Rebuilding America's Productive Economy
A Heartland Development Strategy

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Foreword

From its inception as a nation, America's great advantage over its global rivals has stemmed largely from the successful development of its vast interior. The Heartland has been both the incubator of national identity and an outlet for the entrepreneurial energies of both immigrants and those living in dense urban areas.

The term "Heartland" is commonly used to describe the region west of the Mississippi River and east of the Rocky Mountains. This region constitutes the primary focus of this report, although we believe our policy prescriptions also apply to other parts of the country that are culturally similar to the Great Plains and the Midwest, including the inland valleys of the Pacific Northwest and California, as well as parts of central Florida and Pennsylvania.

Historically, and with some exceptions—notably the South—the Heartland was dominated by capitalist principles and shaped by the forces of innovation, competition, and a continuous search for maximum economic return. The Heartland contributed significantly to America's development as a global economic power. Over the past century, however, the role of the Heartland declined, as the United States evolved from a primarily agricultural to an industrial and finally an information-based economy. With the move toward manufactured goods and high-end services, the focus of economic development shifted from the agricultural interior toward the great metropolitan regions.

In the early 1900s, Americans began leaving rural areas for cities and suburbs. Farms were consolidated, some were abandoned. The country's interior landscape—from the rural West to the Great Plains to the Eastern Seaboard—was littered with shrinking towns and villages.

In the 1970s, however, this dynamic began to change. For the first time in decades, the number of Americans moving to nonmetropolitan areas began to grow. People moved first to the areas closest to the big cities, then increasingly to small towns and cities far from the metropolitan core regions. Small towns, from the Great Plains to New England, began to display new signs of life.

Several factors appear to have contributed to this phenomenon. Perhaps the most important has been the rising cost of living, particularly the cost of housing, in the coastal regions of the country, making lower-cost locales more attractive to both business and individuals. Another has been the technological revolution that allows companies in traditionally urban-centered fields—from high-technology services to manufacturing and warehousing—to consider locating far from the major metropolitan areas.

As the nation's population grows from roughly 300 million today to some 400 million in 2050, these factors will become even more important. High-speed communications, the development of regional airports, and the availability of urban amenities in once remote places will make the Heartland increasingly attractive to immigrants, skilled workers, and entrepreneurs.

The recent development of the Heartland has been sporadic, however, and so long as the region lags behind the rest of the country economically, America's national productive capacity will remain far below its potential.

A great opportunity for 21st Century America lies in the Heartland's vast acreage and abundant natural resources. However, we envision the Heartland as far more than an agricultural zone. Certainly, food production—particularly in high-value products—will remain an important component of the Heartland economy. But we also see a future in which high-technology services and communications, energy production, and manufacturing and warehousing will become critical levers for new employment and wealth creation in the Heartland.

We believe this new vision of the Heartland is already taking shape. In contrast to the picture of emptying towns and embattled farmers so often conveyed in the media, we see the Heartland as a potential hotbed of capitalist creation and innovation. It is a reality already taking shape in the "technology corridors" in the Dakotas, the "hidden tech" belt of western Massachusetts, and the revived communities along the eastern Cascades, and with the growth of ethanol and biomass facilities across the country.

Realizing the Heartland's full potential will require intelligent public policy. From the earliest days of the Republic, government has played a role in the region's development, whether through the building of roads, canals, railroads, and airports, or the establishment of land grant colleges, conservation programs, and export markets.

According to the American Society of Civil Engineers, the United States needs to invest $1.6 trillion in infrastructure improvements over the next five years. The need for such improvements is particularly acute in the Heartland, especially with respect to transportation and telecommunications.

There is also a need for sizeable investment in highly specialized infrastructure, such as high-speed optical networks, university research and laboratory facilities, technology training centers, and research parks. New facilities to distribute the region's energy resources to the rest of the country—including pipelines to supply the water necessary to propel both energy production and manufacturing—will also be needed.

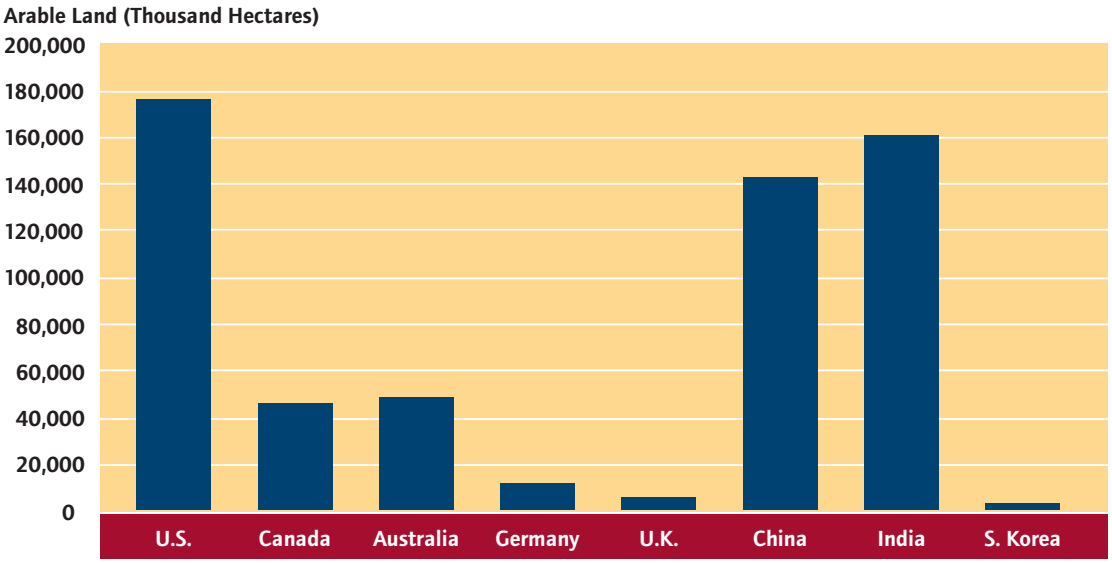
America's economy may well be on the verge of a great resurgence largely unacknowledged by pundits, academics, and the media. The Heartland will play a critical role in that resurgence—if we develop the right policies. ■

I. The Heartland Opportunity

A recent article in the *The New York Times* described North Dakota as "not far from forsaken." The image conveyed by the article was of a state in "irresistible decline"—of dying towns and aging populations, a place to visit before it turned to dust.[1] This is how the media all too often portrays the Heartland, and it is a view shared by many academics and policymakers. But the picture is out of date and out of focus.

Over the past two years, North Dakota has in fact gained population, while Massachusetts, which few would describe as "forsaken," was the only state to lose people. More to the point, although some parts of the Great Plains are experiencing a decline in population, other parts are seeing an increase in jobs, population, and income—in some cases exhibiting higher growth rates than urban coastal America. Fargo, North Dakota, for example, grew by over 20 percent between 1990 and 2000.[2]

Increasingly, skilled individuals and businesses are recognizing that the Heartland possesses many underutilized assets. These include low housing costs, a relatively good business climate, quality schools, a reasonably educated and productive workforce, and available land and other resources for expansion.



ARABLE LAND IN THE UNITED STATES COMPARED TO OTHER COUNTRIES

Source: World Resources Institute.

The United States has the greatest expanse of arable land among developed and developing countries. On a per capita basis, its endowment is far greater than its prime industrial competitors, including the European Union, India, China, and Japan. Although there have been some losses of farmland over the past 30 years (mostly to pasture and timberland, and recreational use) the amount of cropland has remained stable.[3]

Yet the potential future contribution of the region to the U.S. economy goes well beyond the production of food and biomass for fuel and fiber. Technological advances—most notably in telecommunications and transportation—have helped break down the sense of isolation, both intellectual and cultural, that historically has kept nonmetropolitan areas backward and unattractive to skilled, educated workers. The development of the Internet has diminished the near-monopoly of information that throughout history has belonged to the metropolis. Today, a Heartland-based farmer, securities dealer, machine shop operator, or software writer enjoys the same access to the latest market and technical information as someone located in midtown Manhattan or Silicon Valley.

Demographic Trends

In the 1970s, demographers began to notice a slowdown—and in some cases a reversal—of the long-standing pattern of outmigration from rural areas. In the 1980s, the population of nonmetro counties grew by 1.3 million, or 2.7 percent. In the 1990s, nonmetro counties witnessed a population increase of 5.3 million, or 10.3 percent.

This rebound was the product of migrational shifts from metropolitan to nonmetropolitan areas. In the 1990s, the population of nonmetro counties increased by 348,000 on average annually.[4] However, changes in the classification of counties over time have obscured the scale of this new outward movement. Between 1973 and 2004, 442 nonmetro counties were reclassified as metro, and many of these counties were assigned to metropolitan areas. This reclassification masked the size of the population shift to rural areas. During this period, some smaller cities achieved metro status. Thus, areas defined as nonmetro in the 1970s actually grew by 50 percent between 1970 and 2004, with an overall increase in population of 77.8 million.[5]

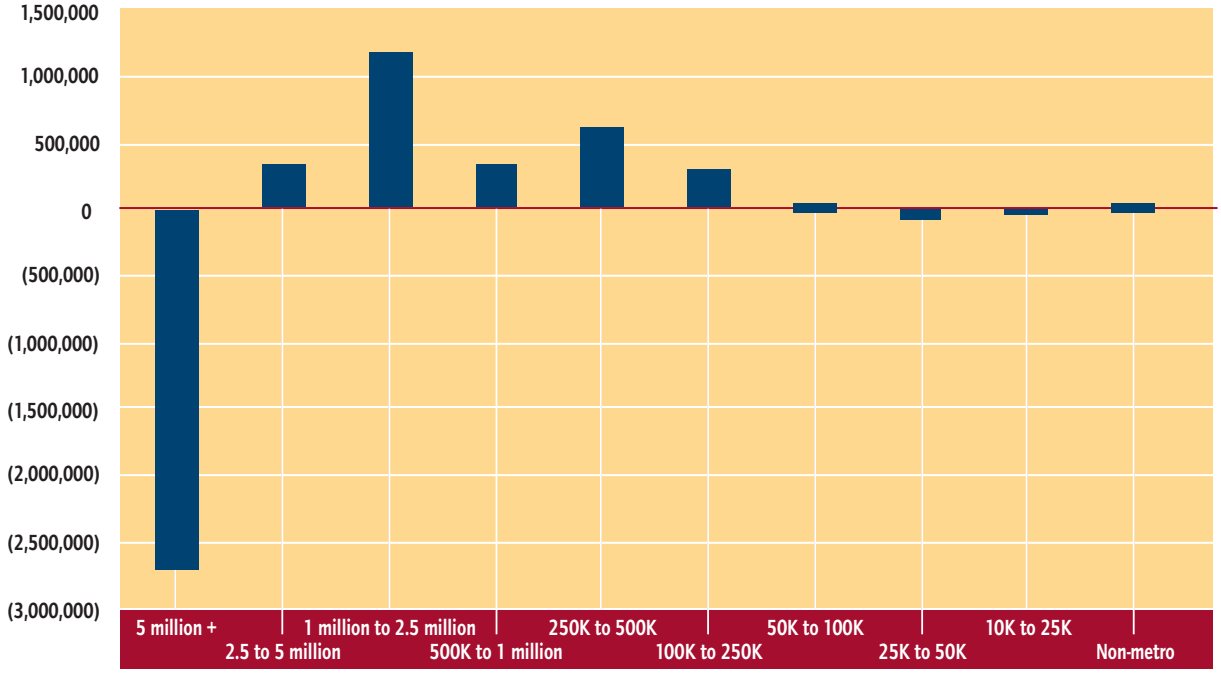
Up until 2003, "nonmetropolitan" served as a residual category representing whatever areas were left over after "metropolitan" areas were defined. At this time, the Office of Management and Budget introduced a new classification system, dividing previously undifferentiated nonmetro territory into two distinct types of counties—"micropolitan" (micro) and "noncore" (rural).[6] Micro areas include one or more urban clusters of between 10,000 and 50,000 people; noncore counties are those without a single high-density cluster of at least 10,000 people. Micro counties now account for three-fifths of the total nonmetro population. Today, roughly one in ten Americans lives in a micropolitan area.

This trend appears to have accelerated since 2000. According to the demographer Wendell Cox, between 2000 and 2005 over 2.7 million Americans moved out of the largest cities with populations of 5 million or more.[7] A significant number of these migrants—around 939,000 people—moved to smaller and mid-sized places with a population of between 50,000 and 500,000.

