



# CENTRAL INDIANA

UNDERSTANDING THE REGION AND IDENTIFYING CHOICES

CENTER FOR URBAN POLICY AND THE ENVIRONMENT

JUNE 2001

## Built Investment in Central Indiana and the United States, 1990–99 *Some Troubles Ahead?*

Investment in buildings and infrastructures—“built investment”—creates a foundation for economic and social development. Understanding how Central Indiana compares to the rest of the United States therefore is important to increase our knowledge about how to improve and influence future development and growth within the region. This report offers a profile of how built investment in Central Indiana compares to the nation as a whole. By doing so, it shows the sectors such as residential and water/sewer construction in which regional investment appears to be much like U.S. investment, but

also identifies several crucial sectors such as education and health where investment trends in Central Indiana appear to be lagging far behind the national trend. To the extent these sectors represent important components of the new economy, falling behind national trends may be an early warning that Central Indiana should strengthen built investment in specific areas and business sectors. Should public policymakers be concerned? This report identifies a few sectors where alarms should be ringing.

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### Comparisons with National Shares and Trends are Possible

How does the composition of built investment in Central Indiana compare to that of built investment elsewhere? This report analyzes cost of construction data compiled by F.W. Dodge for the 1990–99 period in the Central Indiana region (see back page).<sup>1</sup> However, because the data measuring built investment in Central Indiana is a proprietary database from F.W. Dodge, comparisons with other regions for which no such data have been obtained present a challenge. The Economics and Statistics Section of the U.S. Department of Commerce compiles regular reports on the annual value of construction put in place in the United States (CPIP).<sup>2</sup> In fact, the CPIP data actually begin with Dodge data. Unfortunately, the Dodge data cannot be directly compared to CPIP because, based on subsequent updates of construction costs, the CPIP data reflect more than just the original construction cost that forms the

basis of Dodge reports, including profit and the costs of architectural and engineering services. In short, the CPIP data are based on more than just the Dodge cost estimates, and reflect higher estimated amounts of investment activity. As a result, normalization measures such as per capita spending cannot be used.

There are two effective ways, however, to compare the Central Indiana built investment patterns with U.S. construction

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<sup>1</sup> The Dodge data are collected nationally on a daily basis by approximately 350 full-time and another 100 part-time reporters who visit architects, engineers, public agencies, planning and zoning boards, and other venues to gather detailed information about construction projects. The reporters follow the progress of a project from start to finish, with the data compiled into regular summaries, entitled Dodge Reports, which are purchased by subscribers. The data analyzed here are a historical compilation drawn from information contained within Dodge reports.

<sup>2</sup> The CPIP reports for various years are available at <http://www.esa.doc.gov>.



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figures. One way of assessing this question is to examine the pro rata shares of built investment in the United States as a whole and Central Indiana in some of the construction categories. For instance, the share of total construction in health facilities for Central Indiana can be compared to the same measure nationally. A second way is to examine the real annual change using trend lines in Central Indiana compared to the United States. For example, is investment in health-related built investment in Central Indiana increasing or decreasing in patterns similar to the nation? Some of the U.S. categories are compared directly to the Central Indiana categories (e.g., residential, streets, health), while other categories reflect a mix of those used in the Central Indiana analysis (e.g., business, education).

## Central Indiana Built Investment Shares are Similar to U.S. Construction

As for pro rata shares, the Central Indiana region looks much like the nation as a whole. Table 1 makes comparisons between the proportional shares of total investment in Central Indiana with selected categories of CPIP in the United States for the 1990–99 period.

The categories shown for the CPIP data are roughly comparable to the data assembled in the Dodge reports. In general, the comparison suggests that built investment in Central Indiana is similar to the United States as a whole, with a few exceptions. In particular, for the largest single category of construction, residential structures, proportional shares of construction spending are very close, although Central Indiana’s share is greater than the U.S. share. Public investment in housing within Central Indiana is slightly less than the nation as a whole. Shares of total spending for several infrastructure systems are very similar, too (e.g., water and sewer). The splits between public and private investment also are similar, with the Central Indiana region showing evidence of only a slightly higher proportion of public investment than the United States.

