based on the paradigm of natural resource extraction/depletion to produce manufactured goods, while the New Economy is more robust, more service and high-technology oriented, more driven by knowledge assets, and more global in terms of the competition and market. The Old Economy prevailed during a period of significant economic expansion and limited inter-place competition, while the New Economy created the room for significant inter-place competition for talent, entrepreneurial ability, new capital and creativity. The availability of local capital, the low cost of labor, reasonable taxes and low cost of living were important considerations in attracting and retaining economic activity. Once such activities were attracted, they tended to stay and provided stable job opportunities, in some cases for generations. Even in the presence of labor migration and changing local conditions, manufacturing jobs remained rather stable and available.
[27] Place-competitiveness is the ability of the local economy (place) to provide an increasing standard of living for its inhabitants (Malecki, 2000).

land policy institute

and Wachtel, 1998). Financial markets facilitate the availability of capital to finance innovation, investment and development.

E. *Human Capital:* Knowledge assets, or talent, are becoming increasingly relevant in determining the allocation of economic opportunities. Development of human capital, or the concentration of talent assets, can foster economic productivity and growth (Glaeser and Saiz, 2004; Rangazas, 2005; Benhabib and Speigel, 1994; Barro, 1997). Talent attraction and agglomeration can help explain the differences in growth patterns. Closely tied to human capital development is creativity. There is growing evidence that the rate of creativity affects economic growth (Romer, 1990; Mokyr, 1990), and particularly urban economic growth (Glaeser, 2005; Mathur, 1999; McGranahan and Wojan, 2007). With the movement of talent to rural areas in search of amenities, creativity also plays a role in rural economic development (Beyers and Lindahl, 1996; Goe, 2002).

F. *Invisible Infrastructure:* Telecommunications and cyber optics infrastructure are important assets that can determine patterns of long-term growth. These assets could be untapped opportunities to attract growth and development (Hackler, 2003). These assets are vital in attracting targeted high-tech industries.

G. *Green Infrastructure[28] (Natural Amenities):* Green infrastructure is also becoming increasingly relevant in shaping regional economic growth (McGranahan, 1999; Deller et al., 2001; Dissart and Deller, 2000; English et al., 2000). Amenities alter the distribution of job opportunities and population migration (McGranahan, 2004). Green infrastructure is relevant in shaping the pattern of urban economic growth (Clark, 2003; Florida, 2002a). Natural

amenities also attract human capital and create talent clusters. The cluster of human capital, in turn, enhances productivity and economic growth (Lucas, 2002; Wachtel, 1998). Financial markets facilitate the availability of capital to finance innovation, investment and development.

H. *Cultural Assets and Diversity:* Cultural assets and diverse metropolitan areas are better positioned to attract growth (Florida, 2000; Scott, 2000). Diverse places attract talent (Florida, 2002a) and provide a culture-rich environment that enhances place competitiveness.

I. *Role of Universities:* Universities play a crucial role in the development of local talent, in spurring new ideas and innovation, and in providing labor training and research support to industry. Universities play a significant role in motivating and developing innovation and in developing human capital (Etzkowitz et al., 2000). The presence of leading research universities can be a source of urban competitiveness and growth (Glaeser and Saiz, 2003; Wu, 2005). Universities can also provide platforms for startup firms through patents and research and product support (Abdullateef, 2000; Mayer, 2003).

J. *Others:* In addition, other demographic, housing market, socio-economic, education and other variables drive growth.

These factors are hypothesized to be the drivers of growth. However, how to manage them is often a challenge as the data is not always available at the level required for a comprehensive analysis. In this report, we attempt to collect as much data as possible in order to conduct as comprehensive a growth analysis as possible.

4.3 Methodology

This Section presents the regional economic growth model developed to estimate the relative contributions of alternative growth drivers and details about the nature, definition, descriptive statistics and source of data utilized in this study.

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[28] Green infrastructure can be defined as an interconnected network of green space that conserves natural ecosystem values and functions and provides associated benefits to human populations (Benedict and McMahon, 2002).

4.3.1 General Regional Economic Growth Model

To start with, what are the key characteristics of successful places? We focus on two answers based on our thesis in Part 3 and Appendix 1. Details of the definitions of the notations in Equations (11), (12) and (13) are provided in Appendix 1.

First, *prosperity is a function of expected income, which relates to the probability of being employed and the benefits from employment (See Adelaja (2008b)). The benefits include access to quality of life, which includes environmental, social and economic amenities.*

(11) Prosperity = $\Pi = (\Pi_E)(\Pi_S, \Pi_N) = (\Pi(Y_t - Y_{t-s})/Y_{t-s})(\Pi\hat{E})\Sigma\Pi_j(FA_j) + \Sigma_i\Pi_i(QFA) + \Sigma\Pi_k(MA_k)$

Second, *places with prosperity have allure, which relates to the drivers of employment and income and, therefore, to population.*

(12) $P_t = \S(\Pi)$,

where P_t is population in time period t and § is the population adjustment parameter.

Third, *population is attracted to prosperous places.*

(13) $\S'(\Pi) > 0$,

where §' is the first derivative of Equation (12). The above suggest the following:

1. Prosperous places attract and retain population (an indicator of this could be the positive effect of income and/or employment on population).

2. Prosperous places grow and retain jobs (an indicator of this could be the positive impact of income growth and population growth on employment).

3. Prosperous places grow per capita income (an indicator of this could be the positive impacts of employment growth and population growth on per capita income).

Given the above, we hypothesize that the economic, social and environmental elements of prosperity are complementary and that they are complementary to population. That is, places rich in important amenities will tend to grow income and employment better, exhibiting greater allure and population growth. The tendency of prosperous places to attract population is incorporated in the modeling framework utilized in our study.

This study utilizes a regional growth modeling approach in decomposing growth in the New Economy. Growth, as an indicator of place success, is measured in terms of population, employment and per capita income changes over time. As indicated above, one can quickly observe that places that attract population may also attract jobs and perhaps grow income, and places that grow jobs are likely to affect their population and income growth. Places that grow per capita income may also face changes in their employment and population dynamics. In short, the three indicators of place performance, i.e., population, employment and income growth, are interdependent. Any strategy that affects one will likely affect the others as well.

The growth of population, employment and income are not only interdependent, they are each affected by a series of other factors. Population growth may be affected by property values, local taxes, job opportunities, poverty and crime rates, etc. Similarly, job growth can be affected by infrastructure development, availability of local talent, structure of the economy, financial markets, etc. The same can be said about income growth. One can classify these drivers of growth into an Old and New Economy framework based on the relative relevance of a variable (growth factor) to past and new growth. Within this framework, a general economic growth model was specified as follows:

$$
\begin{aligned}
Y^\square &= f(E^\square, P^\square, \square^O, \square^N) \\
(14) \quad E^\square &= f(Y^\square, P^\square, \square^O, \square^N) \\
P^\square &= f(Y^\square, E^\square, \square^O, \square^N)
\end{aligned}
$$

where $Y^\square, E^\square, P^\square$ are equilibrium levels of income, employment and population in a given place (such as a county), respectively. Exogenous variables (other factors that affect growth) include New Economy, $P^\square$, and Old Economy, $P^\square$, factors.

It is likely that population, employment and income growth in a place depend on past performance. Accumulated past success determines future performance. Therefore, population and employment are likely to adjust to their equilibrium values based on their past values (or lag values) (Mills and Price, 1984). Similarly, it is assumed that income will adjust to its equilibrium value with substantial lags. Thus, the distributed lag adjustment equations are given as follows:

$$
\begin{aligned}
Y_t &= Y_{t\square 1} + \square_y(Y^\square \square Y_{t\square 1}) \\
(15) \quad E_t &= E_{t\square 1} + \square_e(E^\square \square E_{t\square 1}) \\
P_t &= P_{t\square 1} + \square_p(P^\square \square P_{t\square 1})
\end{aligned}
$$

where $Y^\square, E^\square$ and $P^\square$ are speed-of-adjustment coefficients that take values between zero and one, and $t \square 1$ is one period time lag. The speed-of-adjustment value measures how fast growth happens between the previous period and the current period.

Current population, employment and income levels can be expressed as functions of their initial level values and changes between two time periods. Using $\square$ to indicate the changes in each variable, Equation (15) can be rewritten as:

$$
\begin{aligned}
\square Y &= \square_y(Y^\square \square Y_{t\square 1}) \\
(16) \quad \square E &= \square_e(E^\square \square E_{t\square 1}) \\
\square P &= \square_p(P^\square \square P_{t\square 1})
\end{aligned}
$$

In Equation (16), the equilibrium levels of population, employment and income are not known. We can observe what the current levels of these variables are, but we can not directly observe what the equilibrium levels of these variables are for a particular place. Thus, using Equations (14) and (15) and assuming a linear function for each growth indicator, $Y^\square, E^\square$ and $P^\square$ can be substituted into their expression in Equation (15), and taking into consideration the relationships in Equations (14) and (16). The result can be written as:

$$\Delta Y = \lambda_Y \cdot f_y\left(\left(E_{t-1} + \beta_E \Delta E\right) + \left(P_{t-1} + \beta_P \Delta P\right)\right) + \gamma_Y Y_{t-1} + \sum_{i=5}^{k} \beta_i \Omega_{Y_i}^{O} + \sum_{i=k+1}^{n} \beta_i \Omega_{Y_i}^{N} + \varepsilon_i$$

(17)
$$\Delta E = \lambda_E \cdot f_e\left(\left(Y_{t-1} + \beta_Y \Delta Y\right) + \left(P_{t-1} + \beta_P \Delta P\right)\right) + \gamma_E E_{t-1} + \sum_{i=5}^{k} \beta_i \Omega_{E_i}^{O} + \sum_{i=k+1}^{n} \beta_i \Omega_{E_i}^{N} + \varepsilon_i$$

$$\Delta P = \lambda_P \cdot f_p\left(\left(Y_{t-1} + \beta_Y \Delta Y\right) + \left(E_{t-1} + \beta_E \Delta E\right)\right) + \gamma_P P_{t-1} + \sum_{i=5}^{k} \beta_i \Omega_{P_i}^{O} + \sum_{i=k+1}^{n} \beta_i \Omega_{P_i}^{N} + \varepsilon_i$$

where $\Omega_{Y}^{O},\ \Omega_{Y}^{N},\ \Omega_{E}^{O},\ \Omega_{E}^{N},\ \Omega_{P}^{O},\ \Omega_{P}^{N}$ represent the exogenous New and Old Economy variables relevant in the income (Y), employment (E) and population (P) equations, and $\varepsilon_i, \varepsilon_i, \varepsilon_i$ are error terms (i.e., the error associated with estimating each equation). Following (Deller et al., 2001), the speed-of-adjustment coefficients (λ_i) are embedded in the linear coefficient parameters of β, γ and λ. The coefficients of the model, therefore, capture the dynamic elements of adjustment, allowing us to use the coefficients as implying causality. Thus, the linear version of the regional growth decomposition econometric model can be given as follows:

$$\Delta Y = \beta_0 + \beta_1 E_{t-1} + \beta_2 P_{t-1} + \beta_3 \Delta E + \beta_4 \Delta P + \sum_{i=5}^{k} \beta_i \Omega_{Y_i}^{O} + \sum_{i=k+1}^{n} \beta_i \Omega_{Y_i}^{N} + \varepsilon_i$$

(18)
$$\Delta E = \beta_0 + \beta_1 Y_{t-1} + \beta_2 P_{t-1} + \beta_3 \Delta Y + \beta_4 \Delta P + \sum_{i=5}^{k} \beta_i \Omega_{E_i}^{O} + \sum_{i=k+1}^{n} \beta_i \Omega_{E_i}^{N} + \varepsilon_i$$

$$\Delta P = \beta_0 + \beta_1 Y_{t-1} + \beta_2 E_{t-1} + \beta_3 \Delta Y + \beta_4 \Delta E + \sum_{i=5}^{k} \beta_i \Omega_{P_i}^{O} + \sum_{i=k+1}^{n} \beta_i \Omega_{P_i}^{N} + \varepsilon_i$$

Equation (18) provides a model of the relationship between population, employment and income changes for a place, and identifies the factors that determine the changes in these growth indicators.[29] Estimating Equation (18) will help identify the effects of Old and New Economy determinants on growth, measured by the indicators of per capita population, employment and income. These Old and New Economy determinants include housing market factors, role of government, green and gray infrastructure, talent and creative class employment, economic structure (measured as the percentage of total employment generated by manufacturing, farming, services and high-scale services), etc. A detailed discussion of these categories of variables is provided in Section 4.4.1, Data Definition and Source.

4.3.2 Regional Growth Model in the Contexts of Metro and Non-Metro Counties

The model discussed in Section 4.3.1 aims to identify the structural parameters in decomposing growth. The model is general in that it will be applied to data from all U.S. counties. The structure of economies can be different, however, between metro and non-metro counties. The U.S. Census Bureau identifies metro and non-metro counties: metro counties are likely to have urban economic activity and perhaps more reliance on the service sector; non-metro counties, on the other hand, are likely to rely more on the rural economy that is natural resource-dependent. Therefore, beyond the overall understanding of what drives growth at a macro scale, identification of the structure of growth in metro and non-metro counties can provide additional information. Of course, this is a matter of degree, not a sharp dichotomy between metros and non-metros. There are many farmers who are farming in metro areas today, and many of the operations involve high-value products.

4.3.2.1 Regional Growth Model of Metro Areas

To understand the drivers of growth in population, employment and per capita income in metro areas, Equation

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[29] The linear expression in Equation (18) imposes a constraint on its estimation. It assumes the linear independence of each growth driver, such that impacts of each are fixed and not dependent on the levels of others. A more robust specification would involve cross-terms, which would allow increasing or diminishing marginal impacts. We address this issue partly by data separation–estimating Equation (18) for different locations and classes, such as urban versus rural counties.

(18) can be modified. The basic growth model will remain the same, but the case study area in this instance will be different. This study analyses 790 metro counties. The regional growth model for these metro counties can be specified as:

$$\Delta Y_m = \beta_0 + \beta_1 E_{t-1} + \beta_2 P_{t-1} + \beta_3 \Delta E + \beta_4 \Delta P + \sum_{i=5}^{k} \beta_i \Delta_{Y_i}^O + \sum_{i=k+1}^{n} \beta_i \Delta_{Y_i}^N + \beta_i$$

(19) $$\Delta E_m = \beta_0 + \beta_1 Y_{t-1} + \beta_2 P_{t-1} + \beta_3 \Delta Y + \beta_4 \Delta P + \sum_{i=5}^{k} \beta_i \Delta_{E_i}^O + \sum_{i=k+1}^{n} \beta_i \Delta_{E_i}^N + \beta_i$$

$$\Delta P_m = \beta_0 + \beta_1 Y_{t-1} + \beta_2 E_{t-1} + \beta_3 \Delta Y + \beta_4 \Delta E + \sum_{i=5}^{k} \beta_i \Delta_{P_i}^O + \sum_{i=k+1}^{n} \beta_i \Delta_{P_i}^N + \beta_i$$

where all variables remain as defined before, and ΔP_m, ΔP_m and ΔP_m are changes in per capita income, employment and population, respectively, in metro counties. Estimating Equation (19) using the same procedure discussed earlier would help decompose the drivers of growth in metro counties.

4.3.2.2 Regional Growth Model of Non-Metro Areas

To understand the drivers of growth in population, employment and per capita income in non-metro areas, again Equation (18) can be modified. Non-metro counties are likely to have a different economic structure, and the sources of new growth in these counties may be different, or the same drivers of growth could have different weights than metro areas. This study analyses 2,247 non-metro counties. The regional growth model for these non-metro counties can be specified as:

$$\Delta Y_{nm} = \beta_0 + \beta_1 E_{t-1} + \beta_2 P_{t-1} + \beta_3 \Delta E + \beta_4 \Delta P + \sum_{i=5}^{k} \beta_i \Delta_{Y_i}^O + \sum_{i=k+1}^{n} \beta_i \Delta_{Y_i}^N + \beta_i$$

(20) $$\Delta E_{nm} = \beta_0 + \beta_1 Y_{t-1} + \beta_2 P_{t-1} + \beta_3 \Delta Y + \beta_4 \Delta P + \sum_{i=5}^{k} \beta_i \Delta_{E_i}^O + \sum_{i=k+1}^{n} \beta_i \Delta_{E_i}^N + \beta_i$$

$$\Delta P_{nm} = \beta_0 + \beta_1 Y_{t-1} + \beta_2 E_{t-1} + \beta_3 \Delta Y + \beta_4 \Delta E + \sum_{i=5}^{k} \beta_i \Delta_{P_i}^O + \sum_{i=k+1}^{n} \beta_i \Delta_{P_i}^N + \beta_i$$

where all variables remain as defined before, and ΔP_{nm}, ΔP_{nm} and ΔP_{nm} are changes in per capita income, employment and population in non-metro counties. Estimating Equation (20) would help decompose the drivers of growth in the context of non-metro counties.

4.4 Data Definition, Sources, Measurement and Descriptive Statistics

4.4.1 Data Definition and Source

To conduct a county-level, nation-wide study on the drivers of growth in population, employment and income, a large data set is required. Extensive data gathering and processing were undertaken to estimate the growth models. In general, three types of data sets are organized:

1. Data was gathered from secondary sources, including the U.S. Censuses for 1990 and 2000, the County Business Patterns, the National Outdoor Recreation Supply Information System (NORSIS) and the Regional Economic Information System (REIS). Other sources of data include the U.S. Patent and Trademark Office,

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U.S. Department of Agriculture Forest Service, the National Park Service and The Nature Conservancy.

2. Data was transformed from existing secondary data, including such things as dummy variables and various percentages and ratios calculated from other secondary sources.

3. The creation of new indices and indicators to proxy data that was otherwise unavailable, including various amenities indices for such things as winter amenities, land amenities, developed amenities, water amenities and climate amenities.

Table 4.1 provides the definition and sources of data utilized in this study. This data is organized in separate groups for simplicity.

Each group of data is included for the following reasons:

1. *Endogenous Variables:* Data in this category include changes in population, employment and per capita income. These collectively measure the economic performance of a county.

2. *Initial Condition Variables:* Data in this category are the 1990 values of population, employment and per capita income. These variables are included since subsequent growth depends on initial levels of the growth indicators identified above.

3. *Demographic Variables:* Data in this category are the 1990 levels of the percent of urban population, the percent of the young and retiree population, and the percent of foreign born and net migration (in-migration minus out-migration). Such data are included to measure their impact on growth.

4. *Housing Market Variables:* Data in this category are the 1990 values of the percent of vacant homes, median home value and rent-to-income ratio as an indicator of place cost of living. Such variables are included to explore the relationship between the housing market and economic performance.

5. *Socio-Economic Variables:* Data in this category include the 1990 values of unemployment rate and percent of families in poverty, which are helpful in measuring the impact of socio-economic performance on subsequent growth.

6. *Education Variables:* Data in this category include the 1990 values of the number of colleges, universities and other higher education institutions and the percent of the population with a bachelor's degree. These data help to understand the role of education in economic performance.

7. *Role of Government Variables:* Data in this category include the 1990 levels of government expenditure per capita and per capita taxes. These indicators can help explain the role of government in economic growth.

8. *Gray Infrastructure Related Variables:* Data in this category include the 1990 values of infrastructure index (an index that captures expenditure on highways, airports and telecommunication infrastructure) and the average commuting time. The extent to which gray infrastructure assets contribute to growth can be observed through these variables.

9. *Green Infrastructure Variables:* Variables in this category were transformed into indices. The indices include the Developed Amenities Index, the Land Amenities Index, the Winter Amenities Index, the Water Amenities Index and the Climate Amenities Index. These indices capture different elements of green infrastructure assets and help estimate their impact on growth patterns.

10. *Economic Structure Variables:* Variables in this category include the 1990 levels of the percent of the total employment in manufacturing, farming, services and finance sectors. These shares show the degree of transition to the New Economy and resultant economic performance.

11. *Other New Economy Indicator Variables:* Variables in this category are the 1990 values of the percent of employment in the creative class, sustained innovativeness (average number of patents from 1990-1993), the Racial Diversity Index and rent, dividend and interest income. These additional New Economy variables are included to test their effect on growth performance.

12. *Regional Dummy Variables:* To measure regional differences that cannot be explained by any of the above 11 categories, regional dummy variables are included. These variables measure the comparative performance of any other region relative to the Midwest region.

4.4.2 Measurement of Transformed Data

Data definition and sources are indicated above. To integrate data into the economic model, various data transformations were conducted. Some data transformations were minor, such as calculating percentages and measuring changes between two time periods. The most significant data transformation related to the treatment of natural amenities that included developed, land, water, winter and climate amenities. NORSIS provides a large dataset under most of these amenity categories. To assess the overall role of amenities in economic growth, indicators of amenities in each of these categories were indexed to provide one variable that reflected the relative amenity endowment of a county. The *Principal Component* method[30] was used in computing amenity category indices.

Developed Amenities Index: This index is computed based on 12 indicators of developed amenities (See Table 4.2). These amenities are general proxies for the level of developed amenities available at the county level. The amenities in this category are enhanced green infrastructure that is developed from their natural state.

Land Amenities Index: This index is computed based on 18 indicators of land-based natural amenities (See Table 4.2). The amenities in this category are undeveloped (natural). The variables in this category provide a general measure of the level and variety of natural amenities in a county.

Water Amenities Index: This index is computed based on 11 indicators of water-based amenities (See Table 4.2). The amenities in this category are both developed and undeveloped water-related amenities. The variables in this category provide a general measure of the level and variety of water-based amenities in a county.

Winter Amenities Index: This index is computed based on six indicators of winter amenities (See Table 4.2). The amenities in this category are both developed and undeveloped winter-related amenities. Both the level of snow accumulation and developed winter recreational activities are taken into account.

Climate Amenities Index: This index is computed based on three indicators of climate amenities (See Table 4.2). This category includes temperature and days of sunlight information. This index, thus, captures temperature and sunlight-related endowments of counties.

4.4.3 Descriptive Statistics of Data

Table 4.3 summarizes the descriptive statistics of data. It provides the mean, standard deviation, minimum and maximum values of all U.S. county data utilized in this study. There were 3,023 observations (all counties in the U.S. for which there was complete data).

4.5 Estimation Technique

Equations (18), (19) and (20) represent a simultaneous system of equations that require a method of estimation different from Ordinary Least Squares. The simultaneous nature of the relationships between population, employment and per capita income growth requires the identification of each equation's coefficients as a system. To obtain unbiased and efficient estimates, other econometric estimation approaches

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[30] Principal component analysis is a statistical method used to compress a set of variables into a single index or singular measure. It is, in essence, a method of utilizing variability in variables to construct a single index (Deller et al., 2001).

Table 4.1: Description of Variables and Data Source

DESCRIPTION	SOURCE
Endogenous Variables	
Change in Total Population (∆P)	U.S. Census Bureau - county data files
Change in Total Employment (∆E)	U.S. Census Bureau - county data files
Change in Per Capita Income (∆Y)	U.S. Census Bureau - county data files
Initial Condition Variables	
Resident Population (Complete Count), 1990	U.S. Census Bureau - county data files
Total Employed People in 1990	U.S. Census Bureau - county data files
Per Capita Personal Income, 1990	U.S. Census Bureau - county data files
Initial Condition Variables	
% of the Population Age 25-34 Years Old in 1990	U.S. Census Bureau - county data files
% of the Population Age 65 Years Old and Over in 1990	U.S. Census Bureau - county data files
% of Urban Population in 1990	U.S. Census Bureau - county data files
% of Foreign-Born Population in 1990	U.S. Census Bureau - county data files
Net Migration from 7/1/90 to 9/1/91	U.S. Census Bureau - county data files
Housing Market Variables	
% of Vacant Housing Units, 1990	U.S. Census Bureau - county data files
Median Value of Specified Owner-Occupied Housing Units in 1990	U.S. Census Bureau - county data files
Median Rent Payment Dividend by Per Capita Income in 1990	U.S. Census Bureau - county data files
Socio-Economic Variables	
Civilian Labor Force Unemployment Rate, 1990	U.S. Census Bureau - county data files
% of People in Poverty in 1989	U.S. Census Bureau - county data files
Education Variables	
% of People 25-34 Years Old & Over with a Bachelor's Degree or Higher in 1990	U.S. Census Bureau - county data files
Number of Colleges, Universities & Professional Schools for 2005	County Business Patterns
Role of Government Variables	
Per Capita Taxes in 1992	U.S. Census Bureau - county data files
Local Government Finances - Expenditures Per Capita in 1992	U.S. Census Bureau - county data files
Gray Infrastructure-Related Variables	
Infrastructure Index	Cleveland Federal Reserve Bank
Average Travel Time to Work for People 16 Years Old & Over in 1990	U.S. Census Bureau - county data files
Green Infrastructure Indices	
Developed Amenities Index	Index developed based on data from National Outdoor Recreation Supply Information System (NORSIS), 1997
Land Amenities Index	Index developed based on data from NORSIS, 1997
Water Amenities Index	Index developed based on data from NORSIS, 1997
Winter Amenities Index	Index developed based on data from NORSIS, 1997
Climate Amenities Index	Index developed based on data from NORSIS, 1997
Regional Dummy Variables	
Dummy Variable for the West Region	Constructed variable
Dummy Variable for the Northeast Region	Constructed variable
Dummy Variable for the Southeast Region	Constructed variable
Dummy Variable for the Southwest Region	Constructed variable
Economy Structure Factors	
% of Manufacture Class Employment in 1987	Data developed based on data from Regional Economic Information System (REIS)
% of Farm Class Employment in 1988	Data developed based on data from REIS
% of Financial Class Employment in 1989	Data developed based on data from REIS
% of Service Class Employment in 1990	Data developed based on data from REIS
Other New Economy Indicator Variables	
% of Creative Class Employment in 1990	U.S. Census Bureau - county data files
Average Patents 1990-1993	U.S. Patent and Trademark Office
Racial Diversity Index (Simpson's Diversity Index), 1990	U.S. Census Bureau - county data files

that are better designed for systems estimation were considered. The two-stage-least-squares (2SLS) estimation procedure was utilized. This approach, first, identifies the endogenous variables in the system using instrumental variables (which are all exogenous variables in the system). In a second step, it utilizes instrumented endogenous variables to identify the whole system of equations. This approach provides unbiased and efficient estimates in the presence of simultaneously interacting variables.