Identifying the "Growth Nodes"

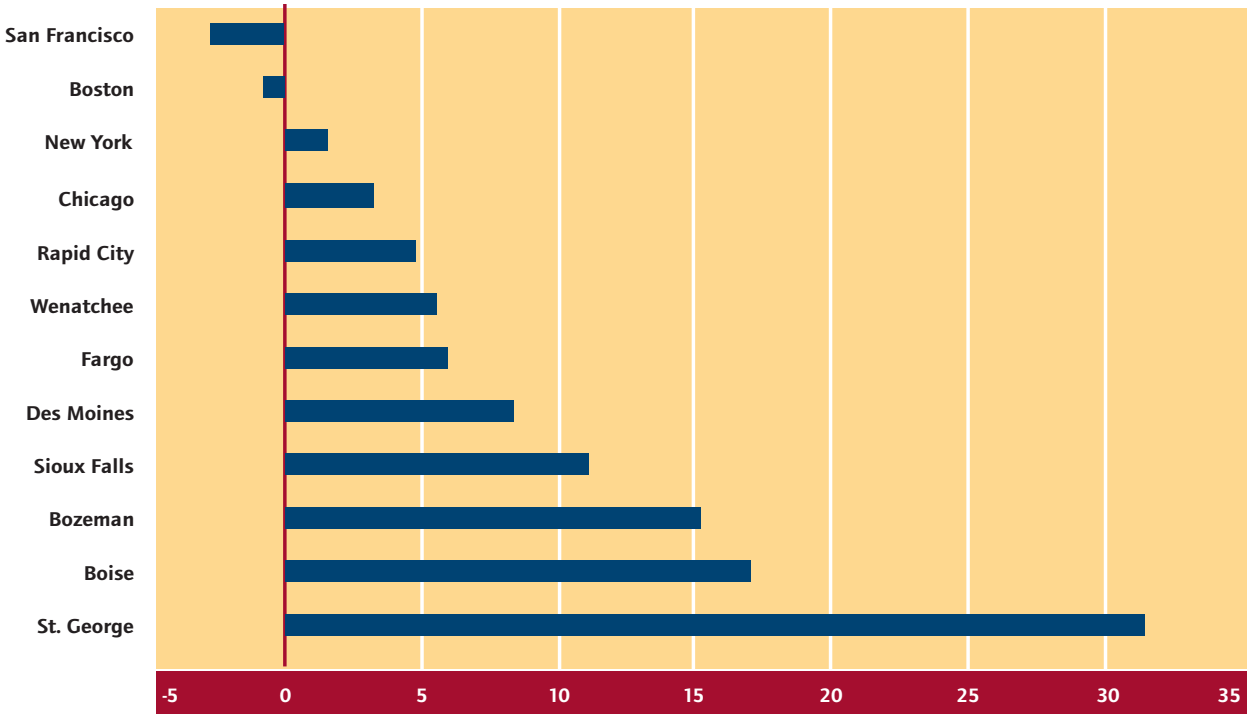
It is important to note that this migration has not had an impact on all rural areas or small towns. Certain smaller cities and towns in the Heartland appear to be absorbing much of the outmigration from metropolitan areas. These "growth nodes" have enjoyed rapid growth even as other, more remote, communities have continued to shrink.

Some of these communities—the Rapid City/Black Hills region of South Dakota, Wenatchee, Washington, Bozeman, Montana, and St. George, Utah—have grown largely due to their "high-amenity" appeal to migrants from urban areas. As we will see, many of these communities are evolving from tourist destinations into sophisticated, technology-based economies.



DOMESTIC MIGRATION BY SIZE OF PLACE, 2000–05

Source: Demographia.com by Wendell Cox.



REGIONAL GROWTH NODES COMPARED TO SELECTED LARGE METRO AREAS: PERCENT POPULATION CHANGE, 2000–05

Source: U.S. Census Bureau data analysis by Wendell Cox.

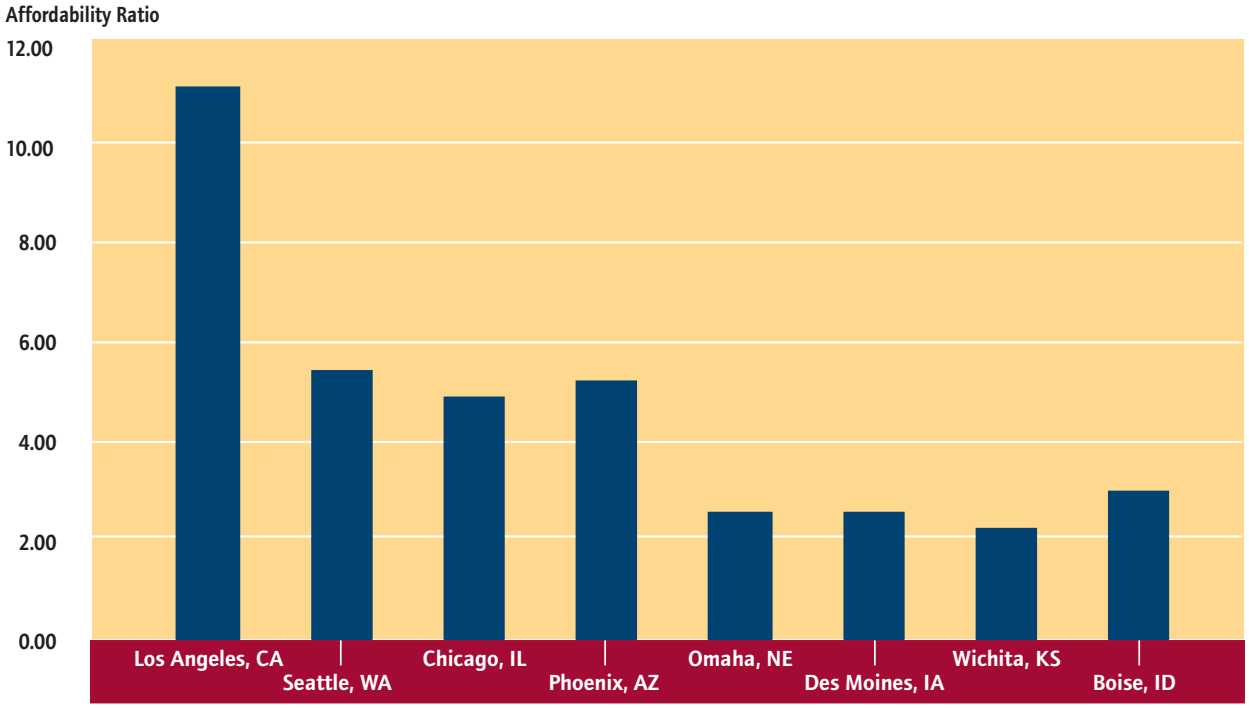
Another type of growth node in the Heartland is the "reemerging hub." These are usually small and midsized cities that grew up during the period of agricultural expansion in the late 19th and early 20th centuries, and then began to decline or plateau economically in midcentury.

Today, such cities—among them, Fargo, North Dakota, Sioux Falls, South Dakota, Des Moines, Iowa, and Boise, Idaho—are making what many might find surprising headway in the information age. They are exploiting their advantages, which include a lower cost of living, good public schools and universities, and quality-of-life attractions for middle class families, to lure high-end business and professional service firms, information service companies, and diversified, innovative small manufacturers.

Aging Boomers, Housing Pressures, and Immigrants

In the immediate future, several factors are likely to influence the development of the Heartland's growth nodes. The first is the projected rapid growth of the U.S. population over the next 45 years, which will inevitably lead to metropolitan areas, especially those along the coasts, becoming even more congested and expensive than at present.

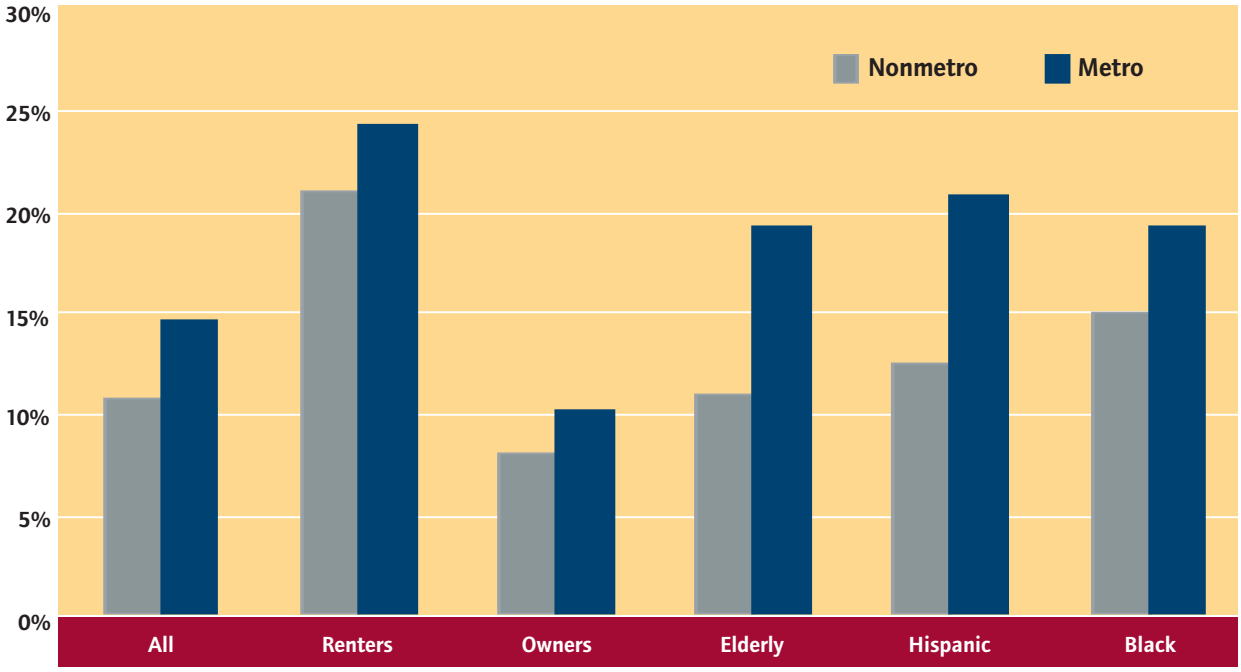
The recent run-up in housing costs on both coasts, particularly in metropolitan areas, has hit the working and middle classes particularly hard. In contrast, housing prices in most of the Heartland have remained remarkably reasonable.



HOUSING AFFORDABILITY FOR SELECTED HEARTLAND CITIES COMPARED TO LARGER METROS, 2005

Note: Median House Price to Median Household Income Ratio. Affordable = 3.0 or less.

Source: Demographia.com by Wendell Cox.



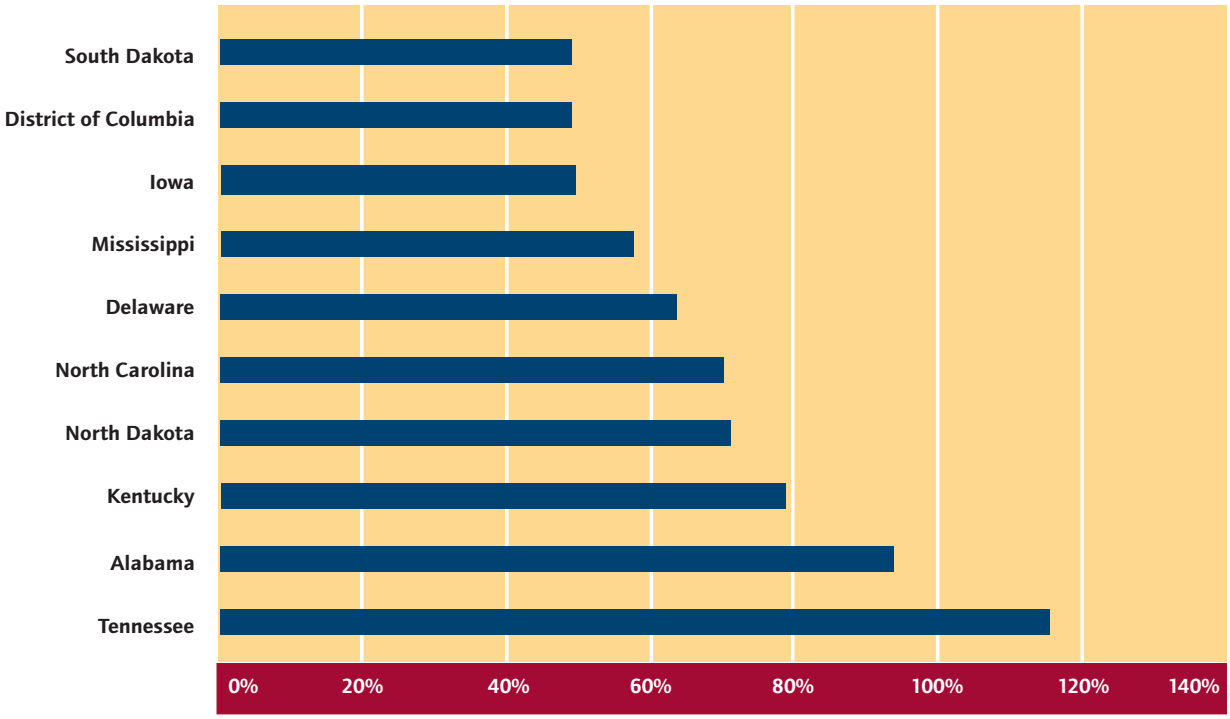
HOUSEHOLDS WHERE HOUSING EXPENSES EXCEED HALF OF THEIR INCOME, 2003

Source: "Rural America at a Glance, 2005," U.S. Department of Agriculture, Economic Information Bulletin, No. 4, September 2005.