The categories reflecting business-related structures, whose compositions are not directly identical but are roughly comparable, also suggest that the shares of total built

**Table 1: Comparisons of Shares of Built Investment in Selected Construction Categories, 44 Counties in Central Indiana Versus Construction Put-in-Place in the United States, 1990–99**

Construction Categories	Shares of Total Investment	
	United States	Central Indiana
Total private investment	76.8%	74.9%
Total public investment	23.2	25.1
Residential	45.0	47.9
Public	0.8	0.5
Private	44.2	47.4
Streets	6.9	7.6
Water	1.0	1.3
Sewer	1.7	1.6
Education	5.7	8.6
Public	4.6	7.8
Private	1.1	0.8
Health/hospitals	2.8	3.4
Public	0.7	0.8
Private	2.1	2.6
Telecommunications	2.0	0.2
Business and industry	20.1 *	18.8 **

\* Includes industrial, office, hotels, other commercial

\*\* Includes commercial, warehouse, labs, manufacturing

SOURCE: Data adapted from U.S. Department of Commerce, Economics and Statistics Administration, Construction Put-in-Place, September 1, 2000, Table 1; and F.W. Dodge construction reports

investment sunk into commercial and industrial activities in Central Indiana and in the United States are similar, although proportionally somewhat less in the region. But in comparison to U.S. totals, Central Indiana is investing larger shares in streets, education, and health, which could be considered a positive sign. However, as the trend lines explored below show, Central Indiana’s trend in annual construction expenditures on streets, health, and education in the 1990–99 period compare unfavorably to U.S. trends.

A possibly troubling area of built investment is in telecommunications. A substantially smaller share in telecommunications was invested in Central Indiana compared to the United States. The Central Indiana telecommunications share of construction spending was less than the U.S. share by a factor of 10. The implications of this divergence deserve more comment given the pre-eminence of telecommunications in



the evolving new economy. Telecommunications construction spending at 2 percent of total investment (i.e., the national rate) in Central Indiana would have equaled \$892 million rather than the \$72.6 million that was actually spent—a sizeable shortfall. This suggests Central Indiana is under-investing in the important telecommunications infrastructure.

## Central Indiana Trends in Education, Health, and Transportation Lag National Trends

Another way of comparing the region to the nation is to examine the annual changes in built investment from 1990 to 1999. Central Indiana is both similar and different from the nation as a whole when the trends in annual investment for the 1990–99 period are analyzed. Figures 1–7 compare Central Indiana trends to U.S. trends for several different types of construction activity. These trend lines take 1990 as the base year and compare each year's investment to the level in 1990. Thus, 1990 as the base year is set to 100, and the subsequent years can be read as annual percentage changes from the base year, much like a consumer price index. This comparison yields both good and bad news for built investment trends in Central Indiana. Looking at the total, business, residential, and manufacturing sectors, Central Indiana building construction trends either closely track or exceed the overall U.S. trends. But as compared to the nation, the region's trends in education, health, and street construction are a different matter, falling behind U.S. trends.

A comparison of trends in total construction is shown in Figure 1. Trends in the 1990–99 period follow one another very closely for total construction investment. It appears that annual changes in the volume of overall construction since 1990 in Central Indiana were quite similar to the U.S. trend during the same period. Likewise, if you compare the trends for general business construction on commercial, office, manufacturing, warehouses, and the like (see Figure 2), Central Indiana's performance also is very similar to the U.S. trend, with both regional and U.S. expenditure trends spanning the decade simply regaining the level of business construction they reported in 1990.