One common problem in estimating simultaneous equation models using a two-stage-least-squares approach is the identification of equations—whether each equation's estimates can be identified separate from other equations. This problem can be handled by including more information in each equation that is not included in other equations. We have tested for identifiably of each equation in our model using the *order* and *rank* conditions. Following the *order condition* of identification, if $H \square EX$, where H is the number of right-hand-side endogenous variables in a given equation, and EX is the number of excluded exogenous variables from a given equation—when compared to other equations in the system, then the order condition of identification is satisfied. The *rank condition* gives a more stringent condition on identification. In this case, if $EMX \square H\text{-}1$, where EMX is the number of excluded endogenous and exogenous variables in a given equation—compared to other equations in the system, and H-1 is the total number of endogenous variables in the system minus one, then the rank condition is satisfied. All equations in our model were identifiable and meet these conditions.

We also checked for potential heteroskedasticity using the White test. Based on estimated correlation coefficients, we concluded that earlier estimates of the models exhibited some degree of multicollinearity. These were corrected for in a number of ways. For example, we were faced with a tremendously large

number of amenity-related variables that appear to be correlated. Such correlation was reduced by developing five indices of amenities using the Principal Component method. Each of the indexes was selected to reflect component variables that were similar in nature. For example, we created the Developed Amenities Index (to capture the effects of such things as parks, trails, golf courses, etc.), the Land Amenities Index (to capture the effects of such things as campground sites, mountain acres, federal forest lands, state park acres, rail-to-trail miles, etc.), the Water Amenities Index (to capture the effects of such things as marinas, inland lakes, bodies of water, rivers and canoe rental places, etc.), the Winter Amenities Index (to capture the effects of such things as ski areas), and the Climate Amenities Index (to capture the effects of such things as temperature). In some cases, data transformation was performed. For example, due to possible multicollinearity between taxes and government spending, we created a combination variable, that was the ratio of taxes to spending. Similarly, we created an index of cost of living as the ratio of median rent to per capita income. In general, robust estimates were obtained for each equation.

In determining how we present our results in the rest of this report, we considered what our estimated coefficients actually mean. Clearly, our model is a dynamic lag-adjustment model, which estimates the relationship between changes in the elements of growth and the drivers of growth. By the same token, the theoretical and conceptual framework that produced the model was based on an extension of the neoclassical theory of growth, which assumes that the right-hand-side variables are actually drivers of growth. Indeed, causality is implied by any specification of a growth function. In the application of such models to cross-section data, the basic assumption is, indeed that there is a growth function, that every locality is at various points along that function when they are in general equilibrium, and that the structure of the function can be estimated. The estimated coefficients of the growth

Table 4.2: Amenity Index Component Variables

Development Amenities Index Component Variables	Number of parks and recreational departments
	Number of tour operators and sightseeing tour operators
	Number of playgrounds and recreation centers
	Number of private and public swimming pools
	Number of private and public tennis courts
	Number of organized camps
	Number of tourist attractions and historical places
	Number of amusement places
	Number of fairgrounds
	Number of local, county or regional parks
	Number of private and public golf courses
	Number of ISTEA funded greenway trails
Land Amenities Index Component Variables	Number of guides services
	Number of hunting/fishing preserves, clubs, lodges
	Number of private campground sites
	Bureau of Land Management public domain acres
	Mountain acres
	NRI estimate of cropland, pastureland and range acres
	USDA Forest Service - forest and grassland acres
	Forest and Wildlife Services - refuge acres open for recreation
	Number of private campground sites
	Number of public campground sites
	National Park Service - federal acres
	NRI forest acres
	Acres managed by Bureau of Reclamation, Tennessee Valley Authority, Corps of Engineers
	Total rail-to-trail miles
	State park acres
	Acres of private forest land
	The Nature Conservancy acres with public access
	National wilderness preservation system acreage: total 1993
Water Amenities Index Component Variables	Number of marinas
	Number of canoe outfitters, rental firms and raft trip firms
	Number of diving instruction or tours and snorkel outfitters
	Number of guide services
	Number of fish camps, private or public fish lakes, piers and ponds
	American Whitewater Association total white water river miles
	Designated wild and scenic river miles
	NRI acres in water bodies: 2-40 acres, < 2 acres, and >= 40 acres (lake or reservoir)
	NRI stream 66' wide, 66-660' wide, and >= 1/8 miles wide water body
	NRI water body >= 40 acres (bay, gulf, estuary)
	NRI wetland acres
	NRI total river miles, outstanding value
Winter Amenities Index Component Variables	Number of cross-country ski areas, firms and public centers
	International Ski Service skiable acreage
	Federal land acres in counties with > 24 inches of annual snowfall
	Agricultural acres in counties with > 24 inches of annual snowfall
	Acres of mountains in counties with > 24 inches of annual snowfall
	Acres of forestland in counties with > 24 inches of annual snowfall
Climate Amenities Index Component Variables	Average July temperature
	# of sunlight days
	Average January temperature

function, therefore, would imply causality, based on the notion that by perturbing the drivers of growth, a community simply moves along the growth function to the appropriate place that is commensurate with the new levels of the drivers. On this basis, the assumption can be made that the estimated coefficients from our model are not merely indicators of association or correlation between the hypothesized growth drivers and the elements of growth, but are, indeed, indicators of the marginal impact (productivity) of specific drivers on specific growth elements. Clearly, better amenities data would have allowed a better specified model that endogenizes amenities and, therefore, provides more robust model estimates.

In this report, we make the assumption that our estimated coefficients indeed imply causality. While we expect this to result in some criticism, we also recognize the opportunity that this allows to expand the scope of how we address the role of growth drivers in our analysis. In any case, why estimate growth functions if growth drivers do not mean anything? We made the assumption in this report that the coefficients mean something, and welcome constructive criticisms.

Table 4.3: Descriptive Statistics of Data

VARIABLE	MEAN	STD. DEV.	MINIMUM	MAXIMUM	CASES
Endogenous Variables					
Change in Population (1990-2000)	10,363	38,578	-68,027	950,048	3023
Change in Employment (1990-2000)	8,779	29,625	-61,902	656,304	3023
Change in Per Capita Income (1990-2000)	7,770.64	3,053.85	-9,189.00	46,390.00	3023
Initial Condition Variables					
Population (1990)	77,376	260,929	107	8,863,164	3023
Employment	42,739	159,037	95	5,353,918	3023
Per Capita Income	15,235.03	3,446.47	5,479.00	35,318.00	3023
Demographic Variables					
% of Urban Population	35.77	29.10	0	100	3023
Foreign Born (1990)	6,048	61,972.93	0	2,895,066	3023
Net Migration	216	2,883	-87,847	44,344	3023
Housing Market Variables					
% of Vacant Homes	14.91	10.54	2.69	82.93	3023
Median Home Value	52,831.16	31,459.34	14,999.00	452,800.00	3023
Ratio Rent Income	234.14	95.51	99.00	763.00	3023
Socio-Economic Variables					
Unemployment Rate	6.20	2.95	0.50	40.50	3023
% of Families in Poverty	16.79	7.94	0	63.10	3023
Education Variables					
% with a Bachelor's Degree or Higher	13.34	6.36	3.70	53.40	3023
# of Universities/Colleges	1.10	5.07	0	162.00	3023
Role of Government Variables					
Per Capita Taxes	652.47	438.03	43.18	6,267.72	3023
Government Expenditure Per Capita	1,859.60	788.46	162.00	9,815.00	3023
Gray Infrastructure-Related Variables					
Infrastructure Index	6.80	4.80	0.001	58.2862716	3023
Average Travel Time	19.48	4.93	8.70	40.70	3023
Green Infrastructure Indices					
Developed Amenities Index	-0.01	2.45	-1.07	59	3023
Land Amenities Index	0.004	1.93	-1.15	21	3023
Water Amenities Index	-0.0009	1.56	-0.09	24	3023
Winter Amenities Index	0.004	1.48	-0.03	26	3023
Climate Amenities Index	-0.008	1.81	-4.57	4.31	3023
Regional Dummy Variables					
Midwest	0.35	0.48	0	1	3023
West	0.12	0.33	0	1	3023
Northeast	0.08	0.27	0	1	3023
Southeast	0.33	0.47	0	1	3023
Southwest	0.13	0.33	0	1	3023
Economy Structure Factors					
% of Manufacturing Employment	14.66	10.64	0	61.53	3023
% of Farm Employment	4.66	2.00	0	16.97	3023
% of Financial Employment	11.06	10.01	0	70.90	3023
% of Services Employment	20.25	6.85	0.01	63.8014528	3023
Other New Economy Indicator Variables					
% of Employment in Creative Field	25.46	6.35	9.08	62.46	3023
Average Patents 1990-1993	16.41	74.75	0.00	1671.25	3023
Racial Diversity Index	0.17	0.17	0.001	0.68	3023
Rent, Dividend, Interest Income	299,210.29	1,181,875.50	1,111.00	37,530,048.00	3023

Part 5: Study Findings
Drivers of Growth and Prosperity in U.S. Counties, 1990 to 2000

ECONOMIC GROWTH IN THE NEW ECONOMY IS INCREASINGLY DRIVEN BY NEW FACTORS THAT ARE PREVIOUSLY CLASSIFIED AS INTANGIBLES. UNDERSTANDING HOW GROWTH HAPPENS IN A DYNAMIC NEW ECONOMY EQUIPS STATE AND LOCAL DECISION MAKERS WITH MORE OPTIONS TO PURSUE PROSPERITY.

5.1 Model Performance

The hypothesized drivers of economic growth and prosperity outlined in Part 4 include the following:

1. initial conditions with respect to population, employment and income;
2. demographic variables;
3. socio-economic variables;
4. education-related variables;
5. gray infrastructure assets;
6. green infrastructure assets;
7. the role of government;
8. housing market performance;
9. economic legacy issues;
10. regional factors (fixed effects);
11. knowledge-related variables (e.g., the creative class); and
12. risk-taking.

Part 5 presents the effects of these factors on population, employment growth and per capita income for the 1990 to 2000 period. Because we estimated the models in Part 4 using data on counties in the U.S. in the aggregate, as well as for metro and non-metro counties separately, we were able to compare the effectiveness of alternative strategies in metro and non-metro settings. In Parts 5 and 6, our results are presented for: (1) 3,023 U.S. counties in the aggregate for which complete data was available (See Part 5), (2) 785 metro counties for which complete data was available (See Part 6) and (3) 2,238 non-metro counties for which complete data

was available (See Part 6). In all these cases, results were generated based on models presented in Part 4. Parameter estimates of the models for U.S. counties, metro counties and non-metro counties are presented in Tables 5.1, 6.1 and 6.2, respectively. The performance of the aggregate model is robust in all cases, considering the cross-section nature of the data.

Our test for model performance is the R^2, which shows the degree to which economic models are able to predict observed relationships. For the aggregate U.S. model, the estimated R^2 measures are 0.761 for the population equation, 0.751 for the employment equation and 0.536 for the per capita income equation. The aggregate model therefore explains 76% of the dynamics of population in the U.S., 75% of the dynamics of employment in the U.S. and 54% of the dynamics of per capita income in the U.S.

For the metro counties model, the estimated R^2 actually improved to 0.794 for the population equation, 0.775 for the employment equation and 0.722 for the per capita income equation. The metro model, therefore, explains 79% of the dynamics of population in U.S. metro counties, 77% of the dynamics of employment in U.S. metro counties and 72% of the dynamics of per capita income in U.S. metro counties. For the non-metro counties model, the estimated R^2 dropped to 0.480 for the population equation, 0.59 for the employment equation and 0.32 for the per capita income equation. The non-metro model, therefore, explains 48% of the dynamics of population, 59% of the dynamics

of employment and 32% of the dynamics of per capita income. As a result, the model more accurately predicted metropolitan economic structure than non-metro areas. Similarly, population and employment were more accurately predicted than per capita income.

The low R^2 for non-metro areas appears to be the result of the diversity of rural communities, the roles of unique rural assets in defining the economies of rural areas, and the possibility that the loss of manufacturing firms eroded the critical mass of economic activity in targeted rural areas more so than in metro areas.[31] Note that while we utilize the 90% confidence level in choosing variables that were statistically significant for discussion purposes, most of the coefficients in the aggregate model were statistically significant at the 99% level. Of the 108 or so coefficients estimated, only 34 were not statistically significant. The majority of those that were statistically significant were significant at the 99% level. The results of the aggregate model are analyzed in the remainder of Part 5. The reader should be cautious in interpreting these results since more context specific analysis of growth is presented in Part 6. Furthermore, the reader should be aware that we explicitly assume that our estimated coefficients reflect causality between drivers of growth and the elements of growth (See Section 4.5).

5.2 Growth Interdependence

What is the relationship between population, employment and per capita income? The issue of growth interdependence is of importance to policy makers at the state and local levels. Considering that prosperity increases when per capita income, employment rates or amenities increase, it is desirable for a community to know if factors that result in increased per capita income do not decrease the employment rate; factors that result in an increased employment rate do not

decrease per capita income; and the benefits of increases in income or employment do not create population change that will compromise the benefits of income and employment growth.[32] As expected, our results reveal that the three measures of growth (population, employment and per capita income change) tend to be synergistic or interdependent.

For every 100 jobs created in a county, population is expected to increase by 92 people. Assuming an average family size of three, this suggests that about 30% of new jobs are filled by people from other counties. This may reflect the fact that the existing pool of skilled workers in an area may be ill equipped to fill all New Economy jobs and that skilled workers suited for Old Economy jobs may need retraining for New Economy jobs. These results also suggest the significant mobility of workers and lend some credence to recent workforce development policies. The mismatch between local workers and skills required to fill emerging jobs in the New Economy is supported by the presence of thousands of unfilled IT positions in Rustbelt cities that also feature high unemployment.

> The mismatch between local workers and skills required to fill emerging jobs in the New Economy is supported by the presence of thousands of unfilled IT positions in Rustbelt cities that also feature high unemployment.

Similarly, for every 100 jobs created in a county, the associated per capita income increase is $5 (or 100,000 new jobs would raise per capita income by $5000 or a 20% increase in per capita income).[33] This is consistent with the notion that New Economy jobs, which require more knowledge, creativity and integration skills, are better paying. The implication is that if a place replaces

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[31] The loss of one plant is more likely to devastate a rural economy than it is to a more urban location. For example, the loss of a few forestry product companies in the Upper Peninsula of Michigan resulted in a tremendous loss of jobs. The economies of many rural communities evolved out of one industry or firm (the mill in the Milltown).

[32] An increase in per capita income that results in so much population gain whereby existing local residents are more unemployed will probably be viewed unfavorably by residents of a community. Therefore, it is desirable that per capita income and employment move together. Prosperous places where per capita income and employment are rising will obviously attract population. The important thing is that the population growth must afford greater prosperity.
[33] This calculation is based on the assumption of per capita income of approximately $25,000 in the nation.

Old Economy jobs one-for-one with New Economy jobs, prosperity will improve. On the other hand, an increase in population by 100 people is associated with 64 new jobs but a decline in per capita income of $4. This suggests that pure population increase in and of itself leads to new jobs. This is consistent with the notion that the economy is mobile and that the presence of people creates new service jobs that may well be lower paying than New Economy jobs. Without the creation of New Economy jobs, population attraction is expected to result in the creation of service jobs (See Adelaja et al. (2008c)). In another report by the authors, the service jobs found to move with people include banking and financial services, healthcare, real estate, food service, food retail, entertainment and general merchandizing (Adelaja et al., 2008c).

Growing per capita income also translates into job creation. That is, high-income communities are associated with faster job growth. For every $100 increase in per capita income, an estimated 199 new jobs are created. This suggests that because New Economy jobs are better paying, their creation results in additional jobs. The "viral" nature of New Economy growth is one of the reasons why the attraction of knowledge workers is of growing interest to communities who understand the New Economy and are willing to focus their attraction efforts on knowledge workers, not Old Economy firms. Also, a $100 increase in per capita income translates into a population decline of 620 people. This suggests that high-income jobs do not necessarily accrue to existing skilled workers and that as jobs come into the community, lower skilled workers get squeezed out. The mobility of existing residents of a place is an interesting finding. It suggests that with economic transformation comes economic hardship for traditional workers who may eventually have to move to remaining places where their skills are still valued.

These results suggest that while the creation of high-paying jobs (higher per capita income and more jobs) will attract new workers from outside of the community,

the effect of the new people, itself, creates employment for existing residents—if they are willing and able to position themselves for service jobs. The results also suggest that the performance of a place (in terms of jobs, population attraction and income creation (measures of place success)) is significantly interrelated.

Elasticities[34] were estimated to explore the relative sensitivities of the interdependence between population, employment and per capita income. The elasticity of a factor (A) with respect to a factor (B) is a measure of the percentage change in A as a result of a 1% change in B. These *elasticities* are reported in the appropriate tables (Tables 5.1, 6.1 and 6.2). A 1% increase in population means a 0.75% increase in employment, but a 0.06% decrease in per capita income. Hence, without targeting any demographic group, pure population attraction will create jobs (each new person creates ¾ of the job he/she demands), but such jobs are slightly lower paying than the norm in the community. A 1% increase in the number of jobs triggers a 0.78% increase in population and a 0.06% increase in per capita income. Hence, new jobs raise local income. Finally, a 1% increase in per capita income triggers a 1.76% increase in employment, but a 4.65% decrease in population. Appendix A4.1, A4.2 and A4.3 show the relative responsiveness of population, employment and per capita income to each other through bar charts. The decomposition of metro and non-metro growth, which is presented in Part 6, will shed further light on this issue. Growth interdependence is expected to be more synergistic in metro areas than in non-metro areas.

5.3 Initial Conditions

Do initial levels of population, employment and per capita income affect the subsequent growth of these factors? The answer to this question addresses the issue of whether or not places facing hardship or that are significantly affected by the loss of manufacturing jobs will have a

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[34] Elasticities are calculated values that indicate the effect of a given percent change in one variable on the percent response of the other. In that sense, it is a measure of influence of one variable on the other.

harder time bouncing back (See Higgins et al. (2006) and Wu (2005)). Results suggest that while places with high initial population attract more people, places with high initial employment actually experience slower subsequent employment growth, and places with high per capita income have slower income growth. Holding other factors constant, for every 100 people in a county, the population of the county is expected to grow by 2.8 people in 10 years (population elasticity is 0.21). However, for every 100 jobs in a county, the number of jobs is expected to drop by two within 10 years (jobs elasticity is -0.09). Furthermore, for every $100 in per capita income in a county in 1990, per capita income is expected to drop by $4 (income elasticity is -0.08). Thus, while there appears to be a natural shrinkage in employment and income across counties over time, there seems to be growing population. Places, such as cities that had high population but low employment and per capita income seem, therefore, to be poised for growth in employment, income and population. Appendix A4.4 shows the relative responsiveness of population, employment and per capita income to their initial conditions through bar charts. The decomposition of metro and non-metro growth, which will be presented in Part 6, will shed further light on this issue.

5.4 Demographic Factors

Are demographic factors important in determining the magnitude and direction of growth in population, employment and per capita income? These variables, which test whether county demographic structure impacts growth performance, include the following:

- % of the young (25-34 years old) age group
- % of the retirees (65 years old and over) age group
- % of urban population
- % of foreign-born residents (immigrants)
- net migration

The effects on place performance (growth) are discussed next:

5.4.1 25- to 34-Year-Olds Age Group

The 25- to 34-year-olds demographic group is often composed of recent college graduates, often possessing more recent knowledge, are in the period of their lives when they are buying new homes, raising children and making professional progress. Our hypothesis is that this age group is more innovative, creative, entrepreneurial and packed with economic-generating potential than other age groups. This group is expected to be more mobile and to be greater pre-cursors of economic activity than other age groups. This age group is expected to concentrate in metropolitan areas with amenities (See Florida (2002a), Glaeser (2005), Florida (2002b), Florida (2002c), and Florida and Gates (2001)).

Our results suggest that U.S. counties with a high percentage of the young age group have significant job creation effect. For every 1% increase in this young age group in a county, the associated number of jobs increases to 539. The elasticity of employment with respect to the population of this group is 0.92, supporting the notion that where this group goes, they create the equivalent of the jobs they take. However, the presence of this group does not appear to attract additional population or raise the per capita income of the communities they move to, suggesting that they do not attract other age groups or populations. The coefficients of per capita income and population are not statistically significant at the 1%, 5% or 10% levels. This may reflect the fact that the income for this age group is still relatively low. The decomposition of metro and non-metro growth, which will be presented in Part 6, will shed further light on this issue. The job creation and income impact of the 25- to 34-year-olds age group is expected to be greater in metro areas than in non-metro areas. Appendix A4.5, A4.6 and A4.7 show the relative responsiveness of population, employment and per capita income to demographic factors through bar charts.

U.S. counties with a high percentage of the young age group have significant job creation potential.

5.4.2 Retiree (65 Years Old and Over) Age Group

Retirees, or senior citizens, tend to be less indebted, to have more discretionary income to start businesses, and to invest in business opportunities in their community. They are in the period of their lives where they are not likely to take a job from the community, but their presence can contribute to employment potential through their spending on healthcare, entertainment, food and other services. Our hypothesis is that this age group contributes to economic activity, albeit at a rate lower than the 25- to 34-year-olds.

Our results suggest that U.S. counties with a high percentage of the retiree age group have significant job creation effect. The coefficients are statistically significant at the 1% level, and with respect to employment, at the 10% level. For every 1% increase in this age group in a county, jobs are expected to increase in number by 213. The elasticity of employment with respect to the population of this group is 0.36, supporting the notion that this group is less potent in generating employment than the 25- to 34-year-olds. However, the presence of this group crowds out population and per capita income of the communities they move to. For every 1% increase in this age group, the associated population and per capita income declines are 387 people and $49, respectively. The respective elasticities are -0.56 and -0.10. The adverse effects on population are understandable since this age group is typically beyond child-bearing age. The adverse effect on income is understandable since senior citizens tend not have the most recent education. The decomposition of metro and non-metro growth, presented in Part 6, will shed further light on this issue. The impact of retirees is expected to be more pronounced in metro areas than in non-metro areas (See Appendix A4.5, A4.6 and A4.7).

5.4.3 Percent of Urban Population

Clark (2003) and Florida (2002a) argued that urban amenities attract knowledge workers, thereby spurring economic growth. To the extent to which metro areas feature these amenities, cities are expected to contribute to the performance of their host region. On the other hand, the disparity in the distribution of metro amenities across the country suggests that amenity potential varies by metro area. So, the inclusion of this variable probably captures the effect of declining city population, employment and income.

The characteristics of U.S. immigrants are changing. Immigrants are increasingly knowledge workers and many tend to hold advanced degrees.

Our results suggest that while the growth of the percent of the urban population does not affect job growth, it adversely affects population and income growth. The coefficients of population and income were negative. For every 1% increase in urban population in a county, there is an associated loss of 185 jobs and an $18 decline in per capita income. The elasticity of population with respect to metro population is -0.64, while the elasticity of per capita income with respect to metro population is -0.09. The adverse effects on population and income reflect the declining economies of cities and metro areas (See Appendix A4.5, A4.6 and A4.7).

5.4.4 Percent of Foreign Born

The characteristics of U.S. immigrants are changing. Immigrants are increasingly knowledge workers and many tend to hold advanced degrees. Compared to the general public, immigrants are more entrepreneurial and they have played a major role in the revitalization of many U.S. cities. To the extent to which certain immigrants congregate in a county, they can help elevate the income and employment profile of the place. Besides, they contribute to diversity, thereby creating an attractive environment for knowledge workers.

U.S. counties with a high percentage of foreign-born population are found to be better able to attract population but less able to increase per capita income.

Immigrants are known to congregate, as new entrants are more likely to move to places where they have relatives and friends. A 1% increase in the foreign-born population is associated with a positive change of an increase in population of 656 people and a decline in per capita income of $60.50. The respective elasticities are 0.14 and -0.02. The statistically insignificant coefficient of the percent of foreign born in job creation is surprising. The impact of immigrants is expected to be more pronounced in metro areas than in non-metro areas (See Appendix A4.5, A4.6 and A4.7).

5.4.5 Net Migration

Net migration is significant in the population change equation. A one person increase in net migration translates into a 1.02 increase in population. The elasticity of population with respect to net migration is 0.02. The decomposition of metro and non-metro growth, presented in Part 6, will shed further light on these issues. Overall, demographic factors have significant impact on place-performance. Attraction of the young and retiree age groups and foreign-born population have implications to overall population growth, income growth and job creation.