Lower housing costs in the Heartland, as well as quality-of-life considerations, could serve as a powerful magnet for young families. As a rule, rural residents pay a smaller portion of their incomes for housing than people living in metropolitan areas. In 2003, even before the peak of the current housing boom, roughly 15 percent of all metropolitan households spent over half their income on housing; only 10 percent of nonmetro households shouldered a similar burden.

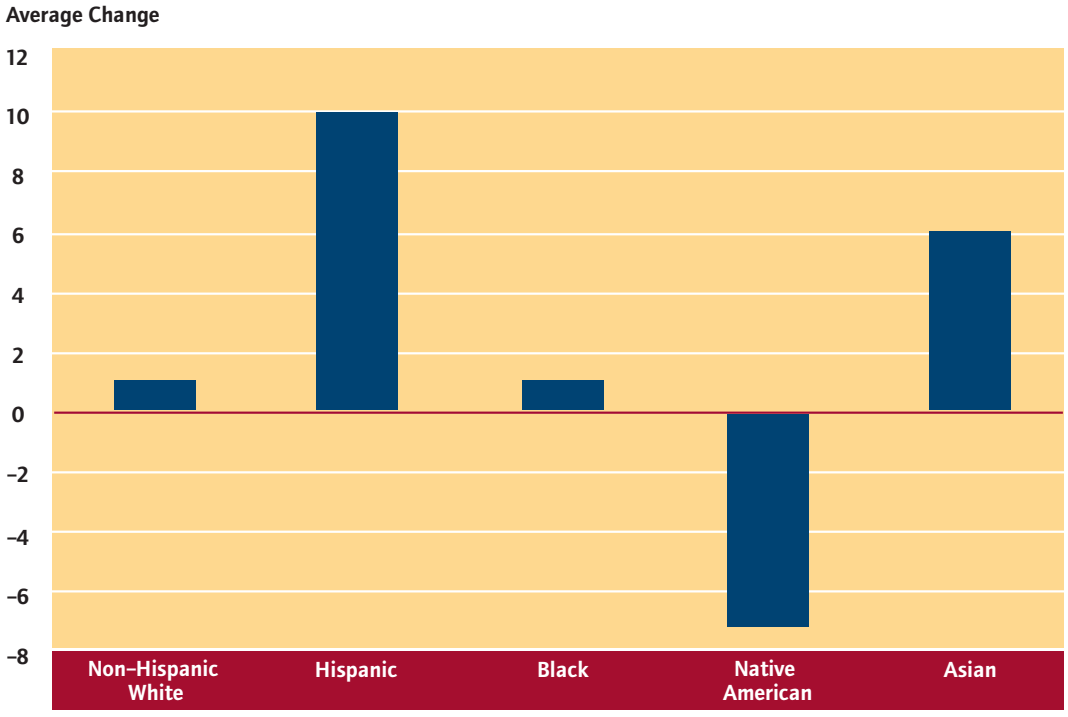
Recent surveys of adults in the United States reveal that as many as one in three would prefer to live in a rural area—compared to the 20 percent who already do so. Most Americans perceive of rural America as a place where traditional family and religious values are honored. Rural residents are admired for their self-sufficiency, and rural areas are thought to be more attractive, friendlier, and safer for children than metropolitan areas. Interestingly, this picture is shared by a majority of suburbanites polled, as well as by a slightly larger proportion of rural residents. However exaggerated the image, it does suggest that there is a large, untapped market of Americans who might consider a move to a smaller community in the Heartland.[8]

There also seems to be a strong movement among baby boomers toward the Heartland, particularly to the high-amenity areas of the Rocky Mountains, the Upper Great Lakes, and the Ozarks (as well as to the rural Northeast), according to the 2000 census. Increasingly, baby boomer "equity migrants" are choosing to relocate to such places rather than head out to traditional Sunbelt areas—many of which are becoming more expensive and congested. As one demographer suggests, "America's love affair with suburban life may be winding down in favor of the countryside."[9]



FASTEST IMMIGRANT GROWTH STATES: PERCENT GROWTH 2000–05

Source: William H. Frey, "America's Emerging Demography: Immigration, Migration and the Aging of the Population," The Brookings Institution and the University of Michigan, 2006.



AVERAGE PERCENT CHANGE IN NONMETRO POPULATION BY RACE & ETHNICITY, 2001–04

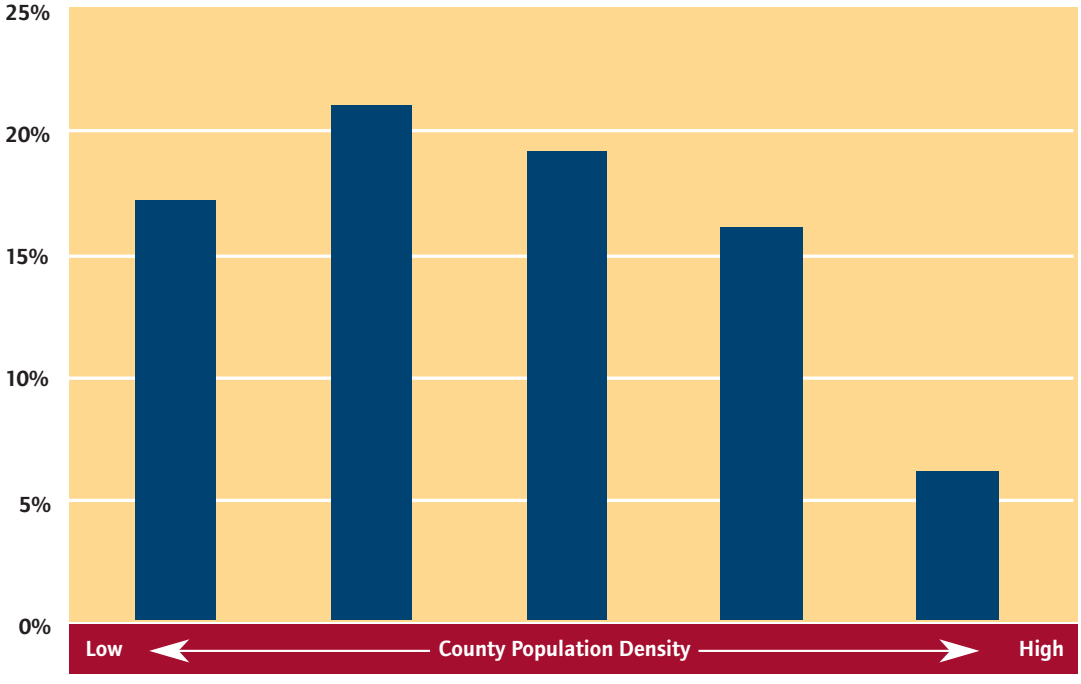
Source: "Rural America at a Glance, 2005," U.S. Department of Agriculture, Economic Information Bulletin No. 4, September 2005.

The other promising element in the demographic makeup of the Heartland may be immigrants. States such as Iowa, North and South Dakota, and Kentucky were among those experiencing the fastest growth in the influx of immigrants during the 1990s. Like many other newcomers to the Heartland, immigrants may be attracted by lower housing costs, job opportunities, and a good environment in which to raise children. Moreover, the Heartland is not only attracting low-wage immigrant workers. In some states, the influx of educated immigrant (and minority) professionals has started to balance out the long-term loss of native-born youth. Although still predominately white, the Heartland is becoming less so, and it is beginning to share in the demographic vitality that hitherto has been seen predominately in more urbanized areas.[10]

Economic De-clustering and the Heartland

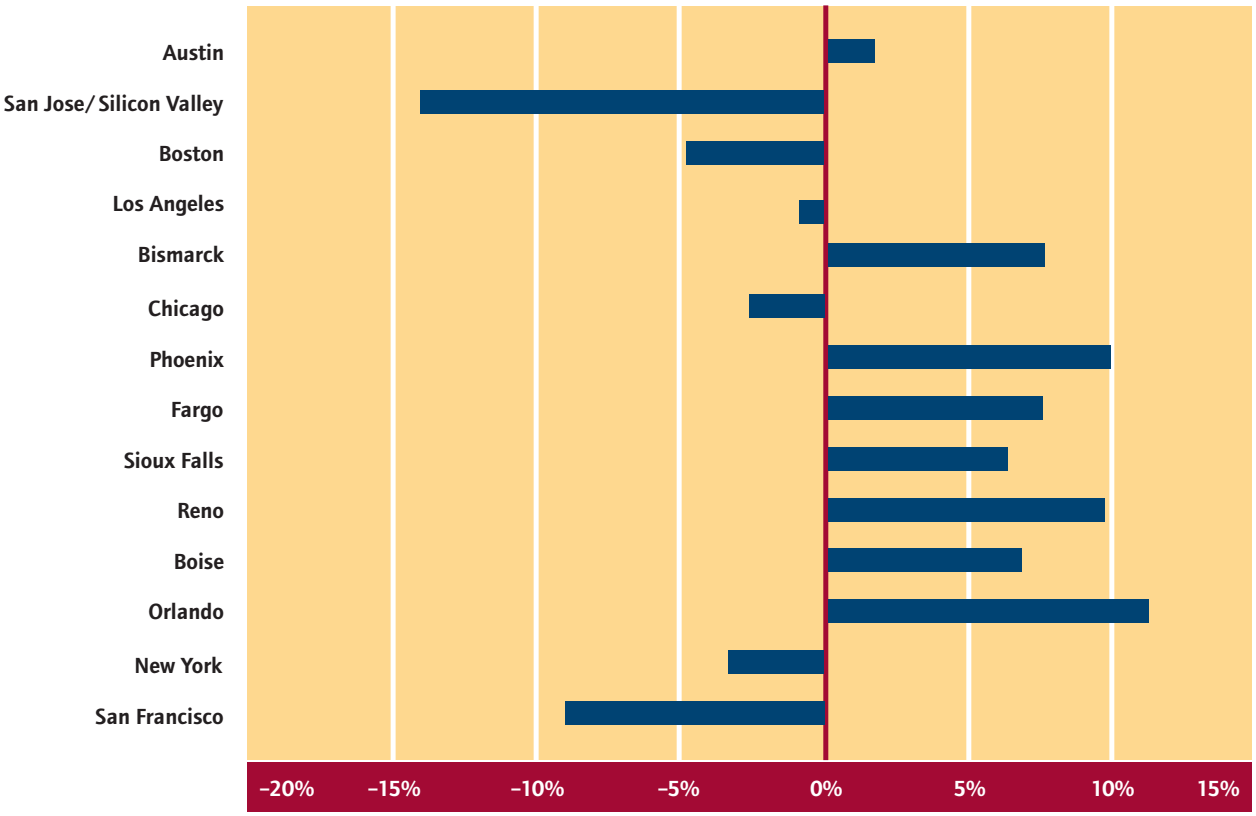
These demographic patterns are also mirrored in the economy. "Whether people follow jobs or jobs follow people is the subject of much debate," says Harvard's Nancy McArdle, "but, over the long run, they move together."[11]

This follows a long-standing pattern of the deconcentration of employment that has been developing over several generations. In contrast to the old industrial paradigm, where jobs were clustered in the most densely populated areas, economic growth now tends to move toward less dense areas. Between 1961 and 1996, the portion of American jobs located in the densest areas declined from 84 to 66 percent. While the strongest growth was in areas between 10 and 20 miles from the center, it is worth noting that the rate of growth in the least densely populated areas was far higher than in the urban core.[12]



EMPLOYMENT GROWTH BY DENSITY OF COUNTY, 1990–98

Source: Joint Center Tabulations of the Regional Economic Information Systems (REIS) database.



CHANGING ECONOMIC ORDER: JOB GROWTH, 2000–05

Source: Adapted from Michael A. Shires, Inc., May 2006.