Figure 1: Real Change in Annual Total Construction  
Base year=1990=100

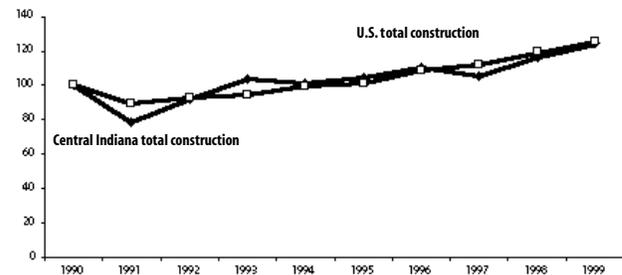


Figure 2: Real Change in Annual Commercial Construction  
Base year=1990=100

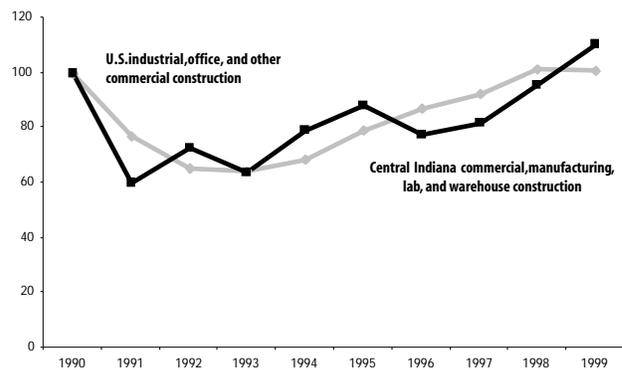
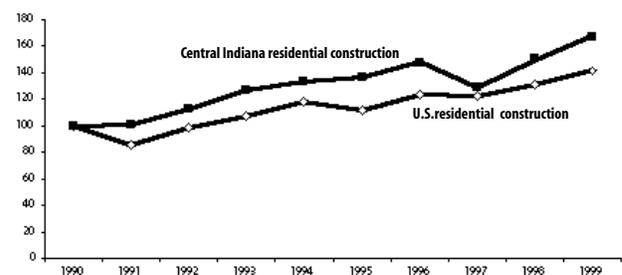


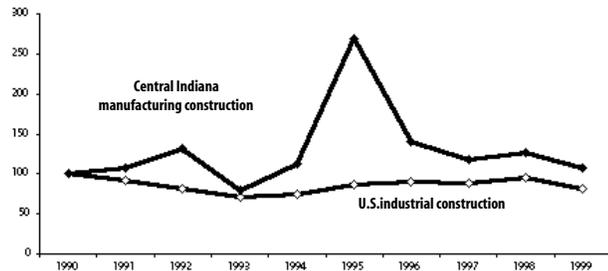
Figure 3: Real Change in Annual Residential Construction  
Base year=1990=100



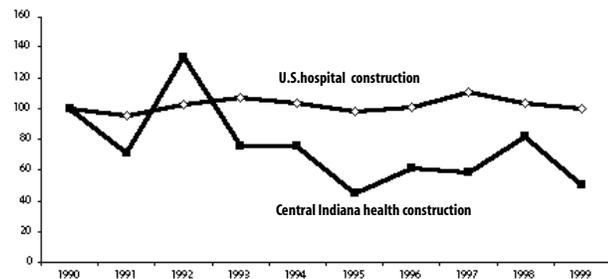
For some sectors, Central Indiana trends are greater than comparable U.S. trends in the 1990–99 period. As shown in Figure 3, the 10-year trend for Central Indiana residential construction has increased at a higher rate than the U.S. residential trend. By 1999, residential construction in Central Indiana was more than 60 percent greater than in 1990, while



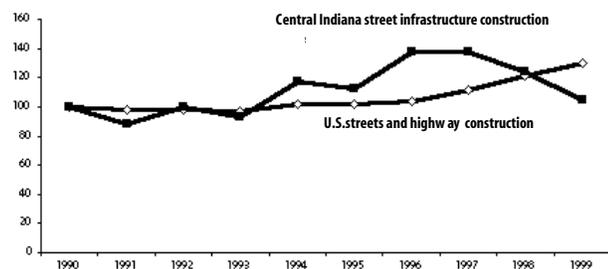
**Figure 4: Real Change in Annual Manufacturing Construction**  
*Base year=1990=100*



**Figure 5: Real Change in Annual Hospital Construction**  
*Base year=1990=100*



**Figure 6: Real Change in Annual Street Infrastructure Construction**  
*Base year=1990=100*



the U.S. residential trend had increased by only 40 percent. Similarly, Figure 4 indicates that manufacturing construction in Central Indiana since 1990 also has exceeded the U.S. trend, and generally stayed above the 1990 level while U.S. industrial investment remained below its 1990 volume. The extreme peak in 1995 was linked to a \$149.8 million investment in motor vehicle-related manufacturing in Howard County (Kokomo), the site of several major motor vehicle and parts manufacturing