5.5 Housing Market Factors

What effects do housing market factors, such as housing vacancy rates, median home value, and the ratio of rent to income have on population, employment and income? On one hand, one would expect a community that has a high vacancy rate to be indicative of recent loss of income and jobs, but this could also reflect low property values and rental rates, which, if affordable housing is a relevant driver of economic growth, could spur new economic activity. On the other hand, a low median home value reflects housing affordability, which again can spur population growth and economic development. The opposite can also be true whereby high property values suggest the influx of knowledge workers and other high-paid workers, increasing per capita income, gentrification and the crowding out of lower income people, and greater service employment.

Finally, a community with a low-rent-to-income ratio probably reflects affordability of housing for skilled workers but can also imply the attraction of the 25- to 34-year-olds. To the extent that these housing market factors affect population, income and employment, strategies to manage them could be effective in spurring economic development.

5.5.1 Percent of Vacant Homes

In the aggregate model, an increase in the percent of vacant homes has a negative effect on population and per capita income, but no significant effect on employment change. A 1% increase in county vacant homes is associated with a population decline of 163 people and a per capita income decline of $27.50 (the elasticity of population with respect to home vacancy is -0.24). This supports the notion that a rise in the vacancy of housing creates a downward economic spiral, which adversely affects industries that are tied to home rental (real estate agents, construction suppliers, lawn service, insurance, etc.). Various cities have been hard hit by the current housing crisis and the resulting housing vacancies from the subprime lending fiasco. Quick turnaround or reuse of such properties itself can be an economic stimulus that will create increased income for those workers whose livelihood has been slowed down by the mortgage crisis. Appendix A4.8, A4.9 and A4.10 show the relative responsiveness of population, employment and per capita income to housing market factors.

5.5.2 Median Housing Value

American communities vary in the nature of housing values. While this differential is primarily a function of supply and demand, they also reveal the underlying drivers of supply and demand, such as population increase, employment rates and income, in the region.

Median housing values are found to be positively and significantly associated with population and per capita income but inversely related to employment change. That is, high-price neighborhoods attract people,

especially people with a high income. A $100 increase in the median home value is associated with a population growth of eight people, suggesting that high-price communities are actually attractive to people (the elasticity of population with respect to county median home value is 0.40). This can be explained in part by the expected correlation between property values, amenities, services and quality of life. The tendency of people to flock to expensive communities (sprawl) has characterized many American communities, especially at the urban fringe.

A $100 increase in the median home value is also associated with a $4.50 increase in per capita income (the elasticity of income with respect to median home value is 0.34). The implication of increased property values for income generation and, therefore, economic development has been raised by some urban developers who argue that cities should build new homes that are higher in value. Cities have tended to focus unilaterally on affordable housing as a centerpiece of their urban housing strategy. These results suggest at least some room for a more diversified housing strategy.

For every $100 increase in the median home value, the estimated decline is a loss of 17 jobs (the elasticity employment with respect to median housing value is -1.01). This result suggests that while stable and rising home values are helpful to population and income growth, they may have a counter effect on job creation because of higher housing and overall property costs. The adverse job effects may support the notion that high-income neighborhoods are more bedroom communities than they are employment places. As discussed in Part 1, the separation of "communities of production" and "communities of place" has been an inherent feature of metropolitan evolution since the 1970s (See Appendix A4.8, A4.9 and A4.10).

The decomposition of metro and non-metro growth, presented in Part 6, will shed some further light on this issue. Housing market factors are expected to be less pronounced in metro areas than in non-metro areas.

5.5.3 Rent-to-Income Ratio

Low-rent communities are simply affordable, but this does not necessarily imply that they provide economic growth. Such communities would obviously be attractive to people who cannot afford to buy but wish to rent. Twenty-five to thirty-four-year-olds are expected to worry more about cost of living, to be more likely to rent than own, but also to be more mobile. Therefore, in their search for destinations, to the extent that housing cost is important to them, they may choose to settle in low-rent communities, everything else held constant.

The cost of living (measured by the rent to per capita income ratio) was found to be directly related to population and per capita income but not to have significant effect on job creation. A 1% increase in the ratio of rent to income is associated with an increase of 42 people in population (with a population elasticity of income of 0.001). This suggests that people are not, in fact, looking for cheap places, and that high-rent communities are actually attractive. A 1% increase in the ratio of rent to income is also associated with a $3.43 increase in per capita income, suggesting that high-rent places feature greater income generating capacity. The elasticity of per capita income with respect to the ratio of rent to income is 0.0002. The insignificant coefficient of rent to income in the employment equation simply suggests that cheap rent or a low cost of living does not necessarily spur employment change or create jobs.

In general, housing market performance has a significant impact on the magnitude and direction of economic growth. Measures of housing market vibrancy (high occupancy, high housing value and high cost of living) attract population and help grow per capita income. However, they have no impact on employment change, with the exception of median housing value where an increase in value actually erodes the job base of a community. However, this is partly compensated for increases in income (See Appendix A4.8, A4.9 and A4.10).

Part 6 will shed further light on this issue. The effects of market factors are expected to vary between metro and non-metro areas.

5.6 Socio-Economic Factors

The influence of existing social problems on growth performance is an important question, and the extent to which such social problems may impact growth is of policy importance. *Are socio-economic factors important in determining the nature and pace of growth in population, employment and per capita income? If so, which particular variables have what type of effect? How do high unemployment rates in an area affect the ability to attain prosperity? Can places with high unemployment rates and high poverty rates rebound? If a community is saddled with high healthcare expenditures per capita, such as one can see in many Rustbelt states with a significant history of union activity in high employee benefits, can such community rebound just as well as other communities?* These are some of the questions addressed in this Section. The factors considered under the socio-economic category are unemployment rates, poverty rates and healthcare expenditures per capita.

5.6.1 Unemployment Rate

The unemployment rate has no statistically significant effect on population change or per capita income. This suggests that places that are currently under economic stress have as much chance of recovery as places that are not, holding other factors constant. Appendix A4.11, A4.12 and A4.13 show the relative responsiveness of population, employment and per capita income to socio-economic factors.

5.6.2 Poverty

While the unemployment rate apparently does not affect the potential of an economic turnaround, the poverty rate is found to significantly affect this potential. For example, a 1% rise in the percentage of families in poverty is associated with a decline in population by 514 people (elasticity of poverty with respect to population is -0.83) and a $54 decline in per capita income (the elasticity of income with respect to poverty is -0.14). These findings suggest that poverty creates an environment where people and places are less empowered to achieve economic turnaround. They must overcome the poverty first before they can deal with enhancing the ability to find jobs (in the case of people) or attract employers (in the case of places). The debilitating effects of poverty have been the subject of numerous studies. The legacy effects of poverty are economic development deterrents. Therefore, poverty alleviation policies have become an economic development tool in the New Economy. In Part 6, where separate results for metro and non-metro areas are presented, we show the different patterns with respect to the impacts of poverty (See Appendix A4.11, A4.12 and A4.13).

The legacy effects of poverty are economic development deterrents. Therefore, poverty alleviation policies have become an economic development tool in the New Economy.

5.6.3 Healthcare Expenditure

We had no prior expectation about the impact of healthcare costs on growth (See Appendix A4.11, A4.12 and A4.13). Per capita expenditures on healthcare were found to not be related to population or employment change, suggesting that places saddled with high healthcare costs do not face any extra deterrents, with respect to population or job growth. However, places with high healthcare costs were found to exhibit lower per capita income growth. A $1 increase in healthcare expenditure per capita is found to be associated with a $-0.173 decrease in per capita income (the elasticity of per capita income with respect to healthcare expenditures per capita is -0.01).

In general, deep social problems, such as poverty and the legacy costs of healthcare have an adverse effect on per capita income. Poverty has a further adverse effect on population change. The implication of this is that policies to deal with these issues would have some pay off but would not necessarily affect job creation.

5.7 Education and Knowledge Factors

Glaeser (2000), Clark (2004) and Florida (2001) highlighted the importance of knowledge workers, especially in metro areas. Knowledge workers take many forms, ranging from the creative class, the super creative class and other knowledge workers for which creativity, innovation and critical thought are central to the creation of value in their work. While there are many ways to measure knowledge concentration in a place, considering the inclusion of the 25- to 34-year-olds age group in our analysis, we included the percentage of people with a bachelor's degree or higher as an independent variable. Of course, the level of knowledge increases with the level of education (people with master's, doctorate and other professional degrees probably use knowledge more in their work than people with a bachelor's degree). However, focusing on these higher degrees might ignore the importance of being a recent college graduate. Such graduates represent the most recent vintage of knowledge available to society. The inclusion of this allows one to account for such things as greater entrepreneurship, risk-taking, tolerance and creativity that come with a recent college degree. The presence of a university has also been shown to have an impact on the economic prospects of a community (Wu, 2005; Kresl and Singh, 1999; Glaeser and Size, 2003). In this Section, we ask the following question: *What is the role of education and educational institutions in influencing the pace and pattern of growth in population, employment and per capita income?* The categories of variables included as indicators of the impact of education are the percentage of a county population with a bachelor's degree and higher and the number of universities, colleges and other institutions of higher learning.

5.7.1 Education (Percentage with a Bachelor's Degree or Higher)

Counties with a higher percentage of people with a bachelor's degree or higher are associated with faster population change, faster income growth and faster job creation. Hence, university graduates seem not only to attract people, but to create jobs and boost the average incomes in communities that they are a part of. A one-point increase in the percentage of the population with a bachelor's degree or higher is estimated to result in 554 new entrants into the community (the elasticity of a bachelor's education with respect to population is 0.71.). Similarly, a one-point increase in the percentage of population with a bachelor's degree or higher is expected to result in a per capita income increase of $24.69 (the associated elasticity is 0.03). Finally, a one-point increase in the percentage of the population with a bachelor's degree or higher is expected to result in the creation of 190 jobs (the associated population elasticity 0.29). These effects are quite significant. They suggest that college graduates currently have three times more population impact than employment impact. This may suggest the effectiveness of strategies to attract population by retaining recent college graduates in a university community. Obviously, population seems to follow this category of knowledge workers. For Rustbelt states that have lost population, the retention of recent college graduates may, therefore, be an attractive strategy. Appendix A4.14, A4.15 and A4.16 show the relative responsiveness of population, employment and per capita income to educational factors.

5.7.2 University Presence (The College Town Effect)

Universities have become almost an essential part of their communities. Large numbers of counties in the U.S. have at least a university, college or other higher education institution. University towns employ professors, attract students and feature highly buoyant service and entertainment sectors. Universities can not only serve as bastions of innovation and tolerance, but if engaged well, can serve as the foundation for a whole new entrepreneurial climate where university intellectual property is being used to spur start-up companies in both high-tech and low-tech industries (See Etzkowitz et al. (2000)). Unfortunately, the presence of colleges, universities and other institutions of higher learning was not statistically significant in

the aggregate model. While this is intriguing, it makes sense, since students typically are not making money but spending money. Universities do have professors and other employees but the results here suggest that what these add to a community are no more significant than say other industries. In our analysis, we separately accounted for such things as patents that turned out to be significant. We also accounted for other factors, such as degree levels of the population and the concentration of 25- to 34-year-olds that were also significant (See Appendix A4.14, A4.15 and A4.16).

5.8 Role of Government

Conventional wisdom suggests that low taxes lead to better economic performance (Mofidi and Stone, 1990; Phillips and Gross, 1990). On the other hand, consistent with the principles of the New Economy, amenities are important and high-tax communities, which are probably high-amenities communities, are expected to perform better. To capture the effect of government activity on growth performance, we accounted for per capita taxes and per capita spending by constructing the ratio of taxes to expenditure as a measure of taxes relative to public services. Results suggest that the higher the ratio of taxes to spending, the slower population growth. No significant effects on income and job growth were observed. A 1% rise in taxes relative to spending results in a 0.31% decline in population, with no significant effect on employment or income growth. This elasticity translates into a population decline of 9,216 people. The finding that efficient governments spur population increase suggests little economic development implications of such efficiency, except for the service activities tied to the entrants of new people who come because of low taxes. We expect a more relevant and influential role of government in non-metro areas than in metro areas. Appendix A4.17 shows the relative responsiveness of population, employment and per capita income to role of government factors.

5.9 Gray Infrastructure

Expenditures on public infrastructure are expected to influence growth performance (See Aschhauer (1990) and others). While such infrastructure is a necessary condition for growth, it is not a sufficient condition (See Johnson (1990) and Graham (1999)). We had data on several gray infrastructure variables and originally estimated a model with all these variables. However, we found that many of these variables were correlated. To test the effect of gray infrastructure on growth performance, an index variable (infrastructure index) and average travel time were used as proxies for gray infrastructure.

Our infrastructure index measures spending on highways, airports and broadband capacity, and average travel time measures congestion and/or dispersion (sprawl). Our results suggest that by intensifying gray infrastructure, a community can attract population, grow per capita income and grow jobs. A 1% increase in the infrastructure index is associated with a 0.29% rise in population or 447 people, a 0.42% increase in employment or 541 jobs and a 0.08% rise in per capita income or $80.50. One implication of this is that the types of investments that communities will focus their ARRA (American Recovery and Reinvestment Act) funds on will indeed attract population, create jobs and raise income. The extent to which such expenditure represents the best return on investment may be in question.

Places with a higher average travel time attract population, which suggests that commute time increases with population. This is one case where we grapple with causality. *Is it the high travel time that attracts population, or the high population that creates the long travel time?* Because our model implies causality, we argue that it is the long travel time that connotes a large metro area that has sprawled-out and, therefore, has various housing

> The higher the ratio of taxes to spending, the slower population growth. No significant effects on income and job growth were observed.

and density options. A one-minute increase in travel time results in the gain of 253 people (the elasticity of population with respect to commute time is 0.48). We expect a much greater impact of gray infrastructure in metro areas, vis-à-vis non-metro areas from the results in Part 6. Appendix A4.18 and A4.19 show the relative responsiveness of population, employment and per capita income to gray infrastructure factors.

5.10 Green Infrastructure

Perhaps the issue that is most difficult for economic development practitioners to understand is the role of green assets in spurring economic activity. The expected connection between green infrastructure and growth is indirect, making it difficult to explain the marginal product of green infrastructure. Our hypothesis is that the impact is through the attraction of knowledge workers, entrepreneurs and other key precursors to new economic activity (See Goe (2002) and Deller et al. (2001)).

To measure the role of green infrastructure assets in economic growth, five indexed measures were developed: (1) Developed Amenities Index, (2) Land Amenities Index, (3) Water Amenities Index, (4) Winter Amenities Index, and (5) Climate Amenities Index. These indices range from values of one to three. A detailed discussion of each is provided in Part 4.

5.10.1 Developed Amenities Index

Developed amenities include such things as parks, playgrounds, swimming pools, campgrounds, fairgrounds, amusement places, museums and tennis courts. Our results suggest that such amenities have positive effects on population and job growth. A one-unit rise in the Developed Amenities Index is significantly associated with an increase in population of 1,726 people (elasticity is 0.002) and an increase in the number of jobs to 2,322 (elasticity is 0.003). Appendix A4.20, A4.21 and A4.22 show the relative responsiveness of population, employment and per capita income to green infrastructure factors.

5.10.2 Land Amenities Index

Land amenities include such things as guide services, campground sites, mountain acres, cropland, pastureland, rangeland, public campground sites, federally owned forest land, state park acres, rail-to-trail miles, acres of private forest land and The Nature Conservancy acres with public access. Our results suggest that the Land Amenities Index has a positive effect on population but a negative effect on job creation. The effect on per capita income is insignificant. A one-unit increase in the Land Amenities Index is estimated to translate into a population growth of 910 people (elasticity is 0.0004) but an employment decline of 737 jobs (elasticity is -0.0004). The implication of this is that these are low-impact economic engines. The decomposition of metro and non-metro growth, presented in the next section, will shed some further light on this issue (See Appendix A4.20, A4.21 and A4.22).

5.10.3 Water Amenities Index

Water amenities include such resources as marinas, inland lakes, bodies of water, wetland acres, rivers and canoe rental places. The presence of such amenities in a community is expected to affect economic activity through the attraction of tourists who visit temporarily and others who can afford to live there for lifestyle reasons. Our finding that water amenities detract from population growth but have a positive impact on income and employment growth, may suggest that such amenities contribute to prosperity through increased income and employment of service providers. The negative population impact is consistent with the fact that tourist communities tend to feature less permanent local residents due to the seasonal nature of business in such communities. The location of most water amenities away from population centers may also explain the negative relationship with population.

An increase in the Water Amenities Index by one-point is associated with a $79.47 increase in per capita income

(elasticity is 0.00001), the creation of 522 new jobs (elasticity is 0.00001) and a decrease in population by 563 people (elasticity is -0.00001). Hence, water amenities contribute to prosperity. Their potency in driving growth is reflected in the fact that they employ people in the community, while somewhat raising the income levels but not at the expense of losing those jobs to new entrants (See Appendix A4.20, A4.21 and A4.22).

5.10.4 Winter Amenities Index

Winter amenities, in counties with more than 24 inches of annual snowfall, include such things as International Ski Service skiable acreage, federal land acres, agricultural acres and acres of forestland. Winter amenities are said to drive the economies of such places as Vail, CO. In this study, we found that winter amenities detract from population growth, and have insignificant impact on income and employment growth. This could be due to the seasonal nature of the use of winter amenities. Select locations with highly developed winter amenities could, in fact, perform better in some of these growth measures but, overall, an average winter amenity infrastructure does not seem to have a significant impact (See Appendix A4.20, A4.21 and A4.22).

5.10.5 Climate Amenities Index

The mindset that some communities are handicapped by their climatic conditions is pervasive among economic developers, especially in the Midwest. The growing populations of Georgia, Florida, South Carolina, New Mexico and Arizona have been attributed to the better climate in these states. Good weather translates into economic growth (See Barro and Sala-i-Martin (1991)). *Is a state, such as Michigan, doomed because of its cold weather? What about places, such as Boston, Vail, Boise and Salt Lake City, which have seen growth in economic activity in recent years?* To account for climate issues, a Climate Amenities Index was included in our analysis. Climate amenities include such things as the average July temperature, the number of days with sunlight

and the average January temperature. We assumed that warmer places offer greater amenity value in constructing the index.

Improved climate is found to induce growth. A rise in the Climate Amenities Index by one-point is associated with a rise in population of 680 people (elasticity is 0.001) but a $129.14 decline in per capita income (the elasticity is -0.002) and a decline in employment of 598 jobs (the elasticity is -0.0001). We expect that climate will be more of a deterrence to the performance of non-metro areas than metro areas. Overall, green infrastructure assets have made a significant contribution to economic growth and population attraction (See Appendix A4.20, A4.21 and A4.22).

> Green infrastructure assets have made a significant contribution to economic growth and population attraction.

5.11 Economic Structure and Legacy Costs

Past industrial structure may limit the ability of a place to rebound (See Higgins et al. (2006) and Wu (2005)). *Is the degree of entrenchment in the Old Economy a deterrence to future economic performance? If so, what options do local economies with a huge legacy of manufacturing do?* To explore the roles of existing economic structure on growth performance, the percentage of total employment in manufacturing, farm, general services and financial services are included to indicate the degree of transition of the county economy from agriculture to manufacturing and to high-end service jobs. We begin with the impacts of these variables on population.

5.11.1 Population Impacts of Economic Structure and Legacy Costs

With respect to past economic structure, the strong presence of high-end service jobs contributes the most to population growth, followed by general services and manufacturing. Agricultural share does not significantly affect population growth in our aggregate analysis. A 1% rise in overall county economy employment in high-end services, general services and manufacturing

is associated with population growth of 2,080 people, 318 people and 19 people, respectively. The respective elasticities are 0.94, 0.62 and 0.28. Hence, economies that have moved further in the transition to the New Economy have a better attraction rate of population. The fact that general services perform significantly better than manufacturing is also indicative of the importance of people and population in the service economy. In the metro versus non-metro analysis in Part 6, we will explore the roles of agriculture in non-metro communities in more detail. Appendix A4.23 and A4.24 show the relative responsiveness of population, employment and per capita income to economic structure and legacy factors.

5.11.2 Per Capita Income Impacts of Economic Structure and Legacy Costs

The strong presence of high-end service jobs also contributes the most to per capita income growth, followed by general services and manufacturing. Agricultural share does not significantly affect per capita income growth. A 1% rise in high-end service jobs (financial), general services and manufacturing translates into $305.54, $33.81 and $22.88, respectively in increased per capita income. The respective elasticities are 0.20, 0.10 and 0.05. Again, manufacturing underperforms in income growth, compared to services but still has a positive contribution to per capita income growth (See Appendix A4.23 and A4.24).

5.11.3 Employment Impacts of Economic Structure and Legacy Costs

Employment is not affected by the past percentages of employment in the financial services sector, general services sector, manufacturing sector or agriculture sector. This suggests that while income and population changes are affected by the structure and legacy of the economy, employment growth potentials are not constrained. This is good news for a number of states in the Rustbelt. Their history will only limit their future performance if they fail to transition to the New Economy.

5.12 Other New Economy Factors

Other New Economy related indicators considered in this study include the following:

- the percent of employment in the creative class[35];
- the degree of innovativeness (measured by average number of patents from 1990 to 1993);
- Racial Diversity Index ; and
- rent, dividend and interest income earnings as a measure of risk taking behavior.

All four are expected to have a positive effect on growth. Appendix A4.25 and A4.26 show the relative responsiveness of population, employment and per capita income to other New Economy factors. The results suggest the following:

> Innovativeness (measured by patents) spurs growth in employment and per capita income.

5.12.1 Creative Class Employment

Florida (2002a) and others argue that the creative class is laden with economic activity and that their presence in an area spurs growth in income and employment. We found that creative class employment spurs per capita income growth but does not lead to additional impacts on employment and general population. This suggests that creative activities grow economic activities only through higher incomes, but that such growth does not translate into new jobs or attract additional population. Of course, our elasticity here is a partial elasticity, as income growth could increase employment indirectly. An increase in creative-class employment by 1% is found to cause a $23.35 increase in per capita income. The elasticity of income with respect to creative-class employment is 0.08 (See Appendix A4.25 and A4.26).

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[35] We followed the same definition of the creative class as Richard Florida. The employment classifications in the creative class are pulled from U.S. Census Bureau data following Florida's definition of the creative class.

5.12.2 Innovativeness (Patents)

Innovation is expected to be a major driver of economic development (See Abdullateef (2000) and Mayer (2003)). Other than specific indicators of innovation, the degree of innovativeness in an area is usually an unobservable variable. We used patents issued in an area as an indicator of innovation. Innovativeness (measured by patents) was found to spur growth in employment and per capita income. A rise in the number of patents by one-unit is associated with a per capita income growth of $1.34 (the elasticity is 0.003) and 392 jobs (the elasticity is 0.76). No effect on population was discernable (See Appendix A4.25 and A4.26).

5.12.3 Racial Diversity

Diversity is said to attract talent (See Florida and Gates (2001)). Our measure of diversity, which focused on racial diversity, was not a significant driver of income and job growth and had a negative association with population growth. We did not find significant evidence that diversity systematically and positively contributes to growth. That is, population growth was not any faster in more diverse places. Since most studies that considered the role of diversity focused on metropolitan areas performance, they may not be directly comparable to the results in this Section, as the focus here is U.S. counties (metro and non-metro together).

5.12.4 Financial Market

In the absence of data on financial market variables, the rent, dividend and interest income of people in a community was used as a proxy and it also represents the signs of risk-taking behavior that could also signal investment behavior. Results suggest that counties with a high return from such sources do not face better income growth opportunity.

5.13 Regional Differences

Obviously, U.S. regions have different geography, ecology, business climate, culture and endowment. We corrected for regional differences in growth patterns by using regional dummy variables. The Midwest region was our numeraire so that all other regions are compared to it.

Holding everything else constant, the Southwest experienced far more population growth than the Midwest, while the West and the Southeast had growth comparable to the Midwest. The Northeast experienced slower growth than the Midwest. Similarly, holding everything else constant, the Southwest experienced far more per capita income growth than the Midwest, which itself was similar in per capita income growth to the Southeast. The Northeast and West regions experienced slower growth than the Midwest. Finally, holding everything else constant, the Southwest, the Southeast and the West regions experienced faster growth than the Midwest, and the Northeast had growth comparable to the Midwest. Appendix A4.27, A4.28 and A4.29 show the relative differences by region in the responsiveness of population, employment and per capita income.

> The Southeast and the West regions experienced faster growth than the Midwest, and the Northeast had growth comparable to the Midwest.

5.14 Summary

In this Part, we decomposed growth in population, employment and income based on their various components and drivers, including demographic variables, socio-economic variables, education-related variables, gray infrastructure assets, green infrastructure assets, the role of government, housing market performance, economic legacy issues, regional factors (fixed effects), knowledge-related variables (e.g., the creative class) and indicators of local financial factors. For all 3,023 U.S. counties in the aggregate, the model performance was robust. The results are summarized below. The reader is urged to note the presumption of causality in the interpretation of the estimated coefficients.

- With respect to *growth interdependence* and the dynamic relationship between population, employment and per capita income, we observe that these growth elements are synergistic. They tend to grow together or fall together. Increases in job opportunities tend to draw more population, offering out-of-towners greater opportunity. Pure population increase in and of itself leads to new jobs. Growing per capita income also attracts more jobs.

- With respect to *initial conditions,* places with high initial population attract more people, but places with high initial jobs are likely to experience subsequent slower employment growth.

- With respect to *demographic factors,* places with a high percentage of the young age group (25-34 years old) have more significant job creation potential than others. Places with a high percentage of the retiree age group (65 years old and over) are likely to experience declining total population and per capita income but have higher job growth potential. Places with more metro population are likely to experience population and income declines, indicating the significant challenge metro areas have in sustaining their current population and income levels. Places with a higher percentage of foreign-born population are better positioned to attract population but are less able to raise per capita income.