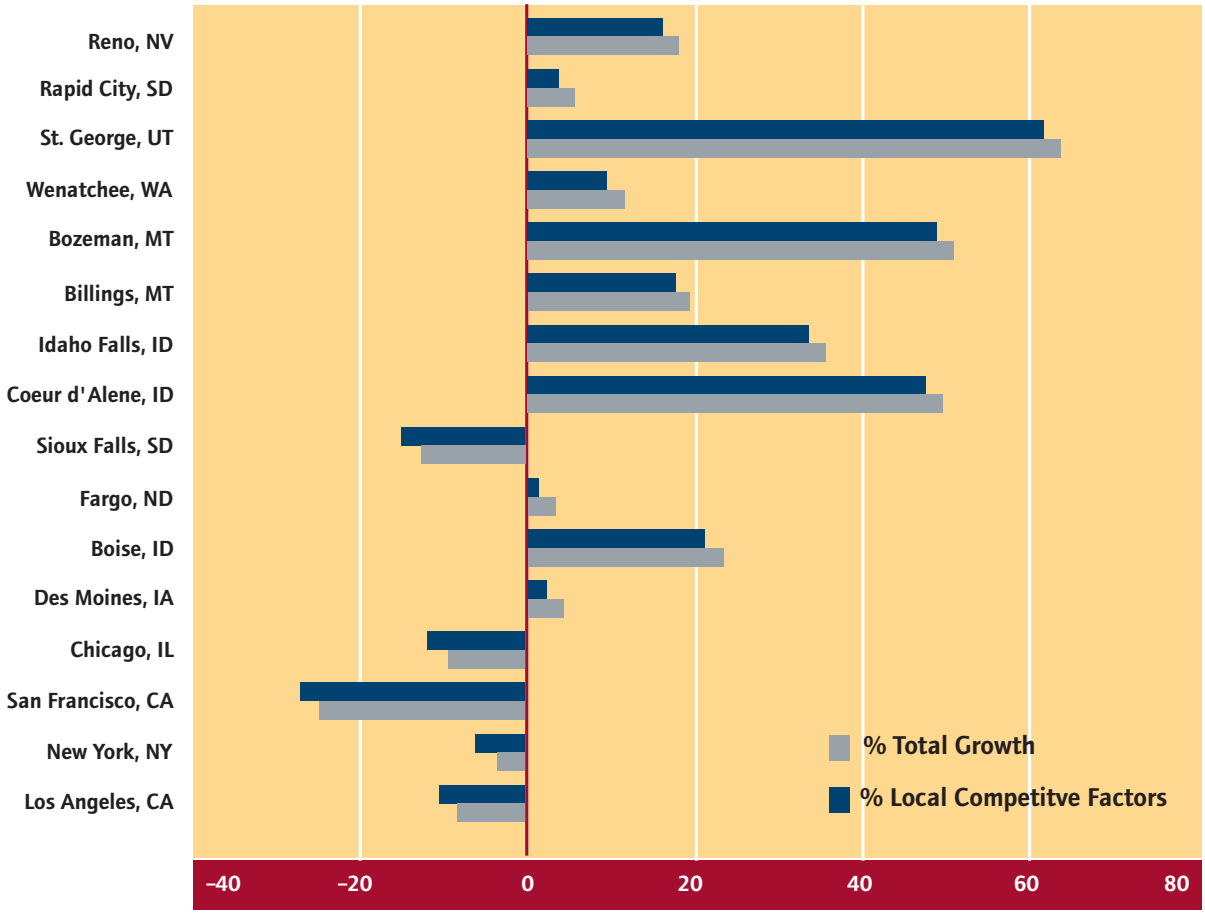
It now appears that this pattern of economic declustering may be heading even further outward from the urban core. Many areas in the periphery are creating jobs much faster than larger metropolitan areas. This is true not only for such amenity-rich growth nodes as St. George, Rapid City, and Wenatchee, but also for more traditional Heartland cities like Sioux Falls, and Fargo.

Prospects in High-Value-Added Sectors

Perhaps a more pressing question is whether rural and micropolitan areas are gaining jobs in the faster-growing high-wage sectors such as business services and finance. Although rural areas overall have lagged in this respect, sector growth appears to be dispersing to selected smaller locales such as Des Moines, Boise, and Reno, Nevada.

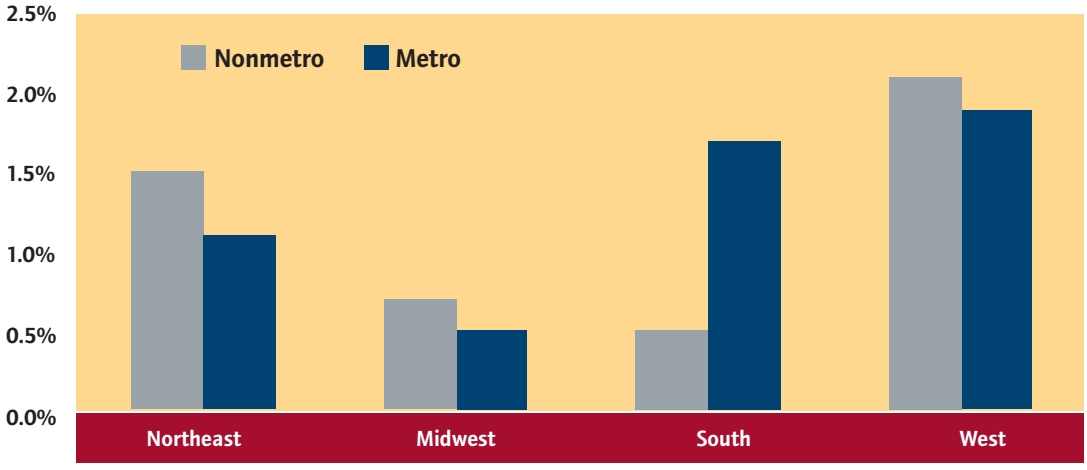
This suggests that even more radical de-concentrations of employment may be in the offing. Overall, nonmetropolitan areas have been gaining jobs faster than metropolitan areas in all regions outside the South, which has few dense, transit-oriented cities. Indeed, looking at the fastest job growth in the country, micropolitan areas are fairly dominant. A recent analysis by *Inc.* magazine of the 393 fastest-growing areas in the country identified 15 micropolitan centers among the top 20. Only one large metropolitan region—the sprawling city of Las Vegas—ranked in the top 20.[13]

The fastest-growth boomtowns tend to be either in the more rural parts of the intermountain West and or in Florida. This shift of job growth to the further periphery suggests a broader opportunity. Since 1970, the employment growth rates in small metro areas with fewer than 1 million people have remained considerably higher than in the cores of the nation's largest cities and were about on a par with their suburbs.



BUSINESS AND PROFESSIONAL SERVICES GROWTH, 1999–2004

Source: U.S. Bureau of Labor Statistics Census of Employment and Wages.



METROPOLITAN AND NONMETRO EMPLOYMENT GROWTH, 2003–04

Source: "Rural America at a Glance, 2005," U.S. Department of Agriculture, Economic Information Bulletin No. 4, September 2005.

On a sectoral basis, the strongest gains tended to take place in manufacturing and wholesale trade, which expanded more rapidly in rural areas than in cities between 1970 and 2000. In fact as manufacturing jobs in big cities and their suburbs declined over this period, small towns, and even the smallest rural areas, showed annual increases ranging upward from over 0.5 percent. Large metropolitan areas have dominated the service sector exports, but in tangible goods, the globally competitive economy seems to be shifting to the far periphery.[14]

Growth Nodes Lead the Way

The Heartland's growth nodes show some characteristics distinct from the general run of nonmetro and micropolitan communities. We analyzed U.S. Bureau of Labor Statistics data from 1999 to 2004 to discover what factors had propelled communities to the top of the *Inc.* rankings, and which factors anchored others to the bottom. The analysis pinpointed the competitive-share component of industrial sector growth, reflecting employment change in a particular industry due to local conditions and efforts. The shift-share analysis removed the influence of overall national economic growth as well as the national growth rate, positive or negative, of a particular industrial sector.

In general, small communities (with fewer than 150,000 in nonfarm employment) had a significant local advantage in the manufacturing and the natural resources and mining industries, and a more modest growth advantage in public administration. Both medium-sized and small communities performed well compared to large cities in the professional and business services, financial activities, and information sectors.

It is the movement into higher-value-added activities that most distinguishes the small city and rural growth nodes from the general nonmetro economy. The small communities in the top 40 on the *Inc.* list were propelled mostly by their professional and business services, manufacturing, and information sectors, with comparative rates of growth in these sectors in both "amenity" and "revived rural area" regions.

Where these developments lead will depend on both the development of technology and future migration trends. One critical factor may be the future evolution of what the management expert Amy Zuckerman has called "hidden tech." This is reflected in the growth of concentrations of technology workers in various nonmetropolitan and micropolitan regions from Wenatchee, Washington, to the Pioneer Valley of western Massachusetts.[15]

Thus there is good reason to expect the continued rise of "hidden tech" as well as the expansion of high-value-added activities in the Heartland. The economic "miracle" now occurring in places like Fargo, Sioux Falls, Boise, and St. George could well be extended to a host of new Heartland locales over the next decade. ■

INDUSTRY SECTOR GROWTH GENERATED BY LOCAL COMPETITIVENESS FACTORS: BY SIZE OF PLACE FOR 40 TOP PLACES—*Inc.* BEST PLACES RANKINGS, 2006

Source: U.S. Bureau of Labor Statistics Census of Employment and Wages.

II. The Agri/Energy Challenge

We have focused on the Heartland's growth nodes because they epitomize the ability of America's rural, nonmetropolitan regions to transcend their traditional reliance on agriculture and other resource-based industries and attract manufacturing, professional and business services, and financial and information services.

Yet no successful Heartland development strategy can ignore the more traditional sectors of the rural economy. For the foreseeable future, agriculture and, increasingly, energy production will play a leading role in the Heartland's revival. Indeed, in a world where certain commodities—particularly energy—are in increasingly short supply, the role of the land in the Heartland's future is already far greater than most analysts would have predicted even a few years ago.

But a successful resource-based strategy must be innovative, applying to these traditional industries the latest marketing methods, technology, and information systems. On the agricultural front, the Heartland needs to move away from its reliance on highly regulated, and often unreliable, commodity markets and move decisively up the value-added chain. This suggests not only a greater emphasis on food processing and specialty products, but also a greater reliance on direct marketing to urban customers, both in the United States and abroad.

The opportunities in the energy sector may be transformative for agriculture and the Heartland economy as a whole. The recent boom in biomass, or crop-based, fuels such as ethanol will likely lead not only to new markets and higher prices for farmers but to new uses for vast tracts of now largely underutilized land. At the same time, higher energy prices have excited new interest in fossil fuel resources found throughout the Heartland whose recovery costs were previously uneconomic.

The potential growth in the energy sector bodes well for the creation of new higher-wage jobs in the construction and maintenance of energy facilities. A collaborative effort between the region's land grant colleges and industry seeking innovative solutions to the energy crunch could lead to unprecedented economic growth.

Rethinking Agriculture's Future

Agriculture is a highly productive sector of the U.S. economy. American farms yield abundant crops with a small fraction of the domestic labor force, leveraging technology to considerable advantage. The American economy benefits from relatively low-cost commodities, with the average consumer spending only about 10 percent of disposable income on food.

Predicting the future of American agriculture, however, is complicated. The farm sector faces both opportunity and challenge. Although only 14 percent of the rural workforce is employed directly in farming, there is considerable anxiety about the future among families and communities dependent on agriculture. This apprehension stems in no small measure from international pressure to end agricultural subsidies in the United States and other developed nations. The World Trade Organization (WTO) Agreement on Agriculture calls for developed countries to significantly reduce farm subsidies because they are seen as impeding Third World development. Although the Geneva talks of the Doha Development Round, which ended last July, failed to produce an agreement on agricultural subsidies and import taxes on agricultural products, international pressure to reduce subsidies and lower tariffs can be expected to continue.

U.S. direct payments to farmers are projected to fall from $23 billion in 2005 to $11.5 billion in 2015.[16] The eventual discontinuation of subsidies and lower tariffs will jeopardize the livelihoods of bulk commodity producers, both here and in the European Union.

At the same time, competition from lower-cost producers in developing countries has put downward pressure on prices. U.S. Department of Agriculture projections show that American farmers will face stiff competition not only from traditional exporters such as Australia, Canada, and Argentina, but also from developing countries such as Brazil, Russia, Ukraine, and Kazakhstan.

The Farm Economy Today and Tomorrow

Traditional "big iron" commodity agriculture will certainly not fade away. It is extremely efficient, capital intensive, and will constitute a critical element in helping meet North America's growing demand for energy. But if American agriculture is to rise to the challenge of increased competition, there will need to be greater emphasis on high-value products (HVPs), including specialty crops and livestock, and organic products, and an increased emphasis on direct-to-the consumer production.[17]

There were an estimated 2.1 million farms in the United States in 2005, 0.6 percent fewer than in 2004. Total land in farms stands at 933.4 million acres, a decrease of 2.9 million acres, or 0.3 percent, from 2004. The average farm size in 2005 was 444 acres, an increase of one acre over the previous year.