- With respect to *housing market factors,* the aggregate analysis shows that home vacancy is a population and per capita income detractor. It does not help job creation either. Median housing values are positively related to population and per capita income growth but detract employment growth. Stable and rising home values are crucial for stabilizing population and raising income and wealth but can undermine job growth. Rising cost of living (measured by the rent-to-per-capita-

income ratio) in a place does not seem to detract population attraction, job growth or income growth. In general, housing market performance has a significant impact on the magnitude and direction of economic growth.

- With respect to *social factors,* the unemployment rate has no statistically significant effect on population or per capita income change. This suggests that places that are currently economically stressed have as much chance of recovery as places that are not. Poverty, however, creates an environment where people and places are less empowered to achieve an economic turnaround. The legacy effect of poverty is an economic development deterrent, with declining population and per capita income. On the other hand, places straddled with high healthcare costs do not face any extra deterrents, with respect to population or job growth. However these places exhibit lower growth of per capita income.

- With respect to *education and knowledge factors,* places with a higher percentage of people with a bachelor's degree or higher attract population, experience income growth and create more jobs. Investment in higher education, thus, has an overall prosperity enhancement effect.

- With respect to the *role of government,* a higher tax-to-spending ratio leads to population flight. Local government tax and spending does not have a significant impact on job creation or income growth, but higher taxes relative to services can lead to population loss.

- With respect to *gray infrastructure,* by intensifying gray infrastructure, communities can enhance population attraction, create more jobs and grow per capita income. Investment in gray infrastructure can, thus, contribute to growth.

- With respect to *green infrastructure,* places with greater developed green amenities (parks, campgrounds, tennis courts, etc.) attract population and are better positioned at creating new jobs. Places with greater land amenities (guide services, campground sites, mountain acres, cropland, pastureland, rangeland, public campground sites, federally owned forest land, state park acres, rail-to-trail miles, acres of private forest land, and The Nature Conservancy acres with public access) attract population but are less potent in creating jobs. Places with greater water amenities (marinas, fishing lakes, wetland acres, rivers, and canoe rental places) are slower in gaining population but are better positioned to grow income and employment. Places with greater winter amenities are less effective in attracting population. Finally, places with a better climate have an easier time attracting population but tend to be less effective in growing jobs and income.

- With respect to *economic structure and legacy costs,* the strong presence of high-end service jobs contributes the most to population attraction, followed by general services and manufacturing. An increase in the agricultural share of employment does not affect population growth. The strong presence of high-end service jobs also contributes the most to per capita income growth, followed by general services and manufacturing. Agricultural share does not significantly affect per capita income growth. Employment growth is not generally constrained by the structure and legacy of the economy.

- With respect to *various New Economy factors,* creative class employment spurs per capita income growth, while innovativeness (measured by patents) spurs growth in per capita income and jobs. Racial diversity does not seem to have a significant effect on income and job growth patterns.

It is important for the reader to be careful in interpreting the results above. Since these results emerged out of an aggregate analysis of all metro and non-metro counties, we expect that they would not always adequately depict the nature of growth in specific metro and non-metro counties. In Part 6, results from our individual analyses of metro and non-metro counties are presented. The reader might want to view the results in Part 5 as precursors to the more scale-sensitive results presented in Part 6.

Table 5.1: Drivers of Population, Employment and Per Capita Income Changes in All U.S. Counties (1990-2000)

VARIABLES	POPULATION CHANGE			PER CAPITA INCOME CHANGE			EMPLOYMENT CHANGE		
	Estimate	P-value	Elasticity	Estimate	P-value	Elasticity	Estimate	P-value	Elasticity
Endogenous Variables									
Change in Total Population	-	-	-	-0.041	0.00	-0.06	0.635	0.00	0.75
Change in Total Employment	0.918	0.00	0.78	0.049	0.00	0.06	-	-	-
Change in Total Income	-6.203	0.00	-4.65	-	-	-	1.994	0.00	1.76
Initial Condition Variables									
Population (1990)	0.028	0.00	0.21	-	-	-	-	-	-
Employment (1990)	-	-	-	-	-	-	-0.020	0.00	-0.09
Per Capita Income (1990)	-	-	-	-0.036	0.13	-0.08	-	-	-
Demographic Variables									
% of 25-to-34-Year-Olds Age Group	330.721	0.31	-	-48.192	0.17	-	538.642	0.03	0.92
% of 65+ Age Group	-386.5	0.01	-0.56	-48.887	0.00	-0.10	212.619	0.06	0.36
% of Urban Population	-187.149	0.00	-0.64	-18.117	0.00	-0.09	20.22	0.27	-
Foreign Born (1990)	656.058	0.00	0.14	-60.511	0.00	-0.02	137.173	0.19	-
Net Migration	1.017	0.00	0.02	-	-	-	-	-	-
Housing Market Variables									
% of Vacant homes	-163.409	0.00	-0.24	-27.511	0.00	-0.06	-12.705	0.73	-
Median Home Value	0.078	0.00	0.40	0.045	0.00	0.34	-0.167	0.00	-1.01
Ratio of Rent to Income	42.485	0.04	0.001	3.433	0.10	0.0002	-16.040	0.30	-
Socio-Economic Variables									
Unemployment Rate	66.259	0.69	-	15.277	0.40	-	-	-	-
% of Families in Poverty	-513.859	0.00	-0.83	-57.080	0.00	-0.14	-	-	-
Healthcare Expenditure Per Capita	-0.972	0.24	-	-0.173	0.06	-0.01	-0.276	0.67	-
Education Variables									
% with a Bachelor's Degree or Higher	553.697	0.00	0.71	24.689	0.03	0.05	189.999	0.03	0.29
# of Universities/Colleges	25.532	0.18	-	-1.567	0.45	-	13.777	0.35	-
Role of Government Variables									
Ratio of Taxes to Expenditure	-9216.309	0.00	-0.31	-307.526	0.30	-	1101.601	0.61	-

Table 5.1 (Continued): Drivers of Population, Employment and Per Capita Income Changes in All U.S. Counties (1990-2000)

VARIABLES	POPULATION CHANGE			PER CAPITA INCOME CHANGE			EMPLOYMENT CHANGE		
	Estimate	P-value	Elasticity	Estimate	P-value	Elasticity	Estimate	P-value	Elasticity
Gray Infrastructure-Related Variables									
Infrastructure Index	447.308	0.00	0.29	80.536	0.00	0.08	541.299	0.00	0.42
Average Travel Time	252.851	0.01	0.48	-	-	-	-	-	-
Green Infrastructure Indices									
Developed Amenities Index	1725.901	0.02	0.002	-9.595	0.90	-	2322.074	0.00	0.003
Land Amenities Index	910.107	0.01	0.0004	-57.586	0.12	-	-736.886	0.01	-0.0004
Water Amenities Index	-562.975	0.09	-0.00001	79.475	0.03	0.00001	521.588	0.05	0.001
Winter Amenities Index	-490.835	0.09	-0.0002	7.619	0.81	-	208.922	0.36	-
Climate Amenities Index	679.545	0.08	0.001	-129.14	0.00	-0.0002	-597.907	0.04	-0.001
Regional Dummy Variables									
West	1151.586	0.44	-	-1326.504	0.00	-0.02	1910.205	0.10	0.03
Northeast	-3819.219	0.02	-0.03	-1758.36	0.00	-0.02	-1348.463	0.29	-
Southeast	1150.670	0.417	-	-6.674	0.96	-	2441.613	0.02	0.09
Southwest	6000.117	0.00	0.07	368.55	0.03	0.007	4583.166	0.00	0.07
Economy Structure Factors									
% of Manufacture Employment	199.190	0.00	0.28	22.882	22.882	0.05	0.352	0.99	-
% of Farm Employment	-101.342	0.11	-	-9.973	0.16	-	-13.048	0.78	-
% of Financial Employment	2079.795	0.00	0.94	305.543	0.00	0.20	-218.373	0.48	-
% of Services Employment	318.129	0.00	0.62	33.809	0.00	0.10	-17.502	0.76	-
Other New Economy Indicator Variables									
%ofEmploymentinCreativeField	-	-	-	23.348	0.01	0.08	26.722	0.66	-
Average Patents 1990-1993	-	-	-	1.344	0.09	0.003	391.564	0.00	0.76
Racial Diversity Index	-9731.236	0.00	-0.16	-430.449	0.18	-	1101.601	0.61	-
Rent, Dividend, Interest Income	-	-	-	0.0001	0.52	-	-	-	-
Intercept	34863.587	0.00	-	6042.060	0.00	-	-23031.789	0.00	-
R-squared	0.761			0.536			0.751		
Adjusted R-Squared	0.758			0.531			0.749		
Sample Size (N)	3023			3023			3023		

Part 6: Study Findings
DifferencesbetweenU.S.MetroandNon-MetroCounties, 1990 to 2000

THE STRUCTURE OF ECONOMIC GROWTH IN METRO AND NON-METRO AREAS IS DIFFERENT. SO ARE THE LEVEL OF IMPACTS OF GROWTH DRIVERS ON GROWTH OUTCOMES.

6.1 Metro vs. Non-Metro Differences

The literature on knowledge workers and the economic performance of places has implicitly suggested that metro and non-metro areas are different. For example, Florida (2002a), Clark (2003), Scott (2000) and others focus much of their works on the characteristics of successful cities, highlighting the importance of metro amenities and the roles of such things as diversity, creativity, tolerance and openness. The debate about what constitutes a "cool city" has taken center stage in placemaking in many parts of the country. At the heart of this debate is the question of which metro and metropolitan amenities are most relevant and important in placemaking for success in a metropolitan setting.

A significant amount of work has also focused on rural strategies. Greenwood (1995) suggested that amenities and quality-of-life factors affect people and firm location choices in rural areas. Since the publication of his work, others have argued that the creative class can also cluster in rural areas (See McGranahan and Wojan (2007)). Rural amenities, such as roads, wireless communications, etc., have been expanding in the U.S. in recent years. The increasing construction of enhanced green infrastructure may also have improved the appeal of some rural locations to the creative class. If people are no longer as tightly tied to old industrial towns and are free to perch anywhere, then it could be the case that rural areas have the potential to attract people.

The types of people and jobs that rural communities can attract and the implications for raising per capita income are major policy challenges for rural economic developers.

By taking a dual approach, involving estimating two models, one for metro counties and one for non-metro counties, we were able to identify some distinguishing features, which suggest that not all strategies that work in metropolitan settings will also work in rural settings. In this Part, we particularly focus on the impacts of knowledge workers, the young and retirees (senior citizens), agriculture, alternative industries, higher education, local fiscal policies, innovation and different types of amenities. As reported in Part 5, the R^2 measures for metro counties were much higher than for non-metro counties, with the metro county results out-performing the aggregate results as well. A more deterministic growth process in metro areas is an important finding of this study. Again, the reader is urged to note our explicit assumption that the estimated coefficients reflect causality between drivers of growth and the elements of growth (See Part 5).

6.2 Growth Interdependence

Is the structure of the relationships among population, employment and per capita income different for metropolitan areas compared to non-metropolitan areas? Such a difference in growth machinery might suggest different strategies. For the aggregate model, our results revealed that the three measures of growth (changes

in population, employment and per capita income) are synergistic or interdependent. The results from our comparative analysis suggest the following: (1) that rural areas are more economically vulnerable, because rural populations are more sensitive to employment loss than populations in metro areas; (2) employment growth in rural areas is less responsive to population growth than in metro areas; and (3) employment growth in rural areas does not necessarily lead to income growth as one observes in metro areas.

For every 100 jobs created in a metro county, the associated population increase is 80 people. In non-metro counties, the equivalent population gain is 114 people. This suggests that more of the jobs that are created in non-metro areas are filled by people from other counties, diminishing the local benefits of job creation. The reverse is also true—people are more likely to flee non-metro areas than metro areas when they lose their jobs. Similarly, for every 100 jobs created, metro county per capita income is expected to increase by $2.40 (or 100,000 new jobs would raise per capita income by $2,400). For non-metro counties, however, job growth is statistically insignificant and, therefore, there is no gain in per capita income. This finding also raises more questions about the vulnerability of non-metro counties, begging one further question: What raises non-metro incomes?

In metro counties, a 100-person increase in population translates into 62 new jobs but a decline in per capita income of $2.30. In non-metro counties, however, the results are 40 new jobs and a per capita income decrease of $14. Again, unlike metro areas, where an influx of people at least creates significant service job opportunities, non-metro counties face limited opportunities. Furthermore, when people come to non-metro counties, it appears that they take jobs away from non-metro people, depressing the average income levels. Pure population increase, in and of itself, leads to new jobs in both metro and non-metro counties but the marginal impact is far greater in metro areas.

Another contrast between metro and non-metro counties is the responsiveness of population and jobs to rising income. For every $100 increase in per capita income, the associated decline of population in metro counties is 441 people, while that of non-metro counties increases by 30 people. Similarly, the employment response in metro counties is a gain of 219 jobs but no significant response accrues in non-metro counties. This may suggest that higher income in metro counties contribute to the sprawling of the metro population who may be more sensitive to the effect of a higher income on such things as property values, rent and cost of living. In non-metro counties, however, it appears that a rising income is difficult to come by in the first place. When they do, they have the tendency to attract population from other places but with insignificant job creation effect.

> Pure population increase, in and of itself, leads to new jobs in both metro and non-metro counties but the marginal impact is far greater in metro areas.

6.3 Initial Conditions

How much does past performance matter and is this different between a metro and a non-metro county? For non-metro counties, for every 100 jobs in existence in the initial period, an additional nine jobs are created within 10 years. Within metro counties, however, a decrease of six jobs can occur. The aggregate number of two jobs lost for metro and non-metro counties seems to mask the stark difference of the roles of initial conditions in subsequent performance in metro vs. non-metro areas. Another stark difference is the role of a place's track record in per capita income. For non-metro counties, for every $100 in initial income, subsequent per capita income is expected to decline by $16.50. Metro counties, however, experience a $34 increase. In the area of population, it is a bit different. For every 100 people who lived in a county in 1990, a non-metro county gained an additional 3.4 people, while metro counties gained none significantly.

6.4 Demographic Factors

In this section, we explore the roles of 25- to 34-year-olds, retirees and foreign born.

6.4.1 25- to 34-Year-Olds Age Group

The 25- to 34-year-olds age group has a significant effect on job growth in metro counties but their presence has no significant effect in non-metro counties. For every 1% increase in this young age group in a metro county, the associated number of jobs increases to 2,852 (the elasticity of employment growth with respect to this age group is 1.70). In non-metro counties, the impact is not statistically significant. This may suggest that the heralded talent attraction that Florida, Glaeser and others have touted only applies to metro places. In both locations, however, the clustering of this age group does not have an effect on per capita income, nor does it crowd out or attract other age groups. These findings further raise questions about what works for non-metro communities in economic development.

6.4.2 Retiree (65 Years Old and Over) Age Group

The effects of retired people or senior citizens on metro and non-metro counties are also starkly different. When the percentage of people 65 years old and over increases by 1%, metro county population is estimated to decrease by approximately 2,067 people, with no crowding-out effect in non-metro areas. Similarly, when the percentage of this age group increases by 1% in a given metro-county, an associated $153 loss in per capita income is estimated but the estimated loss is $40 for non-metro counties. The relative elasticities are -0.188 for metro counties and -0.09 for non-metro counties. Also, a 1% increase in the population of those 65 years old and over create an estimated employment increase of 1,165 people in metro counties but an employment decrease of 41 people in non-metro counties. A number of experts have alluded to the benefits of attracting senior citizens or focusing on assisted living facilities in non-metro areas. These results

do not support these ideas. Again, what strategies work in non-metro areas?

6.4.3 Percent of Foreign Born

The effect of foreign-born residents on metro areas differs from those in non-metro areas. A 1% increase in the foreign-born population results in an increase in metro counties population by 1,040 people, but an increase of population of 77 people in non-metro counties. It is obvious that immigrants would attract more people in metro counties, since their presence is known to be catalytic to the arrival of family, friends and other countrymen who are less likely to follow them to non-metro counties. This may also suggest that immigrant diversity adds more vibrancy in metro areas.

Immigrants also tend to create significant jobs in metro areas but not in non-metro areas. For every 1% increase in the foreign-born population, an associated 654 jobs are created in metro counties. The non-metro area effect is not significant. Immigrants also have an adverse effect on the average income in metro and non-metro counties. In metro counties, a 1% increase in the percentage of the foreign-born population translates into a $41 reduction in per capita income. The equivalent for non-metro areas is $58. Again, if immigrants, the young age group and senior citizens cannot do it, what works in non-metro areas?

6.5 Housing Market Factors

6.5.1 Percentage of Vacant Homes

Home vacancy is associated with subsequent population growth in both non-metro and metro settings. A 1% increase in the percentage of homes that are vacant translates into a population increase of 503 people in subsequent years in metro counties. The impact in non-metro counties is a population gain of 63 people and a per capita income loss of $11.42. These results differ from the aggregate model. A closer look, at the relationship between housing vacancy and population growth could provide further insight.

6.5.2 Median Housing Value

A $100 rise in metro county median home value has no significant effect on metro population and per capita income and shows a loss of 22 jobs. In non-metro counties, the effects are a population increase of two people, a per capita income change of $4.8 and a decline in employment of one job.

6.6 Socio-Economic Factors

The socio-economic climates of metro and non-metro areas definitely differ. Although evidence is mounting that non-metro communities do attract population based on the special amenities they offer, it is also relatively clear that such non-metro areas face structural problems, which may make it difficult for them to rebound. In this Section, we contrast the effects of a number of socio-economic variables on growth between metro and non-metro counties.

6.6.1 Unemployment Rate

Consistent with the findings from the aggregate model, the unemployment rate does not have a significant effect on population, jobs or income in both metro and non-metro counties. This suggests that places that are currently economically stressed have as much chance of recovery as places that are not. This finding should bode well for policy makers in Rustbelt states.

6.6.2 Poverty

Poverty is associated with a decline in population growth in both metro and non-metro counties. For example, a 1% increase in the percentage of people in poverty is attributable to a decline in population of 1,513 people in metro counties but has no significant population effect in non-metro counties. This suggests that metro residents move out significantly when poverty sets in but non-metro residents are less mobile. Similarly, a 1% increase in families in poverty is attributable to a loss of $86 in per capita income of metro counties and $64 in non-metro counties. While poverty adversely affects growth in both metro and non-

metro counties, metro counties are particularly more vulnerable to the negative effects of socio-economic problems.

6.6.3 Expensive Healthcare

In the aggregate analysis, per capita expenditures on healthcare were found to be unrelated to population or employment change, suggesting that places saddled with high healthcare costs do not face any extra deterrents to population or job growth. However, places with high healthcare costs were found to exhibit lower per capita income. Further analysis separating metro and non metro counties indicates a similar conclusion for metro counties but not for non-metro counties. While per capita healthcare expenditure has no significant effect on population or job growth in either metro or non-metro areas, it has a significant and positive effect on income growth in metro counties. Healthcare expenditures, thus, have a positive effect on income in metro areas. In general, deep social problems, such as poverty, have adverse effects on metro and non-metro growth, but metro areas are more vulnerable to socio-economic conditions.

> Places that are currently economically stressed have as much chance of recovery as places that are not. This finding should bode well for policy makers in Rustbelt states.

6.7 Education and Knowledge Factors

The roles that education, educational institutions and knowledge workers play in metro and non-metro development are an important consideration and a topic of numerous other studies. This Section contrasts the growth response to education and knowledge factors in metro and non-metro counties.

6.7.1 Education (Percentage with a Bachelor's Degree or Higher)

The aggregate analysis indicated that counties with a higher percentage of people with a bachelor's degree or higher are associated with population, income and job growth. The metro and non-metro county

findings, however, are different. In metro counties, the concentration of the college-educated population helps attract further population but not income or job growth; while in non-metro counties, a concentration of a college-educated population affects job creation but not population or income growth. This finding seems to suggest that the attraction of the educated population itself attracts further population but not income or job growth; while in non-metro counties, a concentration of college-educated population impacts job creation but not population or income growth. This finding seems to suggest that the attraction of college educated serves as a population attraction strategy in metro areas and a job creation strategy in non-metro areas.

6.7.2 University Presence (The College Town Effect)

Whether college or university towns have a growth advantage is an important consideration. The aggregate U.S. counties findings suggest that there is no significant effect. However, in metro counties, the presence of a college or university translates into population growth of 558 people and an increase in the number of jobs by 1,336 over a 10-year period. In non-metro counties, the presence of colleges or universities does not have a significant effect on growth.

6.8 Role of Government

The effect of the fiscal decisions of a local government on population, jobs and income historically has been a relevant consideration. Low tax communities have strived to attract opportunities through fiscal competitiveness. Our comparison of metro with non-metro counties suggests similar findings. In both metro and non-metro counties, the capacity to tax, relative to expenditure, and, hence, the ability to provide more services, is a significant determinant of population growth, and more so in non-metro counties. Local fiscal policy, therefore, affects population growth, especially in non-metro counties. However, no significant effect on job or income growth is observed.

6.9 Gray Infrastructure

Expenditures on public infrastructure are often expected to enhance growth. The results from the aggregate analysis of U.S. counties suggest that gray infrastructure investment can help attract population, grow jobs and grow per capita income. Similarly, investment in gray infrastructure has positive population attraction, income and job growth benefits in both metro and non-metro counties. A one-unit increase in gray infrastructure investment is associated with a population increase of 570 people, spurs 860 new jobs and enhances per capita income by $29 in metro counties. In non-metro counties, this unit increase would attract 42 people, creates 31 new jobs and enhance per capita income by $92. Obviously, while gray infrastructure investment helps boost metro and non-metro growth, metro areas leverage such investments more to achieve growth.

6.10 Green Infrastructure

An issue that is difficult for economic development practitioners to grapple with is the relative role of green assets in spurring economic development. An even more ambiguous issue is the role of green infrastructure assets in economic development for metro and non-metro counties. Are green infrastructure assets critical to economic development at any scale, or are there intricate differences in the effectiveness of particular green infrastructure assets to growth performance between metro and non-metro counties? Such questions are obviously relevant in guiding green infrastructure investment in metro and non-metro areas and in informing expected growth outcomes from such efforts.

Local fiscal policy, affects population growth, especially in non-metro counties. However, no significant effect on job or income growth is observed.

6.10.1 Developed Amenities

Developed amenities include such things as parks, playgrounds, swimming pools, campgrounds, tennis courts, fairgrounds, amusement places, museums and tennis courts. Results from the aggregate analysis suggest that such amenities have positive population and job growth effects. In metro and non-metro counties, developed amenities lead to strong job growth but the effect is much stronger in metro counties. A one-unit improvement in developed amenities translates into a growth of 2,367 jobs in metro counties and 319 jobs in non-metro counties. Two observations can be made: (1) non-metro counties already have a better supply of natural amenities than metro counties; hence the marginal effect of a developed amenity in such settings is obviously different. Thus, even though both metro and non-metro counties benefit significantly in job growth from investment in developed amenities, the benefits that accrue are more substantial in metro counties; and (2) investment in developed amenities in both metro and non-metro counties results in better job growth than investment in gray infrastructure. For metro counties, a one-unit improvement in the gray infrastructure index translates into 860 jobs, compared to 2,367 jobs for developed amenities. For non-metro counties, a one-unit improvement in the infrastructure index translates into 31 jobs, compared to 319 jobs for developed amenities. Investment in green infrastructure development could, thus, be a more potent approach to boost job growth in both metro and non-metro counties than the traditional focus on gray infrastructure improvement.

6.10.2 Land Amenities

Land amenities include such things as guide services, campground sites, mountain acres, cropland, pastureland, rangeland, public campground sites, federally owned forest land, state park acres, rail-to-trail miles, acres of private forest land, and The Nature Conservancy acres with public access. Aggregate analysis results suggest that land amenities have a positive effect on population but a negative effect on job creation. Our comparative analysis suggests that access to land amenities attracts population growth in metro counties but does not help with income or job growth in either metro or non-metro counties.

6.10.3 Water Amenities

Water amenities include such things as marinas, inland lakes, bodies of water, wetland acres, rivers and canoe rental places. Findings from the aggregate analysis show that water amenities detract from population growth but have a positive impact on income and employment growth. The metro and non-metro contrast reveals similar findings. For example, in non-metro counties, water amenities are associated with population decreases but job increases; whereas, in metro counties, water amenities are not associated with population decreases and enhance job growth. Availability of water amenities results in 99 new jobs over 10 years in non-metro counties and 1,351 new jobs over the same time in metro counties. In metro and non-metro settings, water amenities can be leveraged for job growth.

> Investment in green infrastructure development could be a more potent approach to boost job growth in both metro and non-metro counties than the traditional focus on gray infrastructure improvement.

6.10.4 Winter Amenities

Winter amenities, such as ski areas, have a different growth impact in metro and non-metro counties. In metro counties, winter amenities do not have a significant impact on income or job growth, perhaps due to limited availability of such amenities in metro areas. By contrast, non-metro counties have a substantial growth advantage from winter amenities. A one-unit enhancement of such amenities in non-metro counties can lead to a $73 rise in per capita income and 142 new jobs. Non-metro counties, thus, have a substantial job and income growth advantage stemming from winter amenities.

6.10.5 Climate Amenities

Many studies, in both metro and non-metro contexts, considered the possible role of climate amenities (warmer and sunny places) on economic performance. While nothing can be done in terms of changing natural climate amenities in different parts of the country, the growth advantage of some places over others is an important consideration. The metro and non-metro counties contrast reveals similar findings. Climate amenities matter, and they matter for population growth but not for income or jobs. A one-unit improvement in the climate condition is associated with an attraction of 3,132 people in metro counties and an attraction of 319 people in non-metro counties. Obviously, climate has a significant influence on population growth. However, the insignificance of income and job growth advantages of such places, that are directly attributable to climate conditions, suggest that metro and non-metro counties in less desirable climatic locations also have a fair shot at income and job growth opportunities despite their colder or less sunny climates.

6.11 Economic Structure and Legacy Costs

We address the issue of whether or not legacy matters to growth performance. Results from the aggregate analysis revealed that economic structure legacy matters to population attraction and income growth but not to new job creation. This Section looks at how metro and non-metro counties' growth is affected by economic legacy.

6.11.1 Population Impacts of Economic Structure and Legacy Costs

The percentage of total employment in manufacturing, farm, financial, real estate and general service jobs signal the structure of the local economy. In terms of the effects of such economic structure legacy on the ability to attract population in metro and non-metro counties, there are significant differences. Metro counties' ability to attract population is enhanced

if the economy is transitioned to high-scale service jobs, followed in importance by manufacturing jobs. High proportions of agriculture and general service employment have a limited ability to attract population, perhaps because agriculture has a limited role in metro counties, and such counties already have significant service employment. In non-metro counties, population attraction is not sensitive to the existing economic structure, except in the case of agriculture, which improves the appeal of non-metro areas for population attraction.

6.11.2 Per Capita Income Impacts of Economic Structure and Legacy Costs

Economic and structural legacy impacts income growth in both metro and non-metro counties in a similar fashion. Metro and non-metro counties are better positioned if the economic structure shifts toward a high-end service economy, followed in effect by a general service economy and a manufacturing economy. Agricultural share of employment has no impact on income growth in metro counties. However, agriculture is important for income growth in non-metro counties, even though its income effects are less substantial than other sectors. In both metro and non-metro areas, increasing the share of general and high-end services employment can help grow per capita income.

> Unlike population attraction and income growth, jobs are less tied to the impact of past structural legacy.

6.11.3 Employment Impacts of Economic Structure and Legacy Costs

In general, economic structure legacy does not factor into job creation in either metro or non-metro counties. Unlike population attraction and income growth, jobs are less tied to the impact of past structural legacy. The only difference is the importance of the high share of service employment in non-metro areas in accelerating job growth. These results may come as good news to old industrial towns and economies deeply entrenched

in the Old Economy, as the disadvantage in population attraction and income growth does not extend to a disadvantage in ability to create new jobs. It appears that new jobs are not constrained by any past legacy.

6.12 Other New Economy Factors

We now contrast the effects of additional New Economy factors on population, employment and per capita income. The first is the percentage of employment in the creative class, which we found to be positively related to income growth in the aggregate analysis. The second is the degree of innovativeness (measured by the average number of patents from 1990 to 1993), which we found to be directly related to both income and employment growth in the aggregate analysis. The third is the Racial Diversity Index, which we found to be negatively related to population in the aggregate data. The fourth is the rent, dividend and interest income earnings variable (measure of financial market conditions), which we found not to significantly impact any forms of growth.

6.12.1 Creative Employment

For all counties, the percentage of employment in creative fields has a positive effect on per capita income but not on employment. However, for metro counties, this hypothesized driver of growth does not have a significant impact on per capita income but significantly impacts job creation. For every 1% increase in this variable, there is an associated increase of jobs by 287 in metro counties. In non-metro counties, there is no expected increase in jobs but an expected increase in per capita income by $35.

The finding of no impact of the percent of creative-class employment on per capita income in metro areas challenges the thesis of Florida (2002a) that this class of workers is a powerful booster of income. However, our finding that they boost employment seems consistent with Florida. The finding that they do not boost employment in non-metro areas but do boost income suggests that the creative class is not a solution to job

creation in non-metro areas but can help enhance non-metro income.

6.12.2 Innovativeness (Patents)

Using patents as an indicator of innovation, we found the effects of patents to vary between metro and non-metro areas. In both cases, the effect on per capita income was similar ($3.27 per patent in metro counties and $3.60 per patent in non-metro counties). However, the impact on employment was remarkably different. Each additional patent translates into 495 new jobs in metro counties but only to 4.4 jobs in non-metro counties. The fact that the job creation benefits of patent-based innovation is dismal in non-metro areas may reflect the limited presence of other collateral assets, such as private equity, venture capital, knowledge workers and entrepreneurs. It may also suggest the need to concentrate more innovative enterprises in metropolitan areas.

6.12.3 Racial Diversity Index

The Racial Diversity Index, which was significant and negative for population, though not significant for per capita income and employment in the aggregate analysis, became even more significant and negative with respect to population and income in metro counties. The negative marginal impact of the index on population increased from -731 to -21,821 for metro counties but no population impact was observed in non-metro counties. The impact on per capita income, that was insignificant in the aggregate analysis, became significant and negative in the metro counties analysis (-$1,629 per capita) but not significant in non-metro counties.

Finally, the impact of the Racial Diversity Index on employment, which was insignificant in the aggregate analysis, remained insignificant for metro counties but became significant and negative for non-metro counties (-771 jobs). So, the effects of racial diversity on employment tend to be negative, both in metro and non-metro areas, but the negative effect on metro

areas is more pronounced. Our finding that an increase in the percentage of foreign-born people will result in an increase in both population and employment in metro counties, but a population increase alone in non-metro counties is intriguing. Our measure of diversity may be constrained by the fact that we utilized a measure of racial diversity, the Simpson's Index, which may not necessarily measure the presence of specific minority populations. Tolerance being an unobservable variable, it was difficult to measure its impact. Perhaps, this variable could have been better correlated with economic performance.

6.12.4 Financial Market

Rent, dividend and interest income remained an insignificant driver of population, employment and income in metro counties. However, it is directly related to income in non-metro counties. This suggests that improving the atmosphere for people to earn non-wage income in non-metro areas contributes to their well-being, albeit not to job creation.

6.13 Regional Differences

Compared to the Midwest, holding everything else constant, our results suggest that counties in the West and the Southwest regions are better poised for population growth in metro counties, while the Northeast and the Southeast are essentially in the same position as the Midwest. Compared to the Midwest, however, and holding everything else constant, our results suggest that non-metro counties in the West and the Southeast are better positioned than the Midwest for population growth, while the Northeast is not so well positioned.

With respect to per capita income, compared to the Midwest, metro counties in the Southwest are better positioned for income growth, while the Northeast is less positioned. In non-metro counties, however, the Midwest is better positioned than the West and the Northeast, while being comparably positioned to the Southeast and the Southwest.

Finally, turning to employment in metro counties, the Midwest is equally positioned as all other regions. But in non-metro counties, the Midwest is better positioned than the Northeast, though not as well positioned as the West.

6.14 Summary

In Part 6, we delved deeper into the structural differences between metro and non-metro counties to explore the differential impacts of different assets and alternative strategies on growth dynamics. Previous literature had presented results that tended to focus on metro or non-metro areas, but not within an integrated framework that would enhance the ability of economic developers to understand what could work best and in what context.

The results are summarized as follows:

- Population, employment and per capita income (the so-called growth elements) tend to be synergistic and mostly complementary. They tend to spiral up or down together. The growth machinery is more pronounced in metro areas than in non-metro areas.

- Holding other factors constant, metro areas have a natural tendency to grow their average income but lose employment. However, non-metro areas have a natural tendency to grow population and employment but lose income.

- Twenty-five to thirty-four-year-olds are potent drivers of job creation in metro areas but not in non-metro areas. Likewise, retirees are major drivers of job creation in metro areas, but they actually crowd out population, jobs and per capita income in non-metro areas.

- First-generation Americans can help attract population, more for metro areas than for non-metro areas. They are also associated with job creation in metro areas but not in non-metro areas. However, in both places they tend to depress per capita income, with the reduction in metro areas being more significant.

- With respect to housing market factors, housing vacancy tends to attract far greater population to metro areas than to non-metro areas. Higher housing values, however, tend to detract more from job creation in metro counties than they do in non-metro counties. In metro areas, higher housing values do not have an effect on population or per capita income but enhance population and income in non-metro counties.

- Recent incidence of unemployment does not appear to affect the ability to grow. However, poverty retards growth, more so in metro areas.

- While expensive healthcare tends to slow per capita growth in metro counties, it does not affect this growth in non-metro counties.

- The concentration of college graduates in a metro areas helps attract new population, while the presence of college graduates translates into higher income in non-metro areas.

- The location of a university in a metro setting translates into population attraction and job creation. Such presence has no effect in non-metro settings.

- With respect to the role of government, high taxes—relative to services—translate into greater population effects in metro counties than in non-metro counties.

- Investment in gray infrastructure results in much greater population attraction, much lower per capita income increase, and much greater job creation in metro counties than in non-metro counties.

- The green infrastructure assets within a community help attract population and create jobs, more so in metro areas where such infrastructure is typically limited. With respect to components of green infrastructure, developed amenities actually have a higher impact than gray infrastructure. Green infrastructure creates jobs by attracting knowledge workers.

- Economies that have transitioned away from agriculture and manufacturing tend to have much faster growth performance in population and income. The ability to grow jobs, however, does not seem to be constrained by legacy but the ability to grow income and attract population is.

- Jobs follow the creative class into metro areas but not to non-metro areas. However, income follows the creative class into non-metro areas.

- Patents are far more powerful in job creation in metro areas than in non-metro areas. However, patents have similar per capita income enhancement effects in both metro and non-metro areas.

- Intriguingly, we did not find any discernable positive impact of racial diversity on growth.

- The Midwest and the Northeast have a tendency for slower growth than many regions in the country. They tend to not be very well poised to attract population or grow income and employment.

Table 6.1: Drivers of Population, Employment and Per Capita Income Changes in U.S. Metro Counties (1990-2000)

VARIABLES	POPULATION CHANGE			PER CAPITA INCOME CHANGE			EMPLOYMENT CHANGE		
	Estimate	P-value	Elasticity	Estimate	P-value	Elasticity	Estimate	P-value	Elasticity
Endogenous Variables									
Change in Total Population	-	-	-	-0.023	0	-0.0787364	0.623	0	0.7424662
Change in Total Employment	0.802	0	0.674	0.024	0	0.0694315	-	-	-
Change in Total Income	-4.414	0	-1.3045	-	-	-	2.187	0	0.7696947
Initial Condition Variables									
Population (1990)	0.013	0.19	-	-	-	-	-	-	-
Employment (1990)	-	-	-	-	-	-	-0.061	0	-0.2914687
Per Capita Income (1990)	-	-	-	0.339	0	0.6111818	-	-	-
Demographic Variables									
% of 25- to 34-Year-Olds Age Group	-1,107.72	0.32	-	-54.229	0.38	-	2,851.74	0	1.7090334
% of 65+ Age Group	-2,067.09	0	-0.7488	-153.242	0	-0.1878412	1,165.72	0.01	0.502801
% of Urban Population	-	-	-	-	-	-	-	-	-
Foreign Born (1990)	1,040.09	0.01	0.1039	-41.264	0.07	-0.0139535	653.521	0.05	0.0777597
Net Migration	1.547	0	0.0206	-	-	-	-	-	-
Housing Market Variables									
% of Vacant Homes	502.83	0.06	0.1353	16.378	0.25	-	-163.521	0.42	-
Median Home Value	0.051	0.41	-	0.03	0	0.23659	-0.226	0	-0.627481
Ratio of Rent to Income	-320,348.87	0.42	-	-51,679.83	0.03	-0.0914854	-709,236.89	0.03	-0.4417854
Socio-Economic Variables									
Unemployment Rate	7.856	0.99	-	-	-	-	-	-	-
% of Families in Poverty	-1,512.94	0	-0.5482	-85.608	0	-0.1049717	-	-	-
Healthcare Expenditure Per Capita	1.032	0.55	-	0.163	0.08	0.0015002	-0.169	0.9	-
Education Variables									
% with a Bachelor's Degree or Higher	558.294	0.09	0.2987	11.974	0.46	-	53.281	0.81	-
# of Universities/Colleges	2,208.27	0	0.2439	25.747	0.19	-	1,336.39	0	0.1757663
Role of Government Variables									
Ratio of Taxes to Expenditures	26.496	0.06	-0.039	-0.477	0.18	-	-	-	-

Table 6.1 (Continued): Drivers of Population, Employment and Per Capita Income Changes in U.S. Metro Counties (1990-2000)

VARIABLES	POPULATION CHANGE			PER CAPITA INCOME CHANGE			EMPLOYMENT CHANGE		
	Estimate	P-value	Elasticity	Estimate	P-value	Elasticity	Estimate	P-value	Elasticity
Gray Infrastructure-Related Variables									
Infrastructure Index	570.167	0.03	0.1798	29.44	0.05	0.0314231	859.94	0	0.3229695
Average Travel Time	385.232	0.22	-	-	-	-	-	-	-
Green Infrastructure Indices									
Developed Amenities Index	-260.079	0.84	-	95.298	0.22	-	2,366.89	0.01	0.1514877
Land Amenities Index	3,053.72	0	0.0169	-101.871	0.09	-0.0019068	-1,951.52	0.01	-0.0128535
Water Amenities Index	0.476	0.99	-	62.459	0.28	-	1,351.19	0.09	0.0101986
Winter Amenities Index	-1,462.00	0.09	-0.0045	39.859	0.42	-	915.5	0.19	0.003339
Climate Amenities Index	3,132.01	0.03	0.0322	94.889	0.26	-	-1,535.64	0.19	-0.0187715
Regional Dummy Variables									
West	11,824.13	0.04	0.0351	-311.463	0.34	-	9,359.40	0.04	0.0330977
Northeast	1,781.11	0.68	-	-1,550.27	0	-0.0267656	-1,408.01	0.68	-0.0085539
Southeast	5,272.19	0.29	-	45.954	0.86	-	1,030.41	0.79	0.0126134
Southwest	19,798.26	0	0.0626	708.081	0.03	0.0075723	12,834.32	0	0.0482954
Economy Structure Factors									
% of Manufacture Employment	324.136	0.09	0.1494	18.359	0.07	0.0286277	98.728	0.5	0.05417
% of Farm Employment	793.369	0.57	0.0909	118.971	0.19	-	-373.776	0.2	-0.050969
% of Financial Employment	488.556	0.03	0.1901	154.584	0	0.0945149	816.23	0.24	0.1756046
% of Services Employment	57.921	0.84	-	27.026	0.08	0.0668141	-73.006	0.74	-0.0635092
Other New Economy Indicator Variables									
% of Employment in Creative Field	-	-	-	15.797	0.25	-	286.562	0.09	0.2979633
Average Patents 1990-1993	-	-	-	3.27	0	0.0152229	494.761	0	0.810442
Racial Diversity Index	-21,821.22	0.04	-0.1293	-1,628.86	0.01	-0.032654	-873.635	0.92	-
Rent Dividend Interest Income	-	-	-	0.0001	0.35	-	-	-	-
Intercept	64,762.35	0.03	-	3,348.84	0.05	-	-69,691.26	0	-
R-squared	0.794			0.722			0.775		
Adjusted R-Squared	0.785			0.71			0.766		
Sample Size (N)	785			785			785		

Table 6.2: Drivers of Population, Per Capita Income and Employment Changes in U.S. Non-Metro Counties (1990-2000)

VARIABLES	POPULATION CHANGE			PER CAPITA INCOME CHANGE			EMPLOYMENT CHANGE		
	Estimate	P-value	Elasticity	Estimate	P-value	Elasticity	Estimate	P-value	Elasticity
Endogenous Variables									
Change in Total Population	-	-	-	-0.14	0.07	-0.0451	0.359	0	0.4065
Change in Total Employment	1.138	0	1.0077898	-0.02	0.87	-	-	-	-
Change in Total Income	0.304	0.1	0.9452839	-	-	-	0.101	0.22	0.3558
Initial Condition Variables									
Population (1990)	0.034	0	0.336825	-	-	-	-	-	-
Employment (1990)	-	-	-	-	-	-	0.093	0	0.4977
Per Capita Income (1990)	-	-	-	-0.165	0	-0.3373	-	-	-
Demographic Variables									
% of 25- to 34-Year-Olds Age Group	-86.754	0.18	-	-30.786	0.47	-	-22.779	0.56	-0.1643
% of 65+ Age Group	-4.852	0.88	-	-39.721	0.07	-0.0904	-40.984	0.02	-0.3274
% Urban Population	-	-	-	-	-	-	-	-	-
Foreign Born (1990)	77.426	0.01	0.0607405	-57.733	0	-0.0146	-17.752	0.31	-0.0157
Net Migration	0.114	0.08	0.0068791	-	-	-	-	-	-
Housing Market Variables									
% of Vacant Homes	62.537	0	0.4695466	-11.417	0.07	-0.02	2.577	0.63	-
Median Home Value	0.02	0	0.2	0.048	0	0.2996	-0.007	0.06	-0.1512
Ratio of Rent to Income	-5.492	0.1	-0.0001	3.653	0.09	0.0002	-0.586	0.78	-
Socio-Economic Variables									
Unemployment Rate	-1.756	0.95	-	-	-	-	-	-	-
% of Families in Poverty	-20.794	0.21	-	-64.228	0	-0.1684	-	-	-
Healthcare Expenditure Per Capita	-0.001	0.43	-	-0.001	0.28	-	-0.0004	0.37	-
Education Variables									
% with a Bachelor's Degree or Higher	-142.765	0	-0.7410398	-14.864	0.42	-	44.171	0	-0.07
Number of Universities/Colleges	-3.127	0.34	-	-1.223	0.57	-	-3.893	0.15	-
Role of Government Variables									
Ratio of Taxes to Expenditure	956.069	0.06	0.1425698	-159.676	0.63	-	-	-	-

Table 6.2 (Continued): Drivers of Population, Per Capita Income and Employment Changes in U.S. Non-Metro Counties (1990-2000)

VARIABLES	POPULATION CHANGE			PER CAPITA INCOME CHANGE			EMPLOYMENT CHANGE		
	Estimate	P-value	Elasticity	Estimate	P-value	Elasticity	Estimate	P-value	Elasticity
Gray Infrastructure-Related Variables									
Infrastructure Index	41.608	0.07	0.1009336	92.047	0	0.072	30.998	0.02	0.0849
Average Travel Time	8.454	0.67	-	-	-	-	-	-	-
Green Infrastructure Indices									
Developed Amenities Index	245.999	0.37	-	157.131	0.37	-	318.688	0.04	0.1028
Land Amenities Index	101.756	0.17	-	-9.356	0.85	-	-84.987	0.06	-0.0025
Water Amenities Index	-263.593	0	-0.0088214	11.398	0.82	-	98.935	0.03	0.0037
Winter Amenities Index	-38.409	0.57	-	72.703	0.1	0.0003	141.696	0	0.0021
Climate Amenities Index	319.329	0	0.0186322	-193.622	0	0.004	9.548	0.84	-
Regional Dummy Variables									
West	1,776.44	0	0.1003609	-1,410.41	0	-0.026	365.954	0.04	0.0233
Northeast	-3,531.82	0	-0.0725569	-1,220.98	0	-0.008	-2,579.61	0	-0.0598
Southeast	699.147	0.01	0.099299	245.701	0.18	0.011	69.286	0.68	-
Southwest	160.923	0.6	-	61.805	0.76	0.001	36.508	0.84	-
Economy Structure Factors									
% of Manufacture Employment	-11.593	0.28	-	27.207	0	0.056	3.934	0.55	-
% of Farm Employment	37.201	0	0.2235055	9.213	0.02	0.018	7.373	0.28	-
% of Financial Employment	-171.476	0.16	-0.3166724	388.7	0	0.231	57.722	0.23	-
% of Services Employment	-21.785	0.15	-	32.166	0	0.086	31.181	0	0.2922
Other New Economy Indicator Variables									
% of Employment in Creative Field	-	-	-	34.775	0	0.119	15.536	0.15	-
Average Patents 1990-1993	-	-	-	3.601	0.07	0.003	4.423	0.02	0.0133
Racial Diversity Index	161.662	0.78	-	61.881	0.874	0.001	-770.941	0.03	-0.0636
Rent Dividend Interest Income	-	-	-	0.003	0.06	0.029	-	-	-
Intercept	-1,623.05	0.36	-	6,393.05	0	-	-1,027.52	0.23	-
R-squared	0.481			0.321			0.585		
Adjusted R-Squared	0.473			0.311			0.579		
Sample Size (N)	2,238			2,238			2,238		

Part7:Summary,Conclusion,PolicyandStrategyImplications

THE KEY TO THE SUCCESS OF PLACES TODAY IS THE ABILITY TO GROW, RETAIN AND ATTRACT TALENT.

7.1 Summary

In the Old Economy, communities were defined by what they produced. Successful places mastered the art of combining skilled labor with capital and management and leveraging the natural resource base of their region to produce industrial goods that were mostly manufactured. Old industrial places benefited from the fixity of capital and its agglomeration effects on skilled labor and management. In other words, because these communities were pre-staged for economic development, their success was almost guaranteed. All that places had to do was compete for their fare share of national prosperity. Places competed on the basis of low taxes, low costs and the attraction of manufacturing facilities.

With the New Economy, this old industrial paradigm has changed. Information and telecommunications technology (IT) now enable the creation of a whole new level of products that have become more valuable, less reliant on manufacturing and more virtual in the ability to produce them. Wealth is not only accruing to unusual places but also to unusual people in such places that are better positioned for the New Economy. The type of prosperity that Americans have enjoyed since World War II seems to have become elusive in recent years. As the U.S. economy has slowed down, emerging and frontier economies have thrived. Whether or not this is a temporary slowdown, it is clear that the world has changed. The emergence of globalization and the advent of the New Economy suggest a whole new paradigm for how growth happens.

The key to the success of places today is the ability to grow, retain and attract talent. Talent is far more mobile today and its value dwarfs that of traditional skilled workers. Several studies suggest that knowledge workers value quality of life, and their greater independence allows them to better search the national landscape for places that offer the best quality of life. Quality of life, which is defined largely by the amenities available to knowledge workers in the host communities they choose, is argued to be a critical driver of local economic development.

Communities increasingly seek guidance on how to attract knowledge workers. Obviously, amenities play a role, and communities could leverage such amenities as part of an economic placemaking strategy, but they struggle to obtain evidence on the effectiveness of various strategies. It is clear that some of this information has been uncovered by previous research; but much of the information available is not organized to suit the needs of a community of economic developers and planners who have built their careers on the Old Economy model of economic development. Existing information comes from a variety of studies that have tended to be narrowly focused in their analysis. Indeed, most studies tended to focus on specific drivers of growth rather than to develop a comprehensive framework that would allow the comparison of the implications and impacts of alternative strategies. When economic developers seek solutions, what they tend to get are confusing pieces of information, or information so technical that they are difficult to implement into policy. For example, a group of scholars highlighted the importance of diversity

and amenities in attracting the creative class and other knowledge workers in an urban setting, but ignored such issues as legacy, past industrial structure, the role of retirees, weather, winter amenities, economic synergy, social problems (poverty), housing market factors, what works for urban versus rural areas, and a whole host of other factors that appear to be relevant in the New Economy.

The current national economic recession heightens the need for actionable information. In the first and second quarters of 2009, somewhere in the neighborhood of $400 billion of the total of almost $800 billion will be reaching American communities as part of the American Recovery and Reinvestment Act (ARRA) of 2009, which Congress passed in February. On one hand, much of these funds can go into shovel-ready public works projects targeting roads, highways and other gray infrastructure. On the other hand, these funds can be invested in New Economy infrastructure assets, such as trails, urban agriculture, museums, parks and other green infrastructure. The lack of evidence of the type presented in this report will make it difficult to appreciate the returns on investments that are not traditional or consistent with the Old Economy mindset.

This report lays a framework for examining prosperity in the context of the New Economy. It starts by attempting to describe the difference between the Old Economy and the New Economy, particularly focusing on what this difference translates into with respect to the growth strategies of communities. It preliminarily explores the concepts of "place" and "economic placemaking" for the New Economy. By exploring existing literature on proposed drivers of economic growth in the New Economy, it develops a series of questions that are relevant to state and local economic developers. The study then develops a New Economy Growth Theory that attempts to decompose economic growth into Old Economy and New Economy drivers. The growth decomposition model decomposes prosperity into its

key elements—population growth, employment growth and income growth. The relationships among these prosperity elements and their key drivers were explored via a system of simultaneous equations that allowed for a fuller accounting of the interrelationships that underpin the growth machinery. The analysis highlights the notion that failure to account for the set of new drivers that drive economic development today would not only limit the public's understanding of growth, but would also limit the ability of policy makers to act in an effective fashion.

To operationalize this analysis, data on a variety of variables were obtained. Several drivers of growth were included in the specification and estimation of national growth models that were based on county-level data from throughout the U.S. The following are key driver categories:

- initial conditions with respect to population, employment and income;

- demographic variables;

- socio-economic variables;

- education-related variables;

- gray infrastructure assets;

- green infrastructure assets;

- the role of government;

- housing market performance;

- economic legacy issues;

- regional factors (fixed effects);

- knowledge-related variables (e.g., the creative class); and

- risk-taking.

The analysis was conducted for U.S. counties in the aggregate, and for U.S. metro and non-metro counties,

using data from the 1990 to 2000 time period. This allowed an additional level of focus on what works in metro settings in contrast to non-metro settings.

The main findings from our aggregate analyses are as follows:

- *Growth is interdependent:* Population, employment and per capita income growth are synergistic in nature and tend to be mostly complementary. They tend to spiral up or down together. Increases in job opportunities tend to draw more population, offering out-of-towners greater opportunities. Pure population increase in and of itself leads to new jobs. Growing per capita income also attracts more jobs.