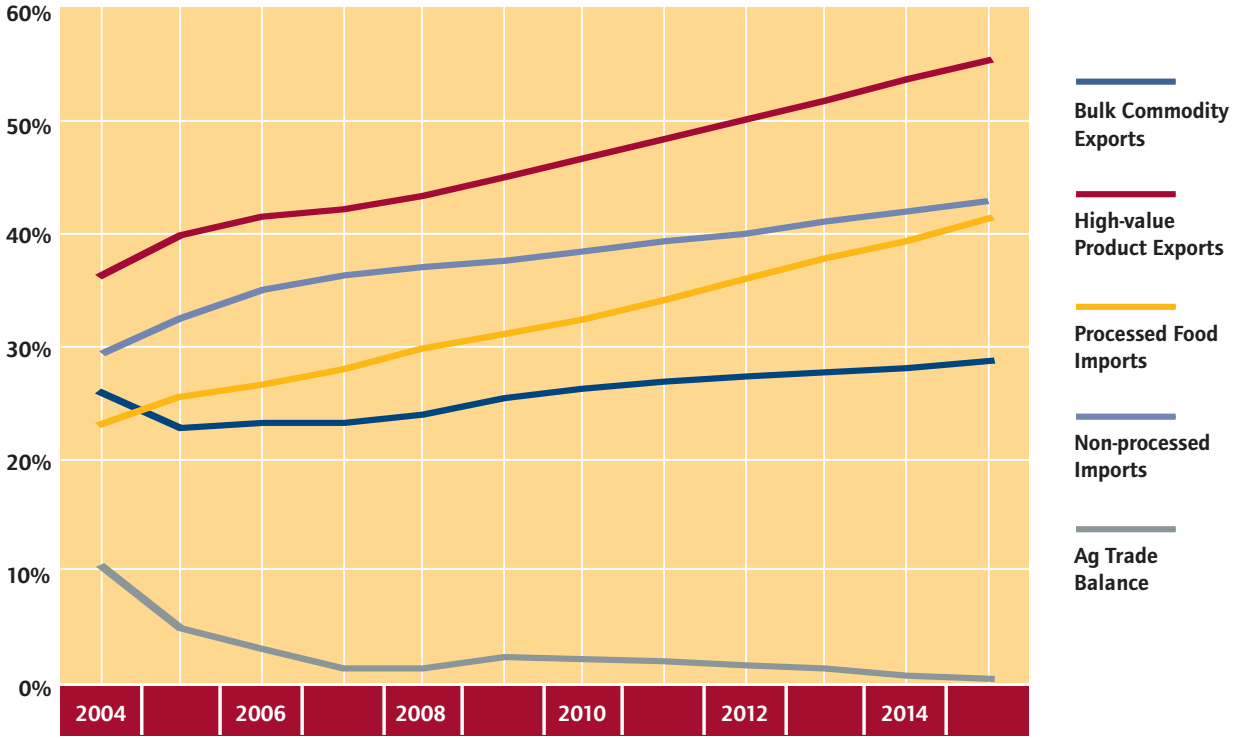
The decline in the number of farms and agricultural acreage reflects both the trend toward agribusiness and the diversion of agricultural land to nonagricultural uses, particularly tourism, recreation, and housing development.

Agricultural production has been steadily shifting toward larger farms. Farms in the largest sales class (at least $500,000 in 2002 dollars) accounted for 43.9 percent of production in 2002, up from 28.9 percent in 1989. There were 64,000 farms in that class in 2002, an increase from 32,000 in 1989. The trend to larger farms cuts across the board, with production of poultry, livestock, and crops all shifting to larger operations. The reasons are straightforward. Large farms have lower costs of production on average, and they are more likely to realize higher commodity prices as well.[18]

American agricultural producers have also come to depend increasingly on export markets, even as the American demand for foreign foods is rising. U.S. food imports are expected to increase from $61.5 billion today to $84 billion in 2015. Processed foods are projected to rise from 27 percent to 41 percent of all food imports during the same period. Likewise U.S. agricultural exports are projected to rise from $64.5 billion in 2006 to $84 billion in 2015, with HVPs growing from 41 percent of exports in 2006 to 55 percent in 2015.[19]

The Rise of Organic and Niche Foods

On-farm quality protocols, many of them developed over the past decade in Europe, will accelerate the integration of American farmers into a globally harmonized and integrated farm and food system.[20] These protocols emerged out of an alarming number of deaths from contaminated food in Europe in the 1990s, were further facilitated by the growing



U.S. AGRICULTURAL IMPORTS AND EXPORTS AND THE TRADE BALANCE, 2004–25

Source: U.S. Department of Agriculture, Office of the Chief Economist, USDA Agricultural Baseline Projections to 2015, World Agricultural Outlook Board, Baseline Report OCE-2006-1, February 2006.

sophistication and convenience of computerized information systems, and legitimized by the organized demands of consumers.

Changes in the global food market coincide with changing production practices and consumer demands here at home. Burgeoning consumer interest in organically grown foods, primarily because of consumer preferences for quality safe food, has opened new market opportunities for producers; today organic farming is one of the fastest-growing segments of U.S. agriculture. During the 1990s, the growth in retail sales of organic foods equaled 20 percent or more annually. Organic products are now available in nearly 20,000 natural foods stores and are sold in 73 percent of all conventional grocery stores.[21]

Certified organic cropland doubled between 1992 and 1997, to 1.3 million acres. Farmers in 49 states had put 2.2 million acres of cropland and pasture into organic production as of 2003, with nearly 1.5 million acres dedicated to growing crops. California, North Dakota, Minnesota, Montana, Wisconsin, Colorado, and Iowa had the most organic cropland. Texas, Alaska, and California had the largest amount of organic pasture and rangeland.

Fresh produce is the top-selling organic category, followed by nondairy beverages, breads, and grains, packaged foods (frozen and dried prepared foods, baby food, soups, and desserts), and dairy products. During the 1990s, organic dairy was the most rapidly growing segment of the organic sector, with sales up over 500 percent between 1994 and 1999.

Direct-to-Consumer Agriculture

The growth of farmers markets and other direct-market venues, especially popular among organic producers, has taken off over the last decade. Organic farmers are also finding ways to capture a larger segment of the consumer food dollar through on-farm processing, producer marketing cooperatives, and new forms of direct marketing, including agricultural subscription services.

Community-supported agriculture (CSA) has emerged as a new model of food production, sales, and distribution aimed at increasing both the quality of food and the stewardship of the land. The CSA approach provides small-scale commercial farmers access to successful, small-scale markets. The system is built on the weekly delivery to or pickup by the consumer of vegetables, flowers, fruits, herbs, and even milk or meat products. Community-supported agriculture can keep more food dollars in the local community and contributes to the establishment of regional markets for food producers.

With its emphasis on growing high-quality foods using organic or biodynamic farming methods, such farm production operates with a much greater than usual degree of involvement of consumers, creating a stronger than usual consumer-producer relationship. CSA and other local/regional food systems initiatives are likely to exhibit strong growth in the future. This may be due to a factor mentioned above—rising consumer demand for fresh, quality foods—as well as the need to reduce energy consumption, since locally produced foods using natural fertilizers are often far less costly in terms of fossil fuel use.

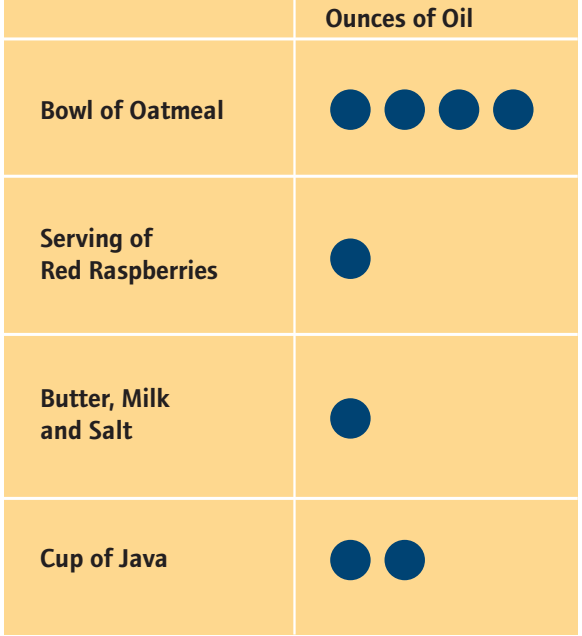
Agriculture and Energy

This brings us to the increasingly complex relationship between food and fuel. Modern agriculture, it has been said, turns oil into food. As the crude menu for a bowl of oatmeal with fruit illustrates, a lot of oil goes into growing, packaging, and shipping the food we eat.

Skyrocketing energy prices are now adding a new twist to this message. The ethanol boom is showing that the agricultural sector can mobilize to take on a new and increasingly important role in fueling our economy. We know that a significant percentage of our national energy appetite could be satisfied with biofuels produced in the Heartland. A national policy to promote the development of the biofuel industry would be wise and is not unprecedented: during the Second World War, farmers responded to government incentives to create fats and oils that were indispensable for making such key war materials as explosives, tin plate, paints, and soaps.

In the future, agricultural policy may be transformed from the management of surplus to the management of competing demands for food and fuel. At around $60 for a barrel of oil, it becomes profitable to convert agricultural commodities into automotive fuels. In this sense, the price of oil becomes a support price for agricultural commodities, and therefore food prices. In the future, commodity farmers are as likely to pay as much atten-

8 Ounces of Oil for Breakfast for Producing, Packaging & Shipping



A CRUDE MENU

Source: Chad Heeter, *San Francisco Chronicle*, March 26, 2006.

tion to the energy bill as to the farm bill. In fact, the future may already be here, as Lester Brown, the founder and president of the Earth Policy Institute, notes, "Today on any given day there are two groups of buyers in commodity markets: one representing food processors and another representing biofuel producers."[22]

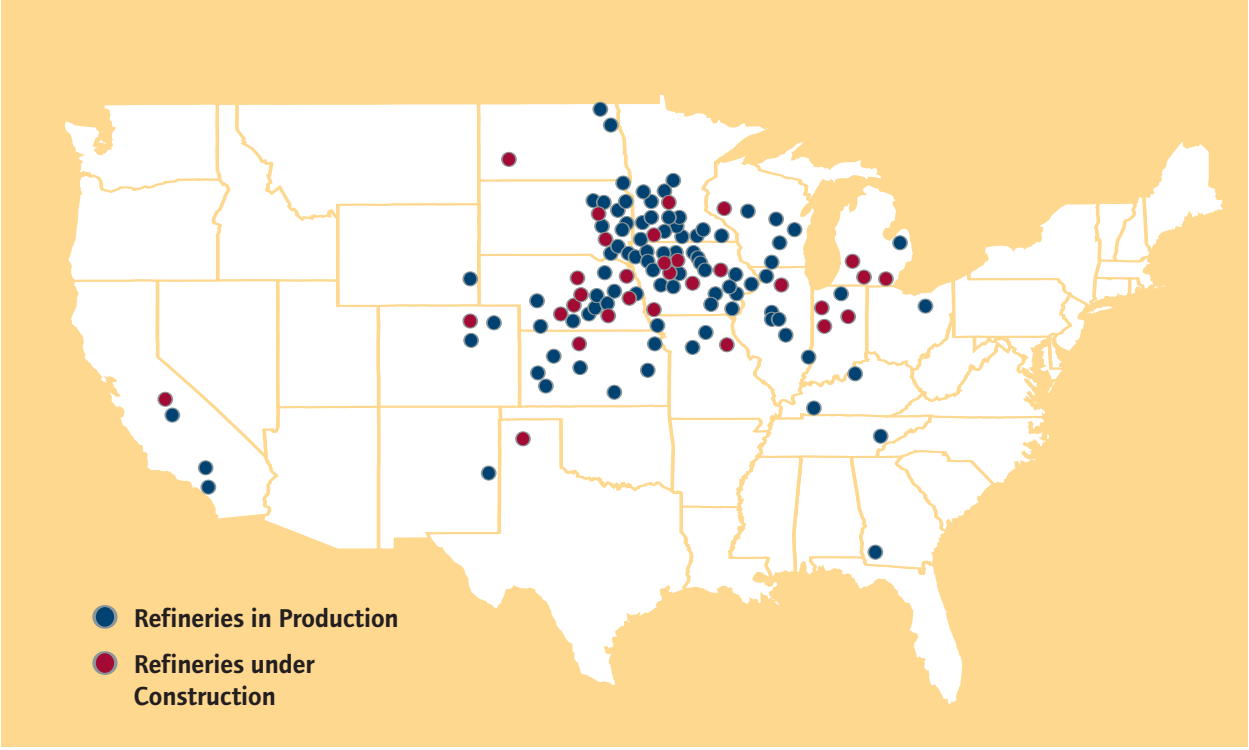
The Next Energy Revolution?

There are many reasons to encourage this trend. The production and distribution of biofuels will create new jobs, increase commodity prices and farm income, improve America's trade balance, and reduce our dependence on imported fuel and chemicals.

Substituting domestically produced sources of energy made from biomass for petroleum will addresses many economic, environmental, and national security problems as well. However, with only about 3.4 percent of our current energy consumption coming from alternative sources, including geothermal, solar, wind, and biomass, we have a considerable way to go before we can achieve energy independence.

Increasingly, crops like corn and soybeans now mostly used as animal feed and ingredients in hundreds of food products will be used to make ethanol and biodiesel. Between 2000 and 2005, worldwide ethanol production grew from 4.6 billion to 12.2 billion gallons, representing a 165 percent increase. The production of biodiesel tripled during this period, from 251 million to an estimated 790 million gallons.

Contrary to what many biofuels detractors say, recent evidence shows that producing ethanol from corn reduces petroleum use by about 95 percent on an energetic or net energy basis—when the energy replaced to make co-products such as animal feed is factored in—and reduces greenhouse gas emissions by about 13 percent.[23]



U.S. ETHANOL REFINERIES: IN PRODUCTION AND UNDER CONSTRUCTION, 2006

Source: Renewable Fuels Association.

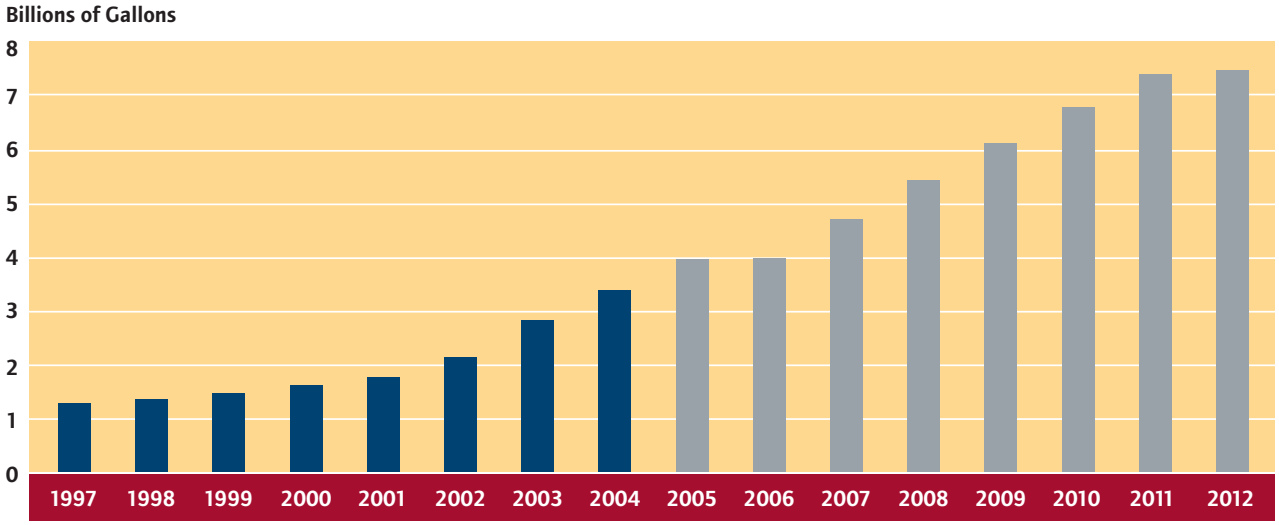
American agriculture is well positioned to play a greatly expanded role in the development and implementation of new energy solutions. A 2005 joint report of the Department of Agriculture and the Department of Energy concluded that the United States has the land base to produce over 1.3 billion dry tons of biomass a year—enough to satisfy 30 percent or more of the current national demand for transportation fuels.[24] This amount of biomass could be produced now, with only modest changes in land use and agricultural and forest management practices, without a negative impact on the production of food and fiber.

Brazil now generates almost 44 percent of its power from renewable energy sources and is the world's largest producer of ethanol. Brazil requires all gasoline to contain a minimum of 25 percent alcohol, and by 2007, all new cars manufactured in that country may be able to run on 100 percent ethanol. Brazil's ethanol program has displaced $120 billion worth of imported oil, comparable to a savings of almost $2 trillion to the U.S. economy. Brazil also intends to substitute biodiesel for 20 percent of its conventional diesel within 15 years.

The move toward biofuels will depend largely on national, state, and local resolve, particularly in driving improvements in cellulose-based technologies and distribution. If biofuels are to be competitive in the long run, more efficient transportation infrastructure, including pipelines, will have to be developed.[25] From a national policy standpoint, it may make sense to redirect existing agricultural subsidies toward sustaining demand for biofuels even if the price of oil and gas collapses.

Annual U.S. biofuel production now stands at 4 billion gallons. The Renewable Fuels Standard (RFS) established by the Energy Policy Act of 2005 requires incremental increases every year, almost doubling the requirement by 2012. Several states have set ambitious goals for the production and use of renewables. Minnesota has set the bar higher than most by adopting a 20 percent ethanol requirement, to take effect in 2013.

The Renewable Fuels Association, in its 2006 industry outlook, "From Niche to Nation" is quick to point out the RFS baseline should be viewed as a floor, not a ceiling.[26] Even so, the association estimates that the impact of the baseline by 2012 will be substantial, reducing oil imports by 2 billion barrels and the monetary outflow by $64 billion a year, creating 234,840 new jobs, increasing household income by $43 billion, adding $200 billion to GDP, and creating $6 billion in new investment in renewable fuel production facilities.



U.S. ETHANOL PRODUCTION: ACTUAL (1997–2005) & RENEWABLE FUEL STANDARD USE BASELINE (2006–12)

Source: Renewable Fuels Association.

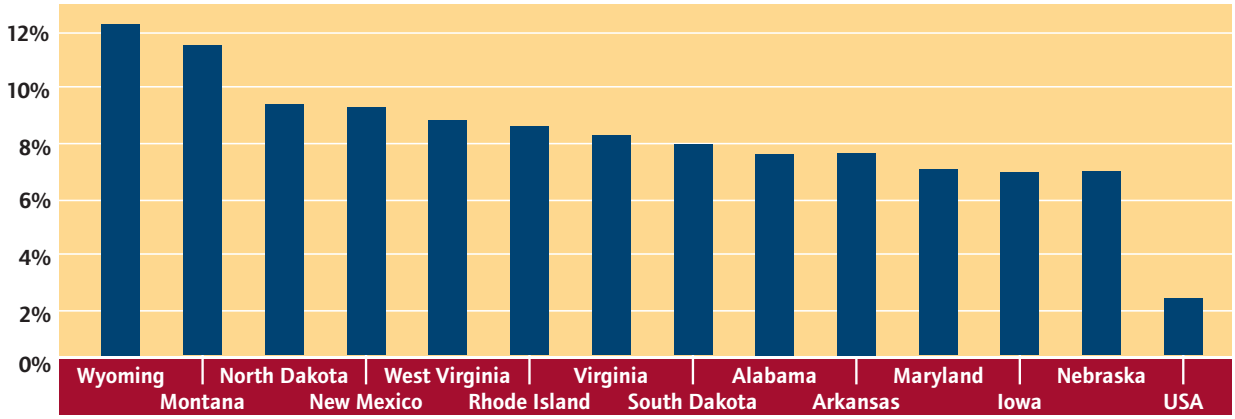
A 2005 study by the Center for Agricultural Policy and Trade Studies at North Dakota State University estimates that the RFS guidelines will also result in a rise in the price of corn.[27] The production of 7 billion gallons of ethanol from corn would result in a 6 percent increase, the production of 14 billion gallons in a 29 percent increase. Increasing the use of corn for energy would also have a positive affect on the prices of other crops. Wheat growers would receive $26.1 million more in gross revenues and soybean growers an additional $179.1 million at the 7 billion gallon threshold. At 14 billion gallons, the increased revenues would amount to $183.2 million and $1.79 billion, respectively. At both the 7 billion and 14 billion gallon levels, government subsidies to producers will decrease significantly because corn prices would be above the current target price.

The 25 x' 25 Coalition is a partnership between some of America's most prominent agricultural and business interests that is supported by former Speaker of the House Newt Gingrich and former Senate Majority Leader Tom Daschle, among other prominent political figures. The coalition wants to see foreign oil replaced with energy "from America's working lands" in the form of ethanol and biodiesel. It is working toward the production of 25 percent of the total energy consumed in the United States from these sources by 2025, along with the continued production of abundant, safe, and affordable food and fiber.[28]

The current strategy is to roll out "25 x' 25" in three phases. The first phase, already underway, is to get 50 percent of the members of Congress to agree, in principle, to the coalition's goal. The second phase, also underway, is to get state legislatures to endorse the principles of the plan. The third phase will be to draft federal legislation that would put the "25 x' 25" plan into action.

Tapping the Heartland's Fossil Fuels

There are many parts of the Heartland—such as the Dakotas, Wyoming, and Montana—where there are significant fossil fuel resources, including oil and coal. High oil prices have stimulated a new wave of exploration led, not by major oil companies, but by small "wildcat" operators. Although these entrepreneurs sell their product to the majors, they are often locally based. Such micropolitan centers as Midland, Texas, Casper, Wyoming, and Williston, North Dakota are reaping the benefits. The impact of this renewed production may already be reflected in the rising per capita income numbers in Heartland states since 2000. Energy-rich Wyoming, Montana, North Dakota, New Mexico, and West Virginia were the top five states in per capita income growth between 2000 and 2005. If the production of ethanol and other cellulose-based fuels also grows as expected, this pattern may well continue in the years ahead.[29] ■

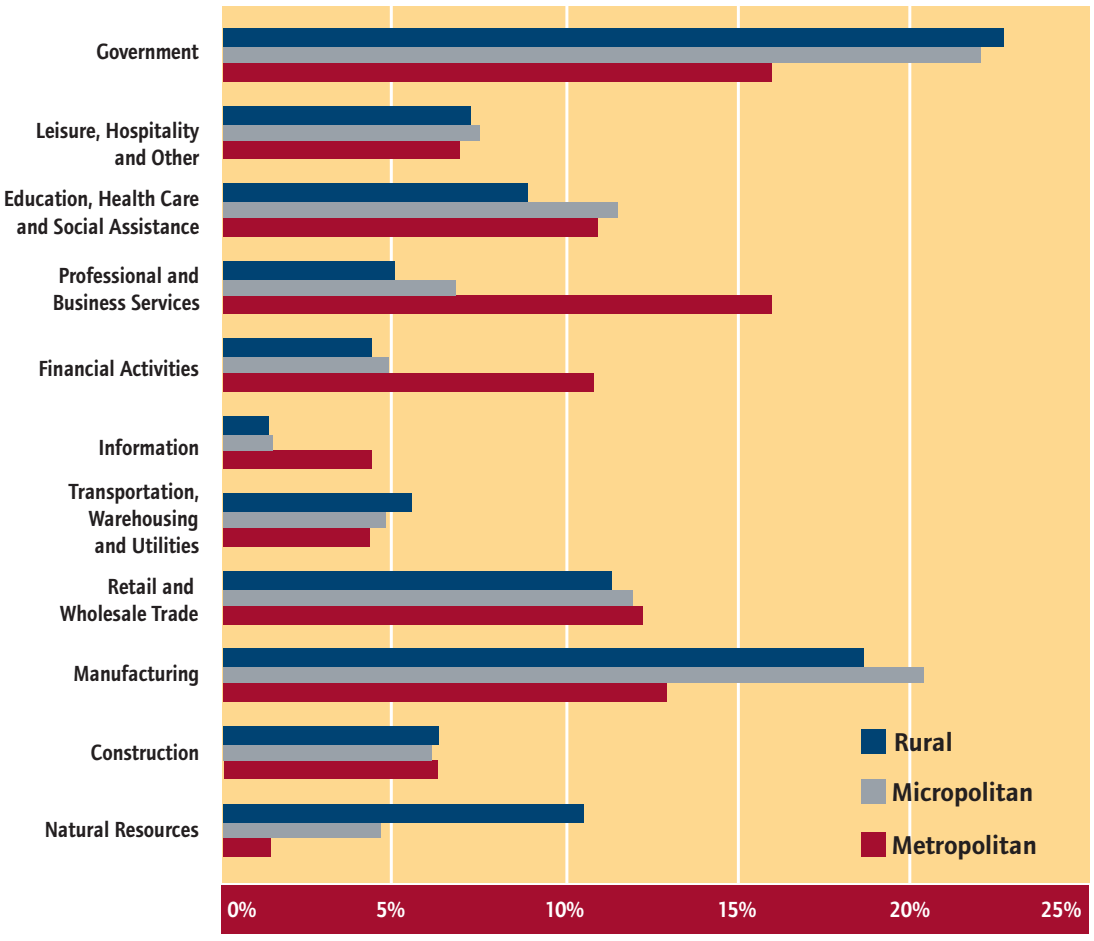


TOP TEN STATES PER CAPITA INCOME GROWTH: 2000–05

Source: U.S. Bureau of Economic Analysis; U.S. Bureau of Labor Statistics.