- *Initial positioning matter:* In general, places with high initial levels of population tend to attract more people over time, but places with high initial levels of jobs are likely to experience subsequent slower employment growth (holding other factors constant).

- *Demographic factors have growth impact:* In general, places with a high percentage of the young age group (25-to 34-year-olds) have more significant job creation potential than others. Places with a high percentage of the retiree age group (65 years old and over) are likely to experience declining total population and per capita incomes but have higher job growth. Places with more metro population are likely to experience population and income declines, indicating the significant challenges metro areas have in sustaining their current population and income levels. Places with a higher percentage of foreign-born population are better positioned to attract population but are less able to grow per capita income.

- *Housing market stability matters to growth:* In general, home vacancy is a population and per capita income detractor. It does not help job

creation either. High median housing values imply population and per capita income growth but employment declines. Stable and rising home values are crucial for attracting population and raising income and wealth but can undermine job growth. Rising cost of living (measured by the rent-to-per-capita-income ratio) in a place does not seem to detract population attraction, income growth or job growth. In general, housing market performance has a significant impact on the magnitude and direction of economic growth.

- *Social problems deter economic growth:* In general, unemployment does not affect population or per capita income growth. This suggests that places that are currently under economic stress have as much chance of recovery as places that are not. Poverty, however, creates an environment where people and places are less empowered to achieve economic turnaround. The legacy effect of poverty is an economic development deterrent, with resulting declines in population and per capita income. On the other hand, places saddled with high healthcare costs do not face any extra deterrents with respect to population or job growth. However, these places exhibit lower growth of per capita income.

- *Education and knowledge development are crucial to growth*: In general, places with a higher percentage of people with a bachelor's degree or higher attract population, experience income growth and create more jobs. Investment in higher education, thus, has an overall prosperity enhancement effect.

- *The role of government is limited:* In general, a higher tax-to-spending ratio leads to population flight. Local government tax and spending does not have a significant impact on job or income growth, but lower taxes relative to services can lead to population gain.

- *Gray infrastructure investment induces growth:* In general, increased gray infrastructure is associated

with enhanced population attraction, creation of more jobs and per capita income growth. Investment in gray infrastructure can, thus, contribute to growth but, as indicated by other studies, such infrastructure is a necessary but not a sufficient condition for growth.

- *Green infrastructure investment has significant growth dividends:* In general, places with greater developed green amenities (parks, campgrounds, tennis courts, etc.) tend to attract population and are better positioned at creating new jobs. Places with greater land amenities (guide services, campground sites, mountain acres, cropland, pastureland, rangeland, public campground sites, federally owned forest land, state park acres, rail-to-trail miles, acres of private forest land and The Nature Conservancy preserves acres with public access) attract population but are less potent in creating jobs. Places with greater water amenities (marinas, fishing lakes, bodies of water, wetland acres, rivers and canoe rental places) are slower in gaining population but are better positioned to grow income and employment. Places with greater winter amenities are less effective in attracting population. Finally, places with a warm climate are better at attracting population but tend to be less effective in growing income and jobs.

- *Economic structure and legacy can hinder growth but not job growth:* In general, economies that are transitioned away from agriculture and manufacturing tend to have much faster growth performance in population and income. The ability to grow jobs, however, does not seem to be constrained by legacy, but the ability to grow income and attract population is.

- *New Economy assets are vital:* In general, creative-class employment implies greater per capita income growth, while innovativeness (measured by patents)

implies growth in per capita income and jobs. Racial diversity does not seem to have a significant relationship with income or job growth.

Further analysis of the drivers of growth in metro and non-metro counties reveals the following about the relative importance of different drivers of economic growth:

- With respect to *growth interdependence,* we observe that growth elements are synergistic but that metro and non-metro settings represent different contexts. Job creation results in much less of an increase in population in metro counties than in non-metro counties, suggesting that non-metro counties are less able to benefit from job creation due to the greater influx of people to fill new jobs. We also found that while job creation in metro counties results in increases in per capita income, such job creation does not have an impact on average income in non-metro counties. With respect to job creation, implications of population increase, metro counties allow greater creation of new jobs as a result of growing population. In both metro and non-metro counties, population increases have an adverse impact on per capita income but the negative impact is greater in non-metro areas. The response to growing per capita income in metro counties is far more significant with respect to population. By raising average income, metro areas create twice as many jobs than non-metro areas.

- With respect to *initial conditions,* or the influence of past performance on future performance, we also found a greater positive relationship in metro areas. While initial high levels of per capita income translate into higher levels of income in the future for metro areas, the opposite is true for non-metro areas. Also, the negative impact of past population on future population in metro areas was not found for non-metro areas where the population is poised to systematically increase.

- With respect to *demographic factors,* we found that the presence of 25- to 34-year-olds translates into significant job increases in metro counties but no increase in non-metro counties. Similarly, the growing presence of the senior citizen population is found to create jobs and crowd out other age groups in metro areas but not in non-metro areas. The growing presence of foreign-born residents translates into far greater subsequent population attraction in metro areas than in non-metro areas, and significant increases in job creation in metro areas but not in non-metro areas. However, foreign-born residents are found to have far greater adverse impact on per capita income in non-metro areas than in metro areas. The reasons for this may relate to the more professional nature of jobs that foreign-born workers take in cities, compared to non-metro areas.

- With respect to *education and knowledge factors,* the concentration of a college-educated population helps attract population to metro counties but it only translates into higher per capita income in non-metro counties. The presence of a university leads to population attraction and job creation in metro counties but not in non-metro counties.

- With respect to *housing market factors,* housing vacancy tends to attract far greater population to metro areas than to non-metro areas. Higher housing values, however, are associated with detraction of job creation in metro counties than they do in non-metro counties. In metro counties, higher housing values have no effect on population and per capita income but tend to result in an increase of population and income in non-metro counties.

- With respect to *socio-economic factors,* unemployment does not seem to affect population, job or income increases in either metro or non-metro areas. However, poverty contributes to the loss of population in metro areas but not in non-metro areas. Growing poverty can also result in a greater loss of per capita income in metro counties, compared to non-metro counties. While high healthcare expenses per capita translate into lower per capita income in metro counties, they do not for non-metro counties. Healthcare expenses per capita do not influence population and employment in metro and non-metro areas.

- With respect to the *role of government,* high taxes, relative to services, translate into population effects in both metro and non-metro counties, but do not affect employment or income growth for either metro or non-metro counties.

- *Gray infrastructure investments* result in much greater population attraction, much lower per capita income increase and much greater job creation effects in metro counties than in non-metro counties.

- With respect to *green infrastructure,* this class of developed amenities has a far greater effect on job creation in metro areas than in non-metro areas. These developed green amenities also impact job creation far more than gray infrastructure does. Land amenities tend to attract population to metro counties but do not help in income and job growth in both metro and non-metro counties. Water amenities do not detract from population attraction in metro counties but tend to boost job growth. The boost in job growth in metro counties is far greater than in non-metro areas. Winter amenities translate into jobs and per capita income increases in non-metro counties but have no effect in metro counties. Finally, climate amenities matter, and they matter for population growth but not for income and jobs. The population attraction effect of such amenities is 10-fold greater in metro counties.

- With respect to *economic structure and legacy costs,* metro counties have a greater ability to attract population if the economy is better transitioned into a high-scale service economy. This is not the case for non-metro counties. While a growing agricultural presence in metro counties has a limited impact on population attraction, it has a significant impact in non-metro counties. With respect to population increase, the growth of the high-scale service sector surpasses all other sectors in terms of impacts. This is followed by manufacturing and general services. Growing intensity of agriculture has no effect on income growth in metro counties but is significant in non-metro counties. Finally, future job creation is less tied to legacy problems in both non-metro and metro areas.

- With respect to *various New Economy Factors,* we found that the growing presence of the creative class is associated with job creation in metro counties but only to increase in per capita income in non-metro counties. Patents are far more powerful in job creation in metro counties, than they are in non-metro counties. Patents have, however, similar per capita income enhancement effects in both metro and non-metro counties. Intriguingly, while racial diversity translates into population loss in metro counties, they do not have an impact on population in non-metro areas. By the same token, racial diversity detracts from employment in non-metro areas but has no effect in metro areas.

- With respect to *regional differences,* the Midwest and the Northeast regions tend not to be very well poised to attract population or grow employment and income vis-à-vis other regions.

The above summarized findings provide evidence of how growth happens in the U.S., and in both metro and non-metro places. Such a comprehensive approach and information can provide the basis to design effective economic development policies and strategies in a dynamic New Economy.

7.2 Conclusion

This study helps to clarify a number of issues about growth in both metro and non-metro settings. While it is an econometrically based analyses whose result would have to be taken in the context of the specifics of a community, it offers estimates of responsiveness of growth elements to key drivers that policy makers have tended to be interested in. The authors intend to continue to expand the framework to account for a variety of issues, including the measurement of variables that are known to be important but for which data currently does not exist, the explanation of rapid growth versus slow growth, the further characterization of regional structural differences, and the implications of local growth for national economic growth.

We address the issue of growth dynamics and interdependence, which has been a subject of interest to local and state policy makers. Our findings of growth interdependence may suggest that communities can find themselves either in the mode of *synergistic growth* or *synergistic decline.* Hence, economies that find themselves on the wrong side of growth may continue to spiral down if they don't employ effective strategies to avert a free fall. Metro areas would appear to be less vulnerable than rural areas.

Our finding that initial conditions matter suggests that some places face a natural tendency to either grow, or not grow, and that such growth, or lack of growth, may be specific to population, employment or income. For example, holding other factors constant, places previously endowed with a high population but low employment may be better positioned for subsequent growth, compared with places that featured high unemployment and low population. While initial high levels of per capita income translate to higher levels of

income in the future for metro areas, the opposite is true for non-metro areas. This again supports the notion that non-metro areas are more vulnerable.

The works of Florida, Glaeser, Clark, McGranahan and Wojan, and others suggest the importance of knowledge workers as key drivers of place-competitiveness in the New Economy. Our estimated effects of the concentration of 25- to 34-year-olds (a group expected to possess the newest vintage of knowledge and talent) support previous findings that knowledge and creativity translate into job creation in metro areas but not in non-metro areas. Our findings regarding the effect of education (percentage with a bachelor's degree or higher) partly support previous work by Glaeser, Florida and Clark in that they suggest the concentration of college-educated people helps attract population to metro areas (no income or jobs accompany such population). In non-metro areas, however, an increase in the percentage of college-educated is associated with job creation but not population or income growth. We suggest that the benefits of attracting this population group depend on place. Our finding that an increase in creative-class employment translates into new jobs, only in metro areas, suggests that knowledge workers count in metro settings. Taken together, these findings about knowledge workers generally suggest that while attracting them is a viable strategy in metro areas, it may not be for every community. Non-metro communities may want to consider other strategies that may well be more fruitful in achieving economic development.

The finding that colleges and universities imply greater population growth, but more jobs than the population they attract in metro areas, suggests that they may be potent drivers of economic development in such areas. No such effects were observed for non-metro areas. Universities are also known to be treasure troves of innovation. Our finding that patents translate into huge job opportunities in metro areas, but only has modest impact in non-metro areas further supports the notion of university-centered economic development strategies

for metropolitan areas. The results here do not strongly support the idea of this strategy in non-metro areas.

Some communities are considering the attraction of retired or senior citizens as a strategy for economic development. This strategy may work in metro areas but not as well in non-metro areas. In metro areas, the presence of senior citizens translates into job creation and per capita income growth, two key elements of prosperity, although they appear to crowd out other age groups. In non-metro areas, while they are marginally associated with per capita income growth, they may actually crowd out jobs and other age groups. This finding is intriguing considering the widely held view that if you can't attract the youth in non-metro areas, then attract retirees.

Immigrants have been the subject of economic developers in recent years. Because more and more immigrants are knowledge workers, and immigrants are said to take more risk and possess greater entrepreneurial spirit, places, such as Philadelphia, Boston and Minneapolis, are developing programs to attract targeted immigrants. Our findings that immigrants are associated with increased population in both metro and non-metro areas but with the job base only in metro areas suggests that immigration-based strategies for economic development may only suit metro communities. In both metro and non-metro communities, the effect of growing an immigrant population is also a marginal decline in per capita income. This may suggest that while immigrants are increasingly entrepreneurial and knowledge workers, the vast majority of immigrants attracted to non-metro areas may be low-skilled non-knowledge workers. One avenue that is currently being considered by local officials is to target high-net-worth immigrants and use the EB-5 Visa provision of the immigration laws to lure them to invest in their communities in exchange for becoming permanent U.S. residents.

In recent years, the housing vacancy rate has increased virtually everywhere in the U.S., while property values have dropped. Our results suggest that such changes make metro and non-metro communities more affordable but they translate into declining per capita income. The job creation benefit of lower property values and median housing values suggest that while individuals might be adversely affected, their communities can benefit from the job opportunities that arise from affordable housing. One implication of our results is that as the economy heals and property values stabilize, job creation induced by affordable housing will slow down but income will stabilize. The effect on population is difficult to determine.

Our findings suggest that communities can easily rebound from a bad economy if it has only manifested itself through higher unemployment. However, we find that poverty creates a situation where the potential for growth is hampered. With increased poverty come the loss of population in metro areas (no significant loss in non-metro areas) and a loss in per capita income in both metro and non-metro areas. This may explain the difficulty faced by many poverty-stricken cities in recovering from economic decline.

The results of our study suggest that high healthcare costs have little effect on economic outcomes, except for the fact that they raise per capita income in metro areas.

For communities that are focused on trying to keep taxes reasonable, relative to services provided, our findings are that such low taxes spur population (more so in non-metro areas). Local fiscal policy, however, does not seem to have an impact on job and per capita income growth. Therefore, the old strategy of tax-based job attraction only attracts population but does not affect employment or income.

The Obama administration appears to be correct in targeting some of the 2009 American Recovery and Reinvestment Act money toward gray infrastructure. Our results predict that such investments will not only attract population to places that upgrade gray infrastructure but will create higher per capita income and jobs in both metro and non-metro areas. Metro areas are better positioned to benefit more from such investments, as their infrastructure spending impacts on population and employment are far greater. However, non-metro areas have the ability to better translate such investments into per capita income enhancements.

Green infrastructure tends universally to be a very potent driver of growth, particularly in metro areas. For example, a proportional improvement in developed amenities results in job growth that is seven to eight times more pronounced in metro areas than non-metro areas. Water amenities create between 13 to 14 times more jobs in metro areas than in non-metro areas. Good weather conditions translate into almost 10 times greater an impact on population attraction in metro areas, compared to non-metro areas. The only green infrastructure factor that seems to have a better impact on per capita income and job growth in non-metro areas, compared to metro areas, is winter amenities. The finding that green infrastructure also works for non-metro areas is encouraging, but investments in such infrastructure seem to pay-off better in metro areas.

Our findings regarding economic structure and legacy issues clearly suggest that the way forward for communities is to transition to the New Economy. The growth dividends of increasing depth in such New Economy sectors as high-scale and other service industries far outweigh the dividends from manufacturing or agriculture. The positive role of agriculture, however, seems to emerge in non-metro areas but not in metro areas, although the relative sectoral marginal returns of agriculture fall below those of services and manufacturing. The results also suggest that the ability to grow jobs is not constrained by the extent to which both metro and non-metro areas are entrenched in manufacturing or agriculture.

The literature extensively discusses the role of diversity in economic development, particularly in metro areas.

In our aggregate analysis, metro analysis and non-metro analysis, we found no positive job, income or population impacts of diversity. Our measure of diversity may be constrained by the fact that we utilized a measure of racial diversity, "The Simpson Index," which may not necessarily measure the presence of specific minority populations.

Finally, the Midwest and the Northeast regions seem to have structural limitations that make them less attractive in growth in population and jobs than are the Southwest, the West and the Southeast.

7.3 Policy and Strategy Implications

The policy implications of this study are relatively simple.

7.3.1 Urban Policy and Strategy

The strategy recommendations for metro communities are as follows:

- Focus on population attraction, especially knowledge workers, such as 25- to 34-year-olds, the creative class, college graduates, as well as targeted immigrants.

- Harness the inherent knowledge base of universities, especially leveraging the fact that they produce both knowledge workers of the future and intellectual property.

- Place-make to attract knowledge workers through such green infrastructure investments as trails, parks, recreational areas, amusement places, etc.

- Manage urban unemployment to avoid the onset of concentrated poverty as this would prolong economic hardship and make it more difficult to rebound from economic decline.

- Avoid getting into a cycle of decline whereby population, employment and income spiral downward. The synergistic relationship between these growth elements suggest that struggling

communities must find ways to jumpstart a recovery cycle.

- Recognize the systemic potential of jobs to be drained out of metro areas overtime. Cities in particular must have a unique job creation strategy that leverages their unique assets and that builds on their relative comparative advantage, vis-à-vis non-metro places, in the New Economy.

- Old industrial places built on an industrial legacy should be working aggressively to diversify their economy and nurture the emergence of New Economy sectors. High-finance and general service, for example, are expected to be more potent generators of new opportunities than manufacturing.

- Urban policy makers should focus more on strategies to attract New Economy growth, rather than on strategies that focus on fiscal competition that are largely ineffective in job creation. In fact, the later strategies have a tendency to attract population, making the job of economic development more difficult.

- The results here suggest a distinct difference in the potential effectiveness of old strategies that no longer work versus new strategies that appear to be more effective. Metro communities and economic developers can try to work backward to prosperity, thereby chasing the past, or make strategic investments in New Economy infrastructure that, on the surface, are more difficult to understand because of their indirect effects on jobs and income but present valuable pathways to the future.

- Metro communities, especially those that have shrunk, might want to consider population attraction strategies targeted toward those 65 years old and over (retirees). The presence of this segment of the population creates jobs but does not necessarily raise per capita incomes. This

population group also crowds out other population segments. So, communities should be careful about the use of this strategy as it has the potential to crowd out other population groups that may be central to the transition to the New Economy.

- While the property vacancy and abandonment, which has emerged as a result of the current high foreclosure rates in the housing market, has created a financial burden on metropolitan areas, it has also adversely affected the income and wealth base of real estate professionals and families in the community. However, high foreclosure and reduced home values create opportunities of affordable properties and the attraction of jobs. Knowledge workers, the creative class, and the 25- to 34-year-olds are potential targets of a marketing program to attract economic activity into a city.

- Cities in the Midwest and the Northeast should recognize the additional difficulty associated in their respective regions. Their growth is more constrained by structural issues unique to their region. The strong adverse effect of climate on the potential for growth suggests additional difficulty in rebounding from economic hardship. Their economic development strategies need to be more aggressive and forward-looking than those of other regions to compensate for these regional structural limitations.

7.3.2 Rural Policy and Strategy

The strategy recommendations for non-metro communities are as follows:

- Non-metro areas appear to face a structural disadvantage in the sense that economic growth appears to increasingly favor metropolitan areas. Rural policy makers must factor into their decision-making the idea that it could become increasingly difficult for non-metro areas to compete for the drivers of growth in the New Economy.

- The fact that the marginal impacts of such growth drivers as knowledge workers, college graduates, 25- to 34-year-olds, and colleges and universities are lower or negligible in non-metro areas suggests that more creative strategies need to be explored for such areas. One possible implication of the emerging New Economy may well be that non-metro areas are not well positioned for the New Economy.

- The fact that favorable tax strategies potentially result in population attraction may offer an opportunity to repopulate non-metro areas. Non-metro communities should, however, note that unless job opportunities are created, such population growth may not bring meaningful benefits.

- The fact that non-metro communities are still generally more dependent on traditional industries, such as agriculture, suggests that such industries need to be nurtured in order to maintain the economic base they currently afford. Therefore, a more strategic look at the role of agriculture and manufacturing activities that currently anchor economic activity in non-metro areas need to be pursued more aggressively for rural America.

- In transitioning non-metro economies for a more robust future of prosperity, it is important to recognize the fact that service activities and manufacturing yield significantly better returns with respect to employment and income, and suggest the need to explore service activities that are synergistic with the asset base of non-metro communities.

- While agriculture offers little in terms of the potential for employment and income growth, the projected effect of intensifying agricultural activities is still positive. Non-metro communities really need to reexamine the role of agriculture in the rural economy.

- The New Economy may be difficult to leverage in non-metro areas, but such areas might be well advised to explore the concept of "New Agriculture." For example, agriculture can be better tied to emerging opportunities in information and telecommunication technology, in financial services, and in renewable energy.

- Much has been said about knowledge workers and their role in the New Economy. A national inquiry into New Economy elements that tie in better with a rural economy is recommended.

- While immigrants and first-generation Americans are not expected to be easily attracted to many non-metro areas, and may well be less productive in such areas, it is advisable for non-metro communities to explore ways of attracting high-net-worth foreign investors whose resources can make a difference. By leveraging the EB-5 Visa provision of immigration law to attract foreign investors who can make a difference through their investments, opportunities may well emerge to grow the non-metro economy.

- Non-metro communities are probably well served better by connecting their economies to nearby metro areas. Among the activities that are emerging in non-metro areas that better tie them to metro areas are rural bed-and-breakfasts, farm-based recreational facilities, rural hunting and fishing facilities, outdoor recreation facilities, rural roadside stands, well-advertised rural fairs, prepared packaged foods production on farms, assisted living facilities in rural areas, marinas, horse parks, use of barns as storage facilities, rural business incubators and rural winter amenities. Among the urban activities that help cities better connect to rural areas are urban farmers' markets and urban food fairs. When rural areas think about infrastructure, they may need to recognize that the above may well be more valuable to rural areas.

- Non-metro areas have the opportunity, through foundations and others committed to the issue of rural poverty, to address the issue of poverty and to prevent further spiral downwards.

- While green infrastructure has far more potential to support the growth of metropolitan areas, such infrastructure, if its elements are effectively targeted, can probably yield returns to non-metro areas. A focus on such things as strategically identified tourism activities may offer opportunities for non-metro communities.

- Data was not available to fully explore the roles of business incubators, emerging farm businesses, bed-and-breakfasts, roadside stands and other market connectors between agriculture and the non-farm public. The roles of these agriculture-related strategies need to be better understood.

- Non-metro communities will definitely benefit from gray infrastructure investments that would result in job creation. In fact, non-metropolitan places were shown to have a high potential for per capita income growth as a result of gray infrastructure investment.

7.4 Epilogue

Perhaps the greatest opportunity in recent years facing non-metro and metro communities in the United States is the funding from the 2009 ARRA legislation. But what is important is how various communities spend this money. Surely, expenditure in shovel-ready gray infrastructure will create jobs, but we are doubtful that the effects will be long-lasting or would bring any meaningful change in the transition of non-metro and metro communities toward the New Economy, unless some of the investments are put into infrastructure that attract New Economy growth. Communities across the U.S. are encouraged to consider the title of this report: "Chasing the Past or Investing in Our Future." "Placemaking for Prosperity in the New Economy" requires an understanding of the critical assets of a community and region—and the unique opportunities this creates for the people living there.

Part 8: Appendices

Appendix 1: Toward a Theory of "Placemaking" for Prosperity

Prosperity is an immeasurable or unobserved variable. However, we know it has three components which a community or state seeks to maximize through its economic development strategies. The components include:

1. economic well-being (Π_E);

2. social well-being (Π_S); and

3. environmental well-being (Π_N).

Economic well-being (Π_E) is essentially the ability to afford goods and services that add to quality of life. It is essentially growth in purchasing power. For a community, (Π_E) is the rate of growth in average community disposable income (Y) from periods *t-s* to *t*. Therefore, $\alpha(Y_t - Y_{t-s})/Y_{t-s}$ or $\ddot{Y}$, times the probability of achieving that income (E_t), which is essentially the average employment rate over the *t-s* to *t* time frame ($\beta\hat{E}$). Hence, the index of economic prosperity for a location is defined as the index of the value of:

$$(\alpha(Y_t - Y_{t-s}) / Y_{t-s}) (\beta\hat{E})$$

across places. α and β reflect the individual's weighting of the relative importance of the income and employment aspects of economic well-being.

Social well-being is the ability to access social amenities, which is determined by amenity purchasing power and the availability of such services that are tied to place. This is the ability to transform purchasing power into utility derived from access to social amenities. Given the presence of many social amenities, $\Pi_N = \Sigma c_i C_i$ where c_i is contribution of each amenity to total social well-being and C_i is the aggregate concentration of each amenity at the location. Environmental well-being is, therefore, the ability to access environmental amenities, which is determined by amenity purchasing power and the availability of such services that are also tied to place.