III. The Rise of On-shoring

As noted above, in rural areas today only 10 percent of the population lives on farms and only 14 percent of the rural workforce is employed in farming.[30] Slightly more than 10 percent of all earnings in rural areas are attributable to natural resource industries, including farming, forestry, fishing, and mining. Manufacturing now accounts for about 20 percent of earnings in micropolitan areas, and almost that much in America's most rural places.[31]



PERCENT OF TOTAL EARNINGS FOR METROPOLITAN, MICROPOLITAN & RURAL AREAS, 2003

Source: David Lenze, "Local Area Personal Income for 2001–2003, Survey of Current Business," U.S. Bureau of Economic Analysis, May 2005.

The Brain Belt: An Underemployed Resource

Clearly, rural and micropolitan areas need to find new ways to employ their skilled workforces. Although these areas are often seen as lacking in educated workers, in reality the rural regions of the country—from New England to the Great Plains and even parts of the Sierras—can be characterized as having a "skills surplus," that is, high levels of underemployment of human capital.[32]

The basis of this surplus lies in the high level of education among young people in many Heartland states. By virtually every measurement—graduation rates, college attendance, enrollment in advanced science programs—students in key rural states tend to perform better than those in more urbanized settings. In addition, the potential of the Heartland's large, growing Native American population remains largely untapped, with unemployment averaging over 20 percent on Indian Reservations.[33]

Historically, the problem has been that many of the Heartland's educated, skilled young people have had to move elsewhere to find suitable employment. However, there are signs that, in large part due to advances in communications, many of these young workers are now finding employment at home. Indeed, according to researcher Sean Moore, between 1990 and 2000 the number of rural counties with a "skills surplus" dropped by 14 percent. As Moore suggests, this may well be a result of the shift in the location of information and business services, and other technology-related business to the far periphery.[34] This has been seen with the rise of such businesses in Fargo, Sioux Falls, Des Moines, and to even smaller towns throughout the Heartland.

The On-shore Revolution

From 2002 to 2005, when the nation's manufacturing employment declined by 9.2 percent, a number of places in the Heartland showed dramatic increases. Manufacturing employment increased by 28 percent in Norfolk, Nebraska, by 20 percent in Brookings, South Dakota, by 21 percent in Grand Forks, North Dakota, by 10 percent in Fargo, North Dakota, and by 105 percent in Manhattan, Kansas.[35] In each of the counties where these communities are located well over 500 jobs in manufacturing were created, suggesting that the United States can meet international competition by tapping qualified workers in places with a reasonable cost structure.

Alien Technology, a nanotechnology firm based in Morgan Hill, California, has established a major presence in Fargo, as has Microsoft Business Solutions, which has over 2,000 employees in the area.[36] Both companies were drawn to the Heartland by lower costs and the availability of skilled labor. In some manufacturing strongholds like Brookings, South Dakota, Dickinson, North Dakota, Thief River Falls, Minnesota, and Alexandria, Minnesota, jobs are actually going unfilled, sometimes in the hundreds, because there are not enough qualified applicants.

The movement of skilled workers away from the coastal regions, driven in part by the high cost of housing, may also be drawing employers toward the Heartland. The movement of workers from California has been particularly marked; roughly half of the 973,000 tech workers employed in California had left the industry or the state by 2003. A similar movement can be seen in southwestern Virginia, which has been attracting companies and skilled workers from congested, high-cost northern Virginia.[37]

This movement into the interior has been generally overlooked amid worries about the shift of U.S. office and technical jobs offshore, which by some estimates is expected to reach 3.3 million positions by 2015.[38] But some companies, including Dell Computers, Lehman Brothers, 1-800-Flowers, and Choice, owner of the Comfort Inn, Quality, US Bank, and Clarion chains, have realized that relocating to the Heartland brings many of the same benefits as a move offshore. Surprisingly, several India-based companies have opened operations in the Heartland.[39]

At the same time, such homegrown firms as Arkansas-based Rural Sourcing, Cross USA in Eagan, Minnesota, and SEI Technology in Oak

Brook, Illinois, have grown rapidly in recent years.[40] In general, these firms report that the advantages of on-shoring include a greater receptiveness by customers as well as greater perceived security for sensitive personal information.

Although the off-shoring trend can be expected to continue, there are signs that rural and small-town on-shore employment will continue to grow. The number of call-center jobs, after dropping in the early part of the decade, has begun pick up. Many of these operations are clustered in rural communities across the country.

Gary Warren, who operates Hamilton Communications out of Aurora, Nebraska, a small town 125 miles from Omaha, employs 250 workers there, and another 250 throughout the rest of the country. With a population of 4,200, Aurora has been growing in large part due to expanding telecommunications operations. "A lot of people are coming to us and turning away from India," he suggests. "There is a strong work ethic and it's very constant. We are not dying here—we are building."[41] ■

IV. Policy Recommendations

If the Heartland's potential is to be realized, the first thing that needs to change is the mind-set of America's policymaking elites. They need to see the nation's vast interior as an essential part of a national growth strategy propelled by investment in public infrastructure and technological innovation and diffusion, and by the on-shoring of production and services.

Like the United States as whole, the Heartland has a backlog of public investment needs that are undermining America's productivity potential. Among other things, there is a shortage of rolling stock, fiber-optic capacity, and airports. In some areas, shortages of human capital in the form of skilled workers and professionals forces firms to rely more on outsourcing than they would like.

Policymakers must consider how to increase public investment in education, research and development, and public infrastructure, both to maintain domestic demand and strengthen America's productive capacity. In so doing, they will be following a time-tested formula, in which public investment in, tandem with private capital, acts as a spur to broad-based, entrepreneurial-led growth.

Building the Heartland's Talent Pool

Skilled workers drive the knowledge economy, whether in information technology, manufacturing, finance, health care, education, or business and professional services. However, many parts of the country face labor shortages that serve as barriers to economic and social development.

The National Association of Manufacturers projects that by 2020 the shortage of professionals and skilled workers could be as high as 13 million. The U.S. manufacturing sector now employs about a quarter of the nation's scientists and related technicians, and about 40 percent of all engineers and engineering technicians. Many of the organization's 14,000 members are already struggling to find qualified help.[42] Increasingly, the key challenge in the manufacturing sector will not be a shortfall of opportunities, but a shortage of qualified applicants.[43]

The shortage of professionals and skilled technicians is particularly acute in the Heartland. Given this problem, a strategy to increase international immigration of professionals and skilled workers, similar to the points-based systems now operating in New Zealand, Canada, and Great Britain, would make considerable sense.[44]

A New Homestead Act

While such a policy would help alleviate the shortage in the Heartland's burgeoning labor markets, we might also consider policies to stimulate domestic migration of young, educated people to where they are most needed—essentially getting our labor markets more in line with long-term opportunities.

Under the provisions of the proposed New Homestead Act, which is being promoted by Sen. Byron Dorgan (D-N.D.) and Sen. Chuck Hagel (R-Neb.), individuals who made a commitment to live in rural areas that have experienced long-term outmigration would receive aid to pursue a college degree, buy a home, or start a business. New businesses locating in such areas would receive tax credits. A New Homestead Venture Capital Fund would be set up to promote business development and growth in high-outmigration rural areas. The New Homestead Act has been introduced several times, each time attracting new cosponsors. However, it has not yet attracted enough support to make its way through the legislative process.

Building Off the "Brain Belt"

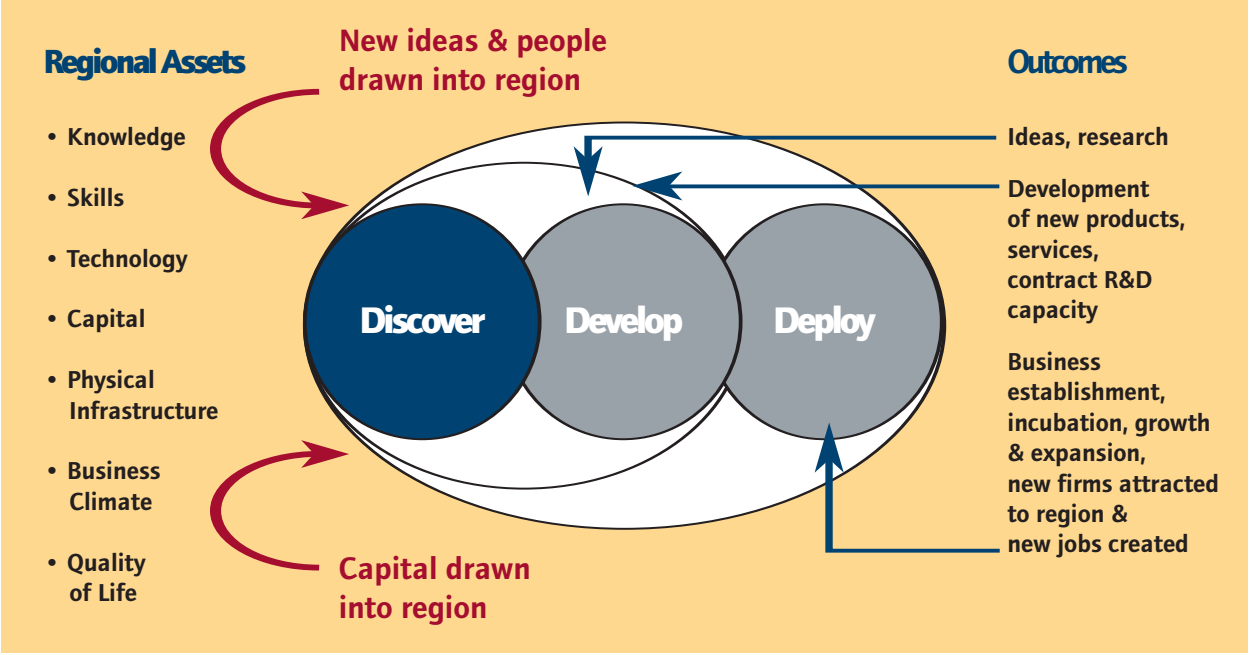
Tapping the skills of the Heartland's existing population represents by far the most efficient means to spark economic growth. As we have noted, the Heartland produces educated, skilled workers but tends to lose many of them due to a lack of opportunity. We need to regard these educated young people—and a growing number of well-educated "downshifting boomers"—as the potential basis of Heartland development in manufacturing, agriculture, energy production, and information technology.

The renowned "innovation economies" of the Silicon Valley, Boston's I-128 Corridor, and North Carolina's Research Triangle have histories that go back many decades. It is only recently that similar fruitful regional innovation initiatives have surfaced in parts of the Heartland.

The basic building blocks of regional innovation initiatives include institutions of higher learning, basic and applied research laboratories, technology transfer mechanisms, regional public and private governance organizations (e.g., trade associations, chambers of commerce, economic development organizations), financial institutions, capital investment programs, and business incubators that help weave all of these into vigorous networks.[45]

The Red River Valley Research Corridor in North Dakota represents one Heartland model of such an initiative. It links the science and technology assets of North Dakota State University in Fargo and the University of North Dakota in Grand Forks with local companies. According to recent National Science Foundation statistics, the initiative is reaping significant benefits for the state.[46] North Dakota now ranks second in academic research and development dollars per $1,000 of gross state product and fourth in net high-technology business formations as a share of all business establishments. This is an astonishing feat for a state that has historically performed very poorly in converting its scientific assets into opportunities in the technology business sector.

Other regions in the Heartland are now turning to this model of economic development. In the Black Hills of South Dakota, Black Hills Vision, a public-private partnership, is spearheading the development of a regional technology corridor, anchored by an effort to secure a deep underground science and engineering laboratory for the closed Homestake Gold Mine. Black Hills Vision's goal is to create 1,000 new technology companies in the region. To achieve this goal, it is partnering with the National Network for Technology Entrepreneurship and Commercialization. The N2TEC collaborative, made up of research universities and private companies, will identify, vet, and transfer viable technologies, commercialization expertise, and resources to businesses while working with the region's communities to create an environment conducive to tech-based development.



REGIONAL INNOVATION AND COMPETITIVENESS

Source: Adapted from *Global Knowledge Flows and Economic Development*, OECD Publishing, 2004.