Our basic thesis is that the objective of economic developers is to maximize prosperity (Π), which is:

$$\Pi = (\Pi_E)(\Pi_S, \Pi_N) = (\alpha(Y_t - Y_{t-s})/ Y_{t-s})(\beta\hat{E})(\Sigma\theta_j(FA_j)+ \Sigma_i\delta_i(QFA)+ \Sigma\gamma_k(MA_k)$$

for his/her domain. Note that *FA* represents fixed assets that are mostly resource-based or environmental, *QFA* represents quasi-fixed assets that are either built (parks, trails, etc.), and MA represent assets that can move from place-to-place, such as talent and knowledge workers. α, β, δ_i, θ_j and γ_k represent the weights attached to each element of quality of life, including income growth, employability and amenity abundance. A typical person or household will also seek to maximize Π, but will have the option to search the landscape for the best "place," especially if he/she is a knowledge worker. The New Economy implies that:

$$(\alpha(Y_t - Y_{t-s})/ Y_{t-s})$$

is partly endogenous and can follow knowledge workers to places where:

$$(\Sigma \theta_j(FA_j)+ \Sigma_i \delta_i(QFA)+ \Sigma \gamma_k(MA_k)$$

are high and opportunities for:

$$(\Box(Y_t - Y_{t-s})/ Y_{t-s})(\Box\hat{E})$$

are also high. Also, in the case where:

$$(\Box(Y_t - Y_{t-s})/Y_{t-s})$$

is low, prosperity can only be maintained or enhanced by growing:

$$(\Box(Y_t - Y_{t-s})/ Y_{t-s})(\Box\hat{E}).$$

If knowledge workers are attracted to places where:

$$(\Sigma\Box_j(FA_j)+ \Sigma_i\Box_i(QFA)+ \Sigma\Box_k(MA_k)$$

are high, then enhancing:

$$(\Sigma\Box_j(FA_j)+ \Sigma_i\Box_i(QFA)+ \Sigma\Box_k(MA_k)$$

is a possible strategy for growing:

$$(\Box(Y_t - Y_{t-s})/ Y_{t-s})(\Box\hat{E}).$$

Since,

$$(\Sigma\Box_j(FA_j)+ \Sigma_i\Box_i(QFA)+ \Sigma\Box_k(MA_k)$$

include both fixed assets (*FA*) and quasi-fixed assets (*QFA*), then the enhancement of these amenities can lead to the attraction of knowledge workers, creation of a vibrant economy, creation of jobs and the generation of economic activity. The history of planning has been to use zoning regulations to accommodate growth, thereby enhancing place. In environments where communities must compete for growth, then the elements of social and environmental amenities that can be enhanced to achieve economic well-being become important to the planning process.

Appendix 2: A Proposed Growth Decomposition Framework

Part 3 identified Old and New Economy sources of growth. From the developed theoretical framework for the Old and New Economy, one can measure the share of new growth in any state that is attributable to the Old or New Economy drivers (factors). The total economic growth is generated by the mix of assets relevant in the Old and New Economy. Following Equation (10), one can easily note that the share of New Economy assets in total economic growth can be measured as:

(i) $\quad NE_s \left[\dfrac{d \ln Y_t}{Y_t} \right] = \left[\dfrac{\alpha_{v_t} d \ln v_t + \alpha_{t_t} d \ln t_t + \alpha_{e_t} d \ln e_t}{\alpha_{K_t} d \ln K_t + \alpha_{N_t} d \ln N_t + \alpha_{L_t} d \ln L_t + \alpha_{M_t} d \ln M_t + \alpha_{v_t} d \ln v_t + \alpha_{t_t} d \ln t_t + \alpha_{p_t} d \ln p_t + \alpha_{e_t} d \ln e_t} \right]$

where:

$NE_s [d \ln Y_t \, / \, Y_t]$

is the New Economy share of economic growth, the numerator in the bracket

$(\alpha_{v_t} d \ln v_t + \alpha_{t_t} d \ln t_t + \alpha_{e_t} d \ln e_t)$

is the total New Economy share in economic growth, and the denominator is total growth. That is,

$\alpha_{K_t} d \ln K_t + \alpha_{N_t} d \ln N_t + \alpha_{L_t} d \ln L_t + \alpha_{M_t} d \ln M_t + \alpha_{v_t} d \ln v_t + \alpha_{t_t} d \ln t_t + \alpha_{p_t} d \ln p_t + \alpha_{e_t} d \ln e_t$

measures total growth. In other words, Equation (i) provides a statistical approach to measure the share of New Economy growth as a percentage of total growth. This might be helpful in understanding where a state stands at any given time in the Old-New Economy structure, and may, therefore, suggest strategies for strengthening the economy overtime.

Alternatively, long-term economic transformation from the Old Economy to the New Economy can be measured. For example, one can trace the proportion of the New Economy to the Old Economy growth rates in a given economy over time. A simple statistic of New Economy versus Old Economy growth share can be given as:

(ii) $\quad \dfrac{NE_s}{OE_s} = \left[\dfrac{\alpha_{v_t} d \ln v_t + \alpha_{t_t} d \ln t_t + \alpha_{e_t} d \ln e_t}{\alpha_{K_t} d \ln K_t + \alpha_{N_t} d \ln N_t + \alpha_{L_t} d \ln L_t + \alpha_{M_t} d \ln M_t} \right]$

where $NE_s \, / \, OE_s$ is the ratio of New Economy (NE) to Old Economy (OE) share in economic growth. From equation (ii), the following observations can be made about Old Economy to New Economy structural adjustment (as shown in Equation (iii)) through measurement of the share of each (NE_s and OE_s) in a given economy over time:

$$(\text{iii}) \begin{cases} if \ \dfrac{NE_s}{OE_s} = 0, \ ....\textit{the economy is perfectly OE driven} \\[2ex] if \ \dfrac{NE_s}{OE_s} > 0, but < 0.5, \ ....\textit{the economy is in transition from OE to NE} \\[2ex] if \ \dfrac{NE_s}{OE_s} > 0.5, but < 1, ...\textit{the economy is advanced NE} \\[2ex] if \ \dfrac{NE_s}{OE_s} = 1, \ ....\textit{the economy is perfectly NE driven} \end{cases}$$

Therefore, tracing NE_s / OE_s over time can provide policy relevant information as to the path of the economy on the Old Economy-New Economy continuum. In this case, it is pertinent that economic growth and prosperity policies need to expand from the Old Economy framework and adopt wider policy options through New Economy instruments to bring about new growth and prosperity. In this effort, the roles of talent, venture capital, placemaking and entrepreneurial ability will be crucial.

Appendix 3: Measuring the Contributions of Each Growth Driver to Overall Growth

The models provided in Section 4.3 are aimed at identifying the structure of economic growth at the macro, metro and non-metro areas. Perhaps of more policy importance is the question: "To what extent do drivers of economic growth contribute to new growth?" In other words, what is the share of new growth that can be attributed to talent assets, green infrastructure, innovation, gray infrastructure and other socio-economic factors? This appendix provides a methodological discussion to address these issues.

To account for the share of new growth of each growth driver, we follow the work of Bauer, Schweitzer and Shane (2006). To measure the share of any growth driver (such as talent and innovation) in growth of population, employment and income, one needs to estimate two separate equations for each of these growth measures. The first is a fully specified model (unrestricted model) where green infrastructure assets are included. The second is a partially specified model (restricted model) where green infrastructure assets are excluded. In each case, model performance can be given by R^2, a statistical measure of the ability of a model to explain growth within a 0 to 1 range. If R^2_{UR} is the R^2 of the unrestricted model, and if R^2_R is the R^2 of the restricted model, then $R^2_{UR} \square R^2_R$ gives the share of any growth driver in explaining growth. For each equation, i.e., population, employment and income, these statistics are estimated to measure the share of any growth driver in explaining new growth. This method provides a number of advantages. One, it helps understand the relative share of growth drivers in overall growth. Two, it helps prioritize, on the basis of relative growth share, focus on key drivers that are identified as having greater impact. Three, it also helps to understand the relative share of Old and New Economy assets in a transforming economy. In this report, given the focus on policy and strategy, we do not include the results of our share analysis. One primary reason is that the authors are identifying more variables, which should probably be accounted for in a comprehensive identification process for Old versus New Economy growth. Another reason is that such decomposition is of little benefit, because information and analyses are lacking about the relative costs of changing each driver of growth.

Appendix 4: Various Elasticities Depicting the Impacts of Alternative Policy Tools and Targets

A4.1: Elasticity of Population with Respect to Employment and Per Capita Income
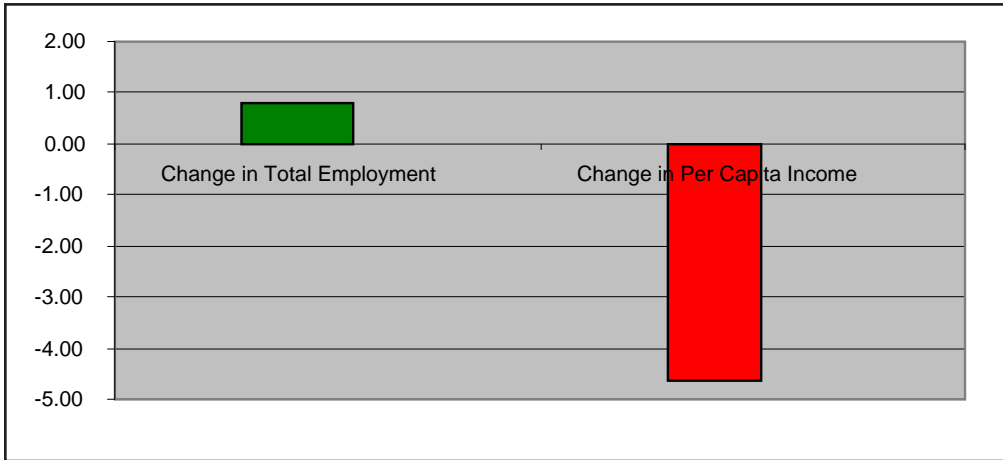
A4.2: Elasticity of Employment with Respect to Population and Per Capita Income
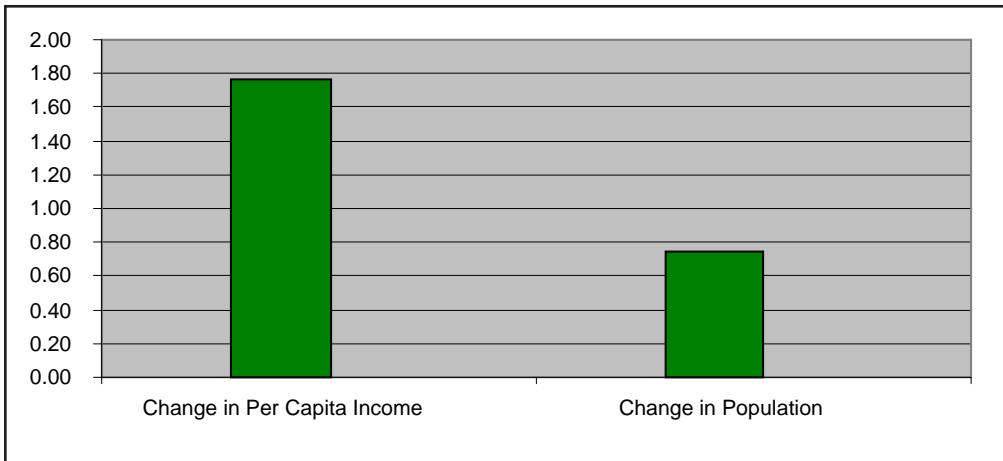
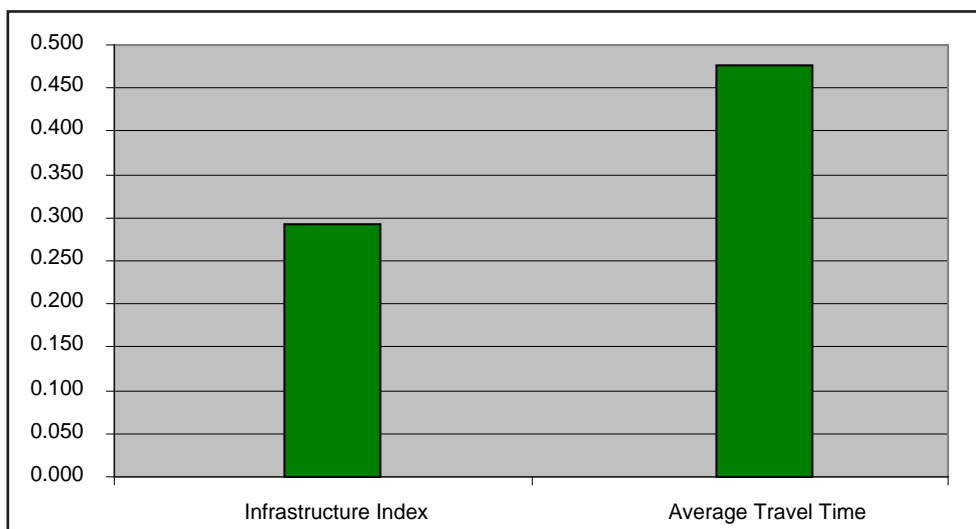**A4.3: Elasticity of Per Capita Income with Respect to Employment and Population**
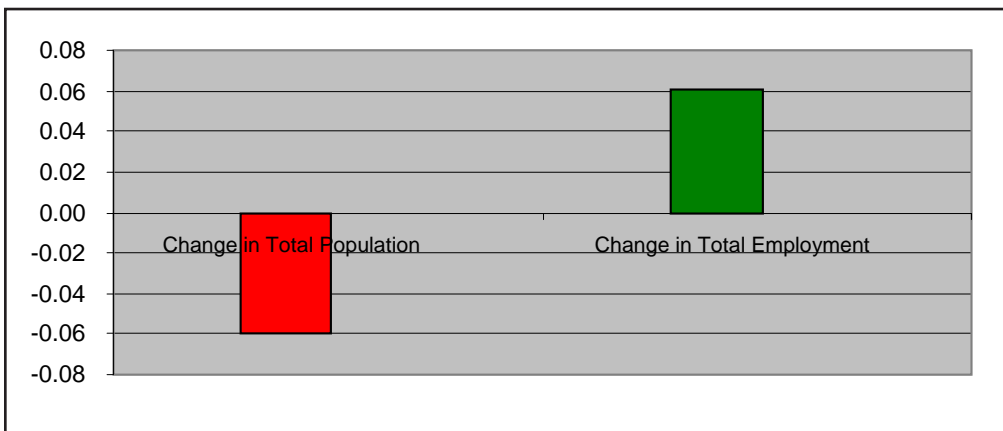
A4.4: Elasticity of Population, Employment and Per Capita Income with Respect to Their Initial Conditions
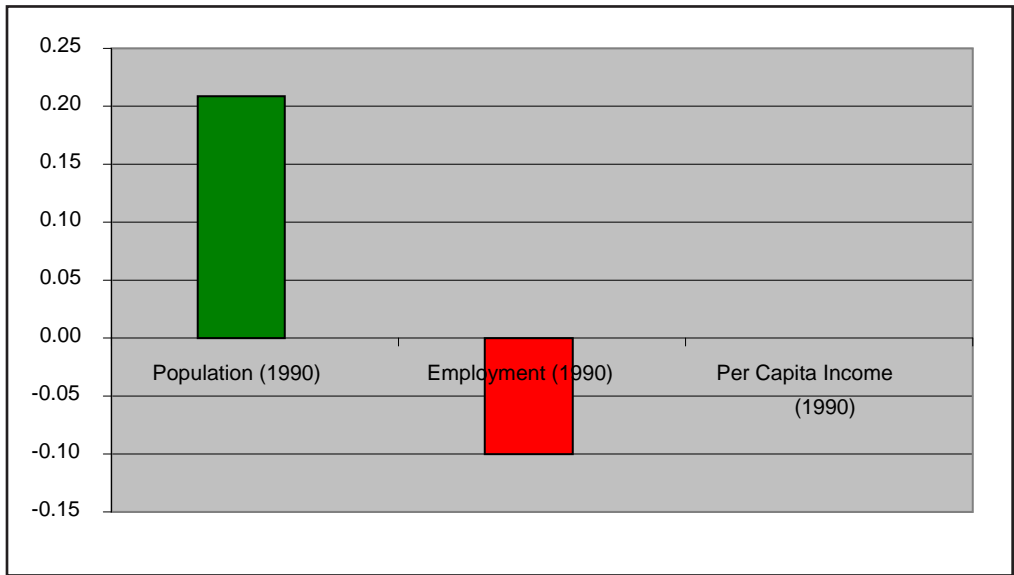
A4.5: Elasticity of Population with Respect to Demographic Factors
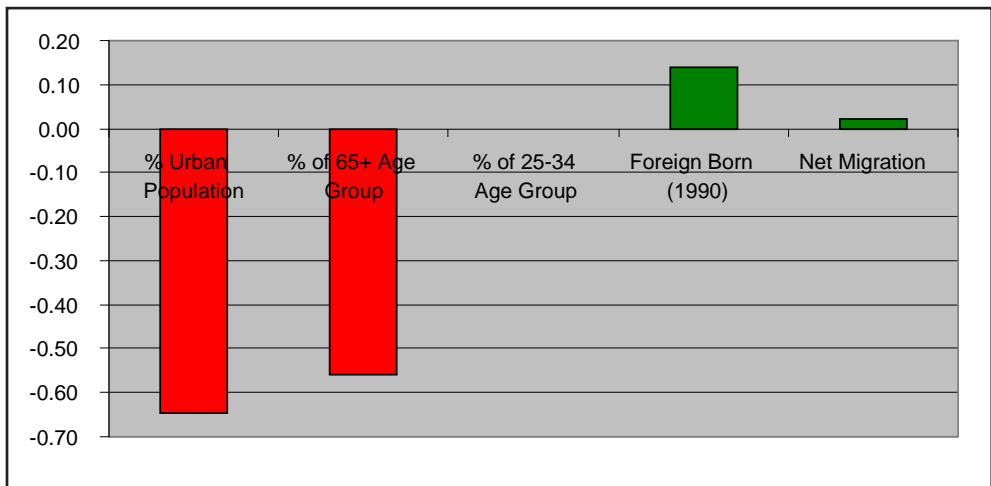
A4.6: Elasticity of Employment with Respect to Demographic Factors
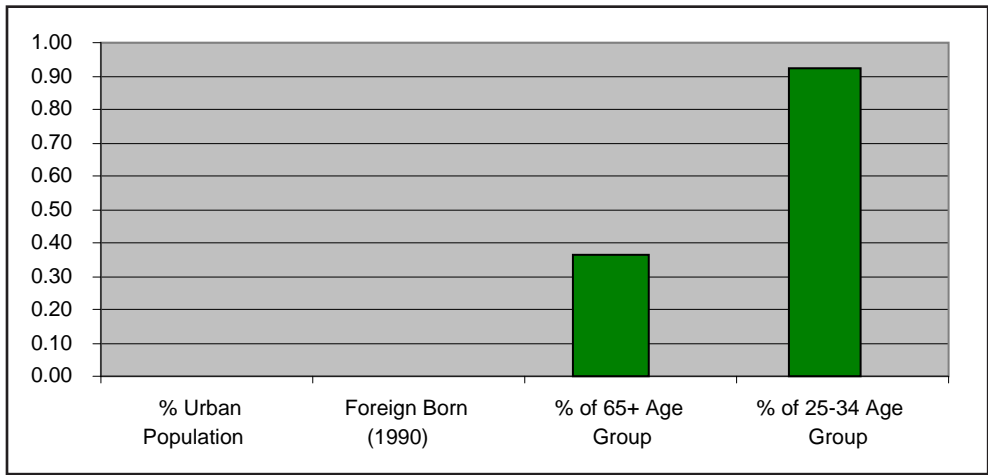
A4.7: Elasticity of Per Capita Income with Respect to Demographic Factors
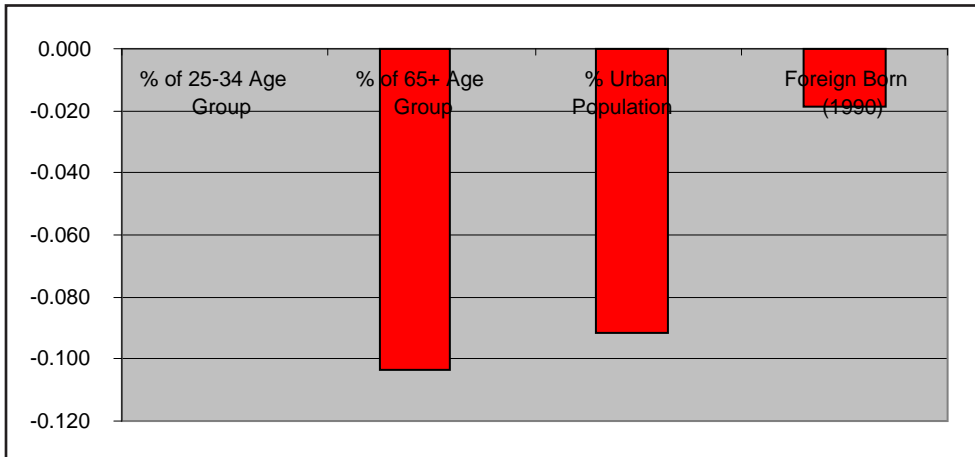
A4.8: Elasticity of Population with Respect to Housing Market Factors
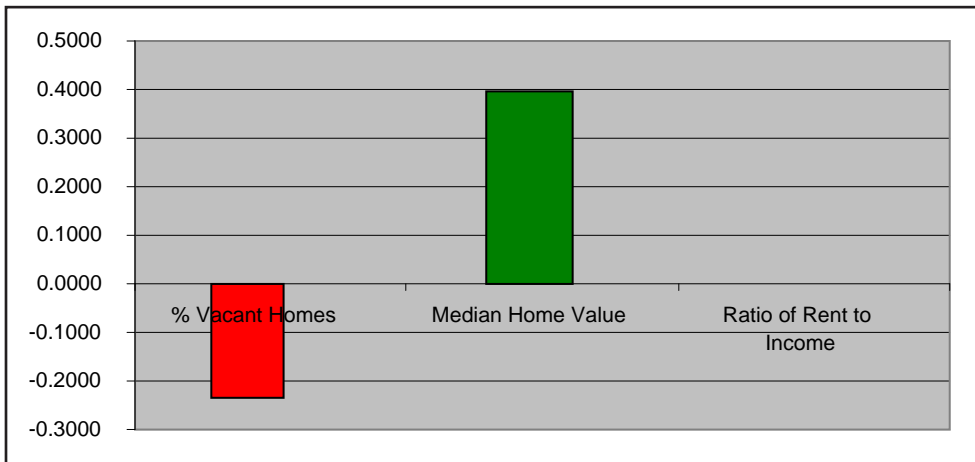
A4.9: Elasticity of Employment with Respect to Housing Market Factors
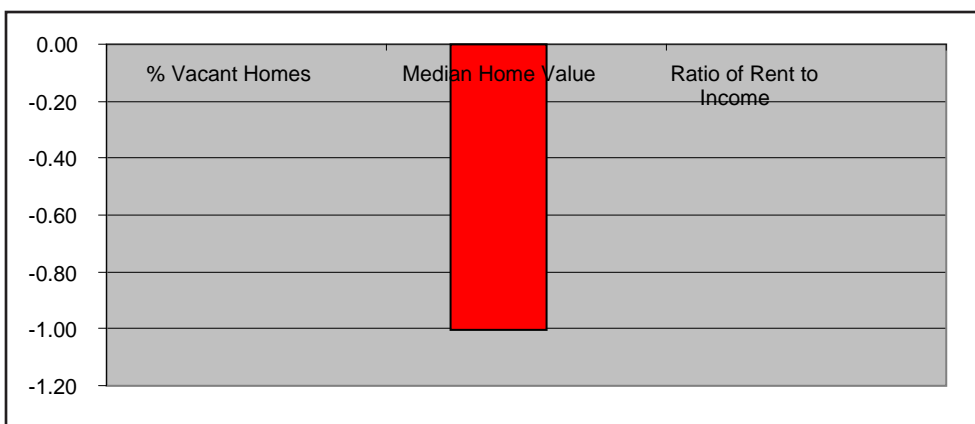
A4.10: Elasticity of Per Capita Income with Respect to Housing Market Factors
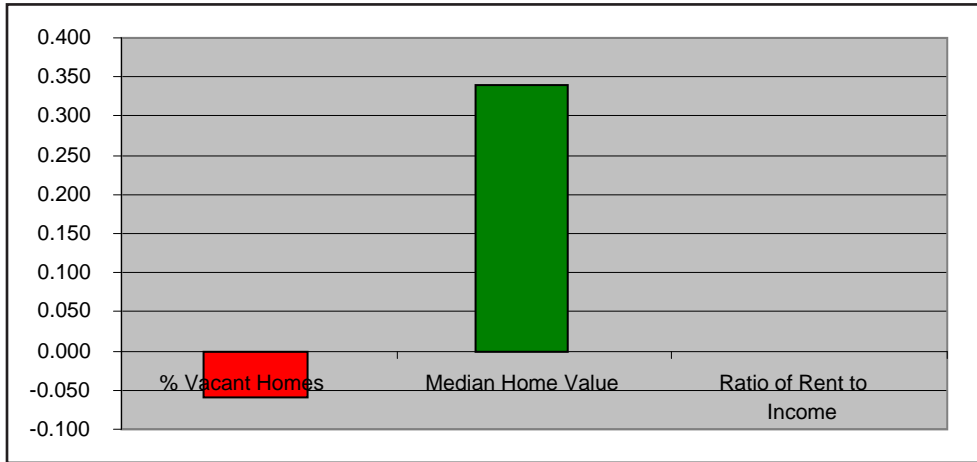
A4.11: Elasticity of Population with Respect to Social Factors
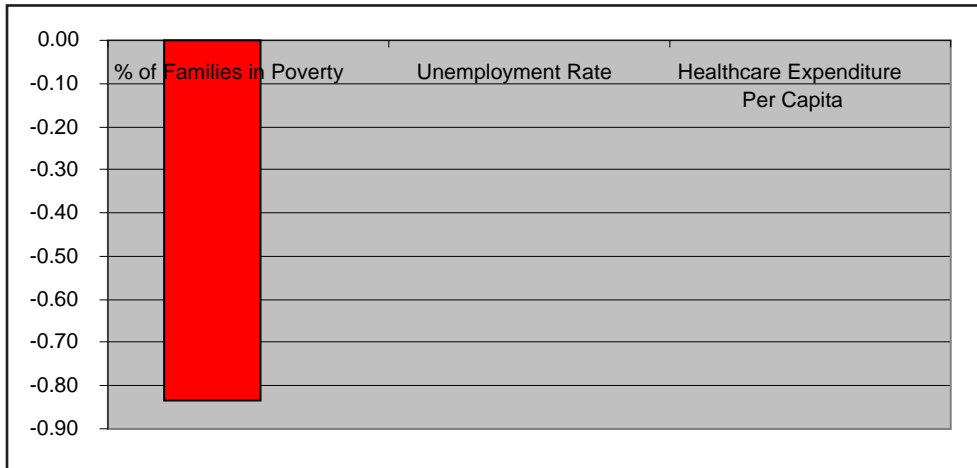
A4.12: Elasticity of Employment with Respect to Social Factors
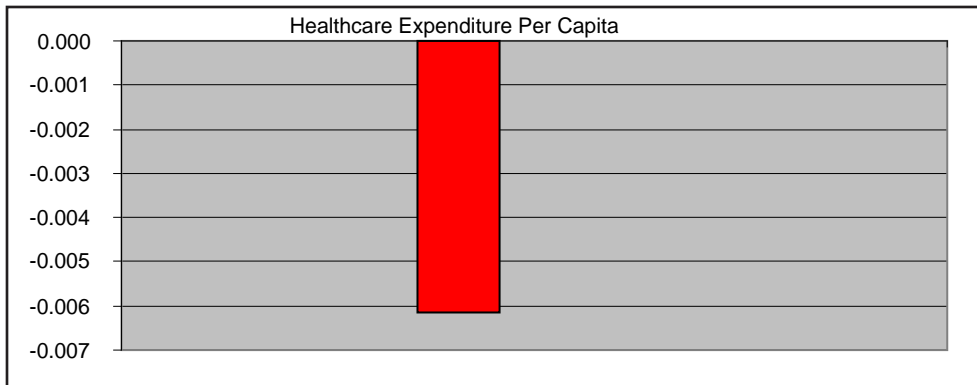
A4.13: Elasticity of Per Capita Income with Respect to Social Factors