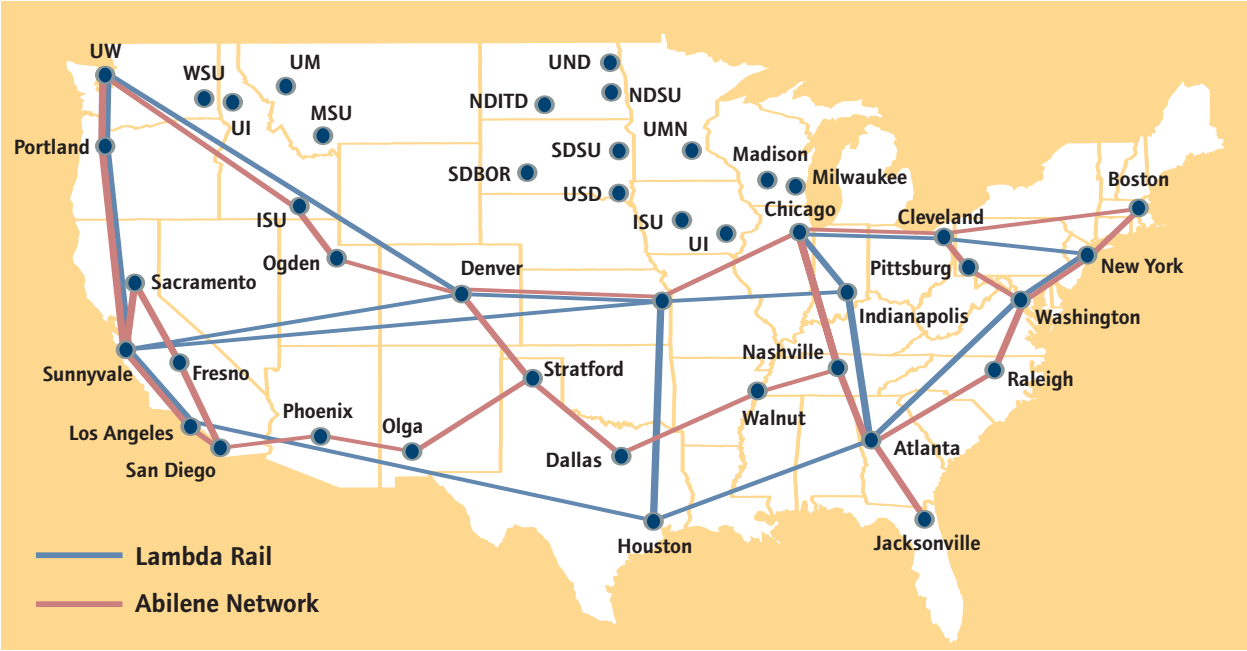
Similarly, in the Wenatchee Valley of north central Washington, the Advanced Vehicle Initiative is underway to establish the region as a center for research and design, production prototype testing, and maintenance and manufacturing activities for advanced vehicles and fuels. The initiative builds on the region's publicly owned hydroelectric system, which provides clean, low-cost renewable power on a robust grid, and a community college with training facilities and the will to develop curricula for this emerging technology. The initiative is primarily focused on plug-in electric vehicles, but it will also incorporate research in other technologies in the future, with energy independence as its goal.

Like the Red River Valley Research Corridor, the Wenatchee Valley initiative has successfully employed technology "action summits" as a means to connect with key partners in business, government, and research facilities from outside the region whose interests are aligned with its own. Action summits are essentially temporary economic agglomerations that link a local economy with capabilities and market opportunities not readily available in locations outside the major metropolitan areas of the country. They also facilitate rural-urban linkages critical to the growth of rural and micropolitan regional economies.[47]

The Federal Role

Such initiatives usually can and should be funded locally. But the federal and state governments can play a critical role by promoting the development of essential infrastructure, such as high-capacity telecommunications networks and readily accessible connections to travel and transport. Lack of such services today severely limits the opportunities to expand technology-based businesses to rural and micropolitan areas.

Above all, the integration of the Heartland into the global economy requires major investments in broadband telecommunications infrastructure. Where private-sector telecom companies are unable or unwilling to invest in this technology, local business groups or municipal networks should be encouraged to expand broadband service.



HIGH SPEED OPTICAL NETWORKS FOR RESEARCH, EDUCATION, AND BUSINESS

Source: Northern Tier Network Consortium, 2005.

In the interests of research and education, extending the existing optical networks for high-performance computing to the northern part of the central United States should be a priority—much as rural electrification was in the New Deal era. Currently, this the only region in the country without such a network, but Congress has now acted to provide funding to rectify this gap.

The Heartland's economic integration also depends on national and international access for business travelers. This will require sustaining the regional hubs for commercial air carriers and, equally important, facilitating intraregional business travel by supporting point-to-point carriers and essential air service.[48] It is also essential that the intermodal (rail/truck/air) transport network be extended throughout the country so that manufacturers, farmers, timber producers, and food processors can get their products to national and international markets quickly and efficiently.

Energizing Agriculture and Encouraging Innovation in Small and Medium-Sized Farms

Energy crops and higher-value products in crops and livestock hold significant potential for the future of Heartland agriculture. This is particularly the case for the many small and medium-sized independently owned family operations that now make up the majority of American farms dotting the countryside.

Maximizing the production of biomass for the production of energy crops will best be accomplished by establishing a national alternative energy production target of at least 25 percent. This could help reduce the nation's dependence on foreign oil while building domestic production capacity for biodiesel, ethanol, and wind-generated energy. As noted above, such a step might also result in the reduction and even the elimination of subsidies for many crops.

Moving from dependence on the Middle East to Heartland self-reliance will require substantial investment in research in crops with higher energy

yields and lower environmental impact, as well as the development of new technologies for the production of cellulosic ethanol and sustainable agriculture practices.[49] The U.S. Department of Energy recently announced that it will spend $250 million to establish and operate two new bioenergy research centers to accelerate basic research on the development of cellulosic ethanol and other biofuels in order to move toward the goal of replacing 30 percent of transportation fuels by 2030.

Intraregional and community models for energy independence should include investments in consumer-supported energy markets and small-scale energy production and utilization.

Resources should be applied to empower farmers to participate in high-value-product export markets. The Department of Agriculture has issued regulations regarding animal identification systems slated to take effect in 2009. Supporting the development and adoption of information systems that enable the traceability of crops and livestock is essential.

Finally, fostering the development of local food systems, including consumer-supported agriculture, specialty markets for smaller producers, organic products, and other high-value products must be a key element of agricultural policy and funding priorities. Local food systems have the potential to reduce dependence on national distribution systems, and thus energy consumption, while meeting the growing consumer demand for stronger ties to producers and more information about the quality and safety of food.

A Heartland Development Bank

Infrastructure is essential to business investment and job creation, and for linking people and communities with the knowledge and ideas that drive productivity.[50] Building the productive capacity of the New American Heartland will require significant investment by both the public and private sectors.

A development bank, modeled after the Inter-American Development Bank or the California Infrastructure and Economic Development Bank, would be a timely and powerful tool for making infrastructure improvements and fostering the innovations that will reshape the Heartland's economic landscape. We propose the establishment of the American Heartland Development Bank (AHDB) with $10 billion in funds for financing infrastructure development projects as well as trade and regional innovation and competitiveness programs. The bank's capital would be subscribed by members within the Heartland and could include the federal and state governments, national and state-chartered banks, investment funds, state retirement funds, local and regional development organizations, corporations, university alumni foundations, and other interested groups. Non-Heartland members could also subscribe to the fund and would benefit by having preferred status as suppliers of goods and services for AHDB-financed projects.

The bank's resources would include callable capital and paid-in capital from AHDB members, as well as reserves and funds borrowed in international markets. The bank should be structured so that only 5 percent of the $10 billion is paid-in. The remaining 95 percent would be callable capital based on the implementation of approved projects in need of financing.

The bank would make investment loans in telecommunications and transportation infrastructure, energy production facilities and distribution infrastructure, water projects, and specialized science/technology/training facilities and centers.

Unlike earlier periods of infrastructure expansion, which were often uniformly national or regional in scope, today's infrastructure needs related to economic development are often tied to the specific circumstances and aspirations of the local economy. It is important, therefore, that local resources be leveraged to the greatest extent possible in making the investments in infrastructure that will create new economic opportunities.

Evidence from abroad shows that investing in infrastructure can be profitable. Australia's Macquarie Bank, for example, has earned an average return of 19 percent on its infrastructure investments over 11 years.[51] ■

V. Conclusion: The Heartland Opportunity

In many ways, the American Heartland today boasts better prospects than at any time since the early 20th century. We live in a world where high-speed communications are telescoping the distance between urban centers and the far periphery. Demographic factors, such as the aging of the population, may also work to the region's benefit, as workers tend to move further out from the urban core as they age.[52]

It is in the interest of the nation to implement a strategy that reinvigorates our Heartland region. Some, of course, will oppose these measures as detrimental to the aesthetics of empty spaces. Paul Ehrlich, among others, has proposed a near absolute ban on new roads, which would surely cut the countryside off from the rest of the country. Another commentator has suggested that extending broadband to the countryside would produce "an environmental disaster of the first magnitude" because the movement back to the country this would permit would lead to the "massive destruction of [America's] remaining forests, open land and wild flora and fauna over the next few decades."[53]

This notion of an endangered rural landscape is often raised, particularly in the Northeast. However, the United States is likely to remain a nation in which an overwhelming portion of its land mass is devoted to agriculture, pasturage, or wilderness. Although agricultural acreage has dropped somewhat, there is still nearly 15 times as much land devoted to agricultural use in the United States as there is urban space. In fact, open space has grown much faster—by a factor roughly of ten times—than urban areas, which is a trend that should be encouraged for the sake of future generations. We certainly should husband our farmland, and natural resources, but the notion of not repopulating large parts of the country based on a perception of "scarcity" seems absurd.[54]

We should not attempt to freeze nonmetropolitan America into some sort of demographic and economic still life. Instead, we should embark on the intelligent reinvigoration of the Heartland as a critical strategic aspect of a renewed American growth strategy. The Heartland can provide the nation with an outlet for its expanded population and business with a locale for the production of globally competitive goods and services.

The development of the American Heartland will also allow the nation to reconnect with its historical strengths as a great, open continental nation. This has always differentiated us from such competitors as Britain, France, Germany, and Japan. Indeed, even after the frontier "closed," as the historian Frederick Jackson Turner pointed out, America's huge landmass helped define "the expansive character of American life." It absorbed "that restless, nervous energy…which comes with freedom."[55] As we grow to a nation of 400 million people, we will need to tap that spirit more than ever. We should cherish our vast Heartland not only for its contribution to our past but as a primary source of inspiration, growth, and knowledge in the years that lie ahead. ■

A Heartland Development Strategy Policy Agenda

Build the Heartland's Interoperability with the National/ International Economy

- Build out the broadband telecommunications infrastructure to ensure access anytime and anywhere for all users and extend the existing optical network for high-performance computing to the only regions where this does not exist—the north central and northwestern parts of the United States.

- Ensure national and international access for business travelers by sustaining the regional hubs for commercial air carriers and, equally important, facilitate intraregional business travel by supporting point-to-point carriers and sustaining essential air service.

- Expand the internodal (rail/truck/air) transportation network so that manufacturers, agricultural and forestry producers, and food processors can reach national and international markets.

Cultivate the Talent Pool in the Heartland

- Foster technology literacy in K-12 education, with the goal of encouraging more students to pursue science, math, and engineering careers.

- Mobilize existing assets by encouraging colleges and universities to develop curricula more closely aligned with the needs of core regional industries as well as emerging science and technology-based industries.

- Provide educational and housing incentives to encourage individuals to move to the Heartland—through a New Homestead Act—in order to overcome the shortage of professional, management, and technical talent (business entrepreneurs and managers, medical personnel, teachers) there.

- Encourage the immigration of foreign professionals and skilled workers through 1) the creation of a new category of skilled immigrants who would enter the country with permanent residency status based on a points system, and 2) programs to help universities recruit international students.

Energize Heartland Agriculture

- Establish a national alternative energy production target of at least 25 percent in order to reduce U.S. dependence on foreign oil while building the nation's domestic production capacity of biodiesel, ethanol, and wind power.

- Mobilize a research program for dedicated energy production technologies that will lead to higher yields of energy while minimizing the environmental impact of such production. The U.S. Department of Energy's initiative to establish and operate two new bioenergy research centers to accelerate basic research on the development of cellulosic ethanol and other biofuels is a step in the right direction.

- Develop new intraregional and community models for energy independence, including consumer-supported energy markets and small-scale energy production and utilization.

Stimulate Innovation in Food Trade Opportunities for Small and Medium-Sized Farms

- Empower farmers to participate in high-value-product (HVP) export markets by supporting the development and adoption of information systems that enable the traceability of crops and livestock.

- Foster the production of organic and other high-value products and the development of local food systems and specialty markets for smaller producers, including consumer-supported agriculture (CSA). Local food systems have the potential to reduce dependence on national distribution systems requiring higher energy consumption for shipping to consumers.

Build Regional Innovation and Competitiveness Initiatives

- Support the strategic planning for and development of collaborative regional initiatives involving business, institutions of higher learning, financial institutions, workforce training and development agencies, the federal and state governments, and other economic stakeholders.

- Foster integrating mechanisms that facilitate interregional technology transfers to improve innovation and competitiveness, such as the National Network for Technology Entrepreneurship and Commercialization (N2TEC), which makes technologies created at major universities and Fortune 1500 companies available to entrepreneurs and companies throughout the nation.

- Develop and capitalize a $10 billion American Heartland Development Bank to provide financing for the development of infrastructure (telecommunications, water supply, highways, airports, multimodal shipping centers) and the construction of specialized science and technology facilities. ■

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