A4.14: Elasticity of Population with Respect to Educational Factors
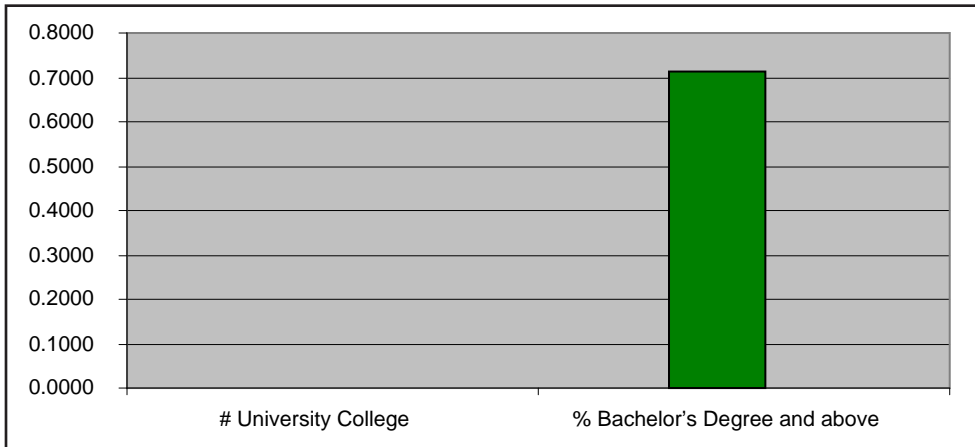
A4.15: Elasticity of Employment with Respect to Educational Factors
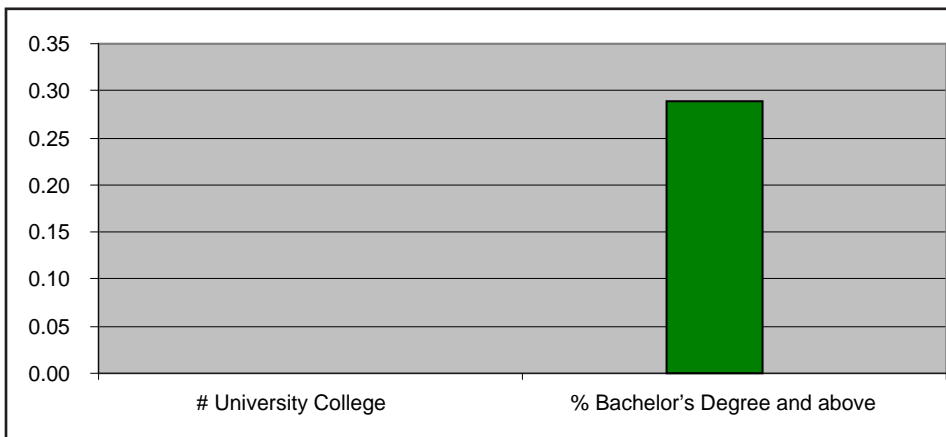
A4.16: Elasticity of Per Capita Income with Respect to Educational Factors
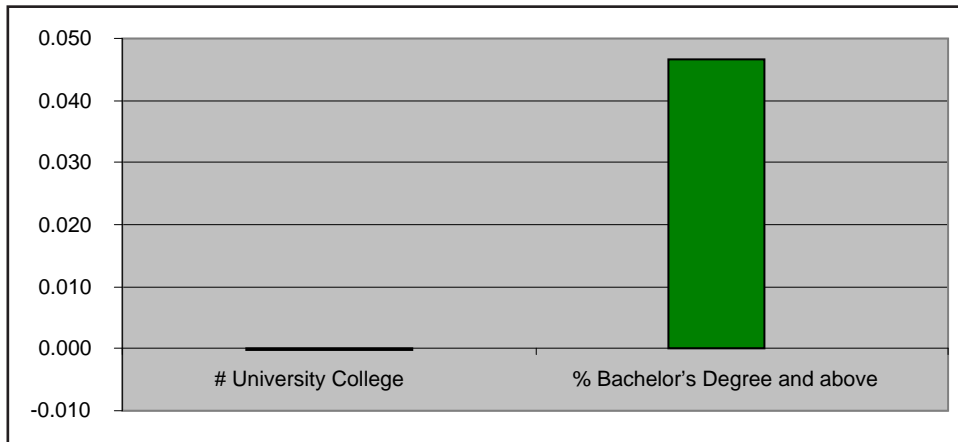
A4.17: Elasticity of Population, Employment and Per Capita Income with Respect to Taxes to Services Ratio

A4.18: Elasticity of Population with Respect to Gray Infrastructure Factors

A4.19: Elasticity of Employment and Per Capita Income with Respect to Gray Infrastructure Factors
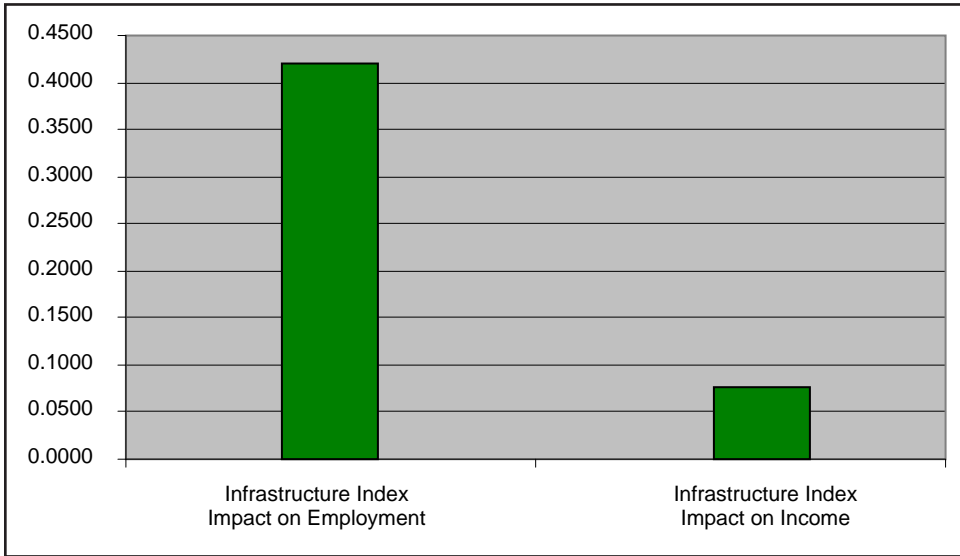
A4.20: Elasticity of Population with Respect to Green Infrastructure Factors
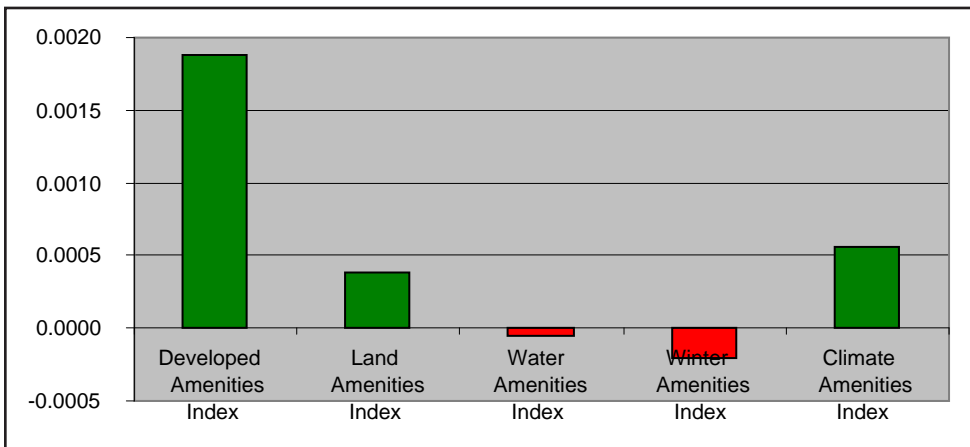
A4.21: Elasticity of Employment with Respect to Green Infrastructure Factors
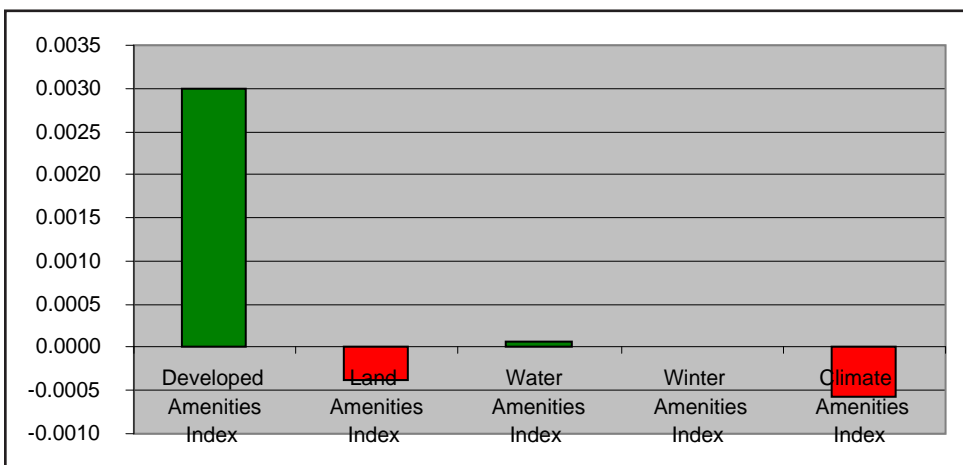
A4.22: Elasticity of Per Capita Income with Respect to Green Infrastructure Factors
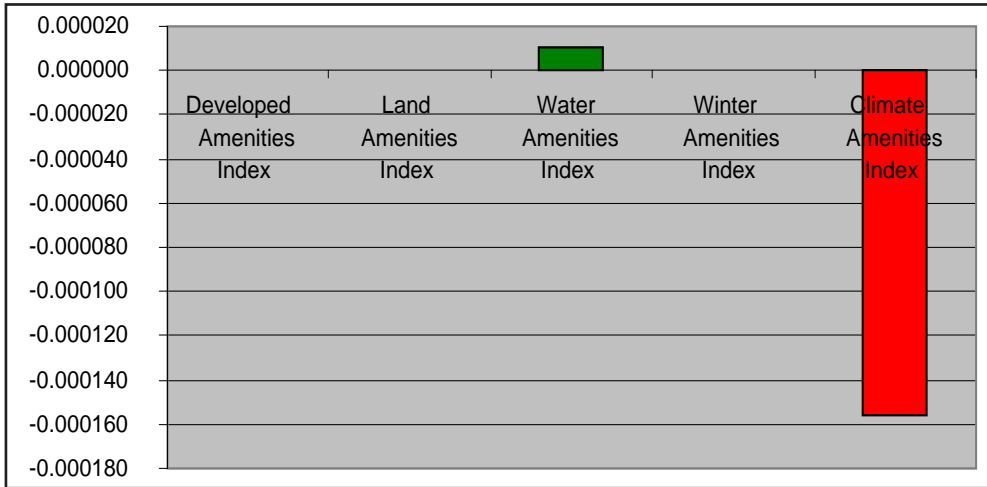
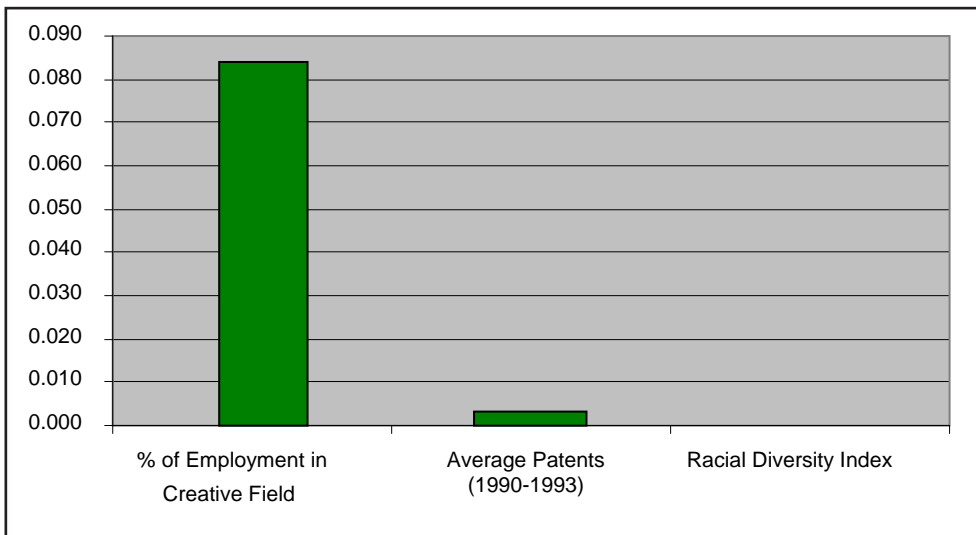**A4.23: Elasticity of Population with Respect to Economic Structure Legacy Factors**
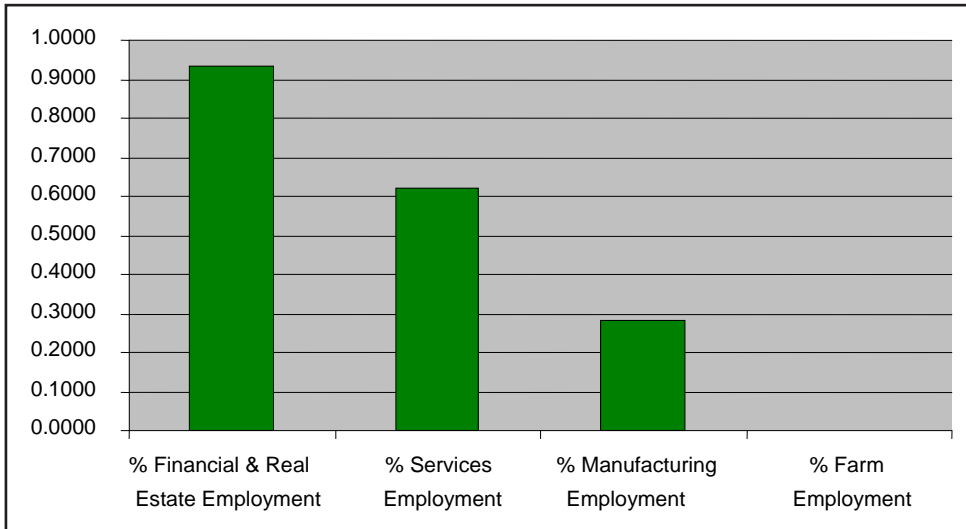
A4.24 Elasticity of Per Capita Income with Respect to Economic Structure Legacy Factors
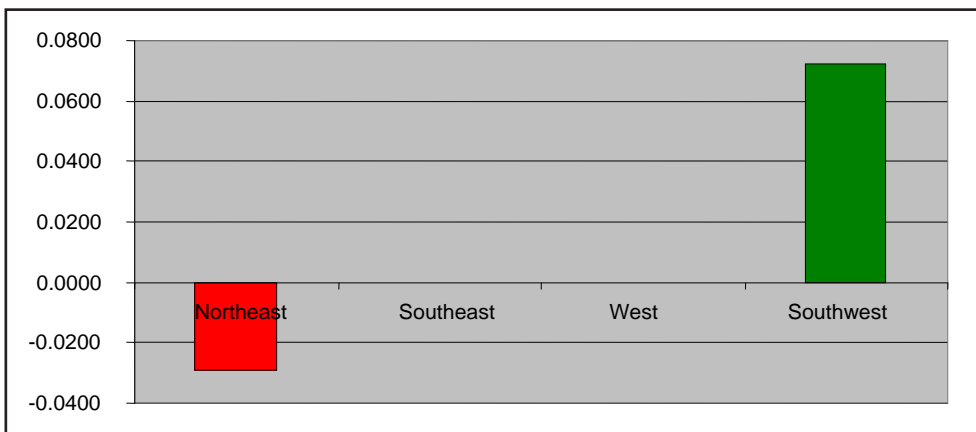
land policy institute
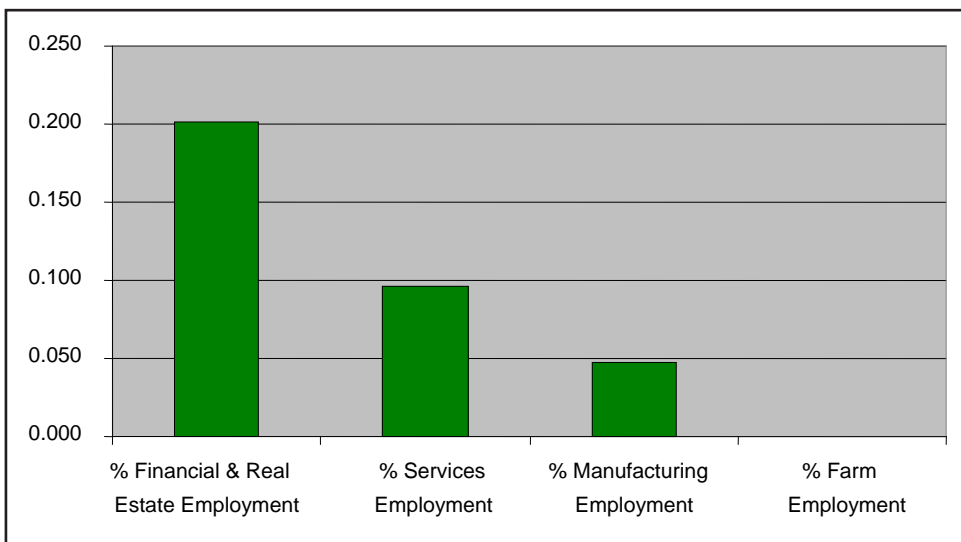
A4.25: Elasticity of Employment with Respect to Other New Economy Factors
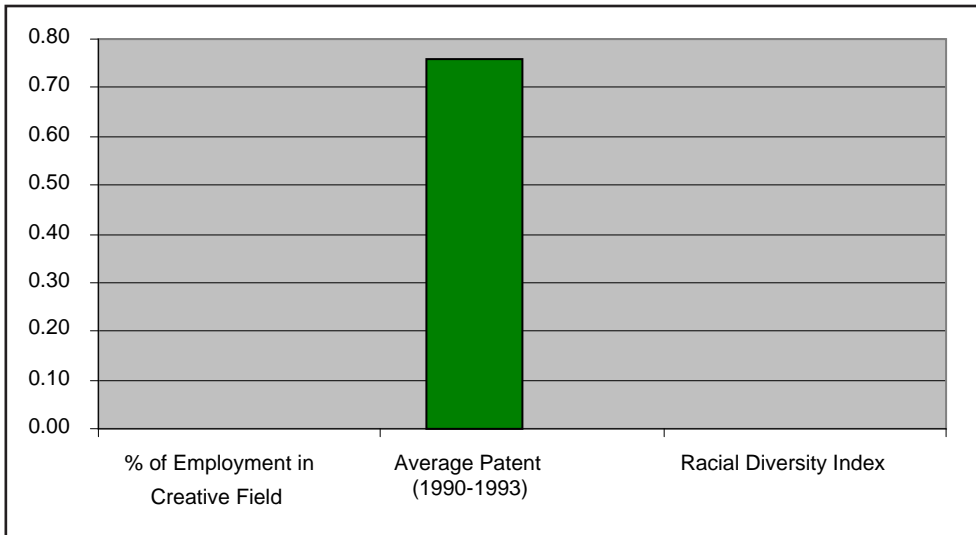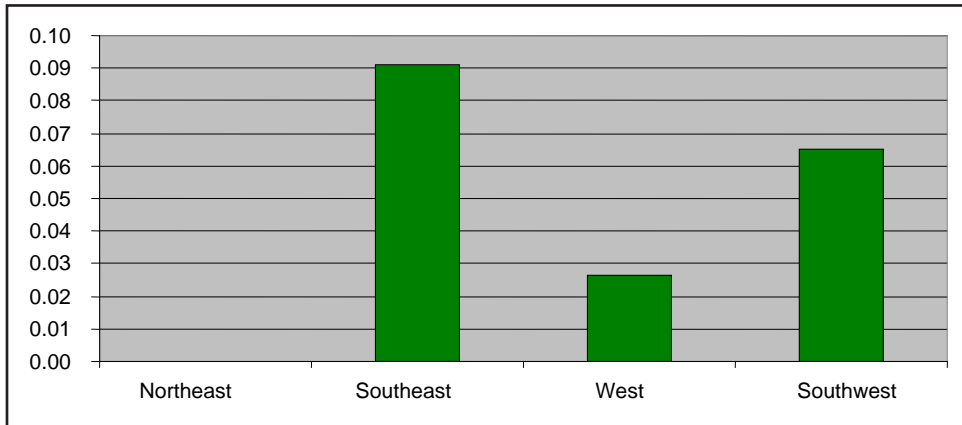

A4.26: Elasticity of Per Capita Income with Respect to Other New Economy Factors
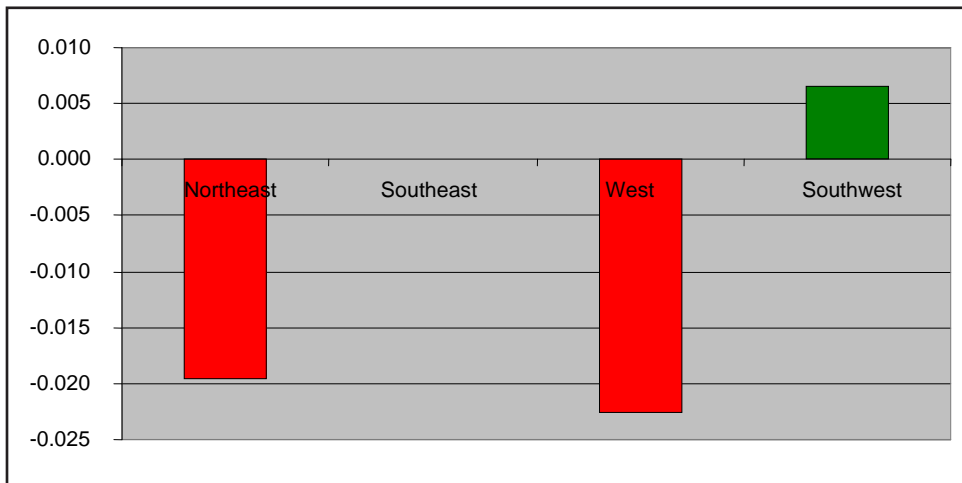

A4.27: Responsiveness of Population Growth by Region (Comparison with Midwest)

A4.28: Responsiveness of Employment Growth by Region (Comparison with Midwest)

A4.29: Responsiveness of Per Capita Income Growth by Region (Comparison with Midwest)

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Final Thoughts

THE AMERICAN RECOVERY AND REINVESTMENT ACT OF 2009 OFFERS RURAL AND
URBAN AMERICA A UNIQUE OPPORTUNITY TO RE-INVEST IN THEMSELVES.

What is more important is how various communities spend this money.

Shovel-ready gray infrastructure projects seem likely to create jobs. However, the effects will only be long-lasting and bring meaningful change in the transistion toward the New Economy if the investments are put into infrastructure that can attract New Economy growth.

We urge communities across the United States to consider the title of this report "Chasing the Past or Investing in Our Future."

"Placemaking for Prosperity in the New Economy" requires an understanding of the critical assets of a community and region—and the unque opportunities this creates for the people living there.

The Full Report

The Full Report is available for download at www.landpolicy.msu.edu/ChasingthePastReport

The Summary Report is also available online at www.landpolicy.msu.edu/ChasingthePastReport/Summary

Additional research reports elaborating and expanding on this work are forthcoming from the Land Policy Institute. Check our website for updates at www.landpolicy.msu.edu.

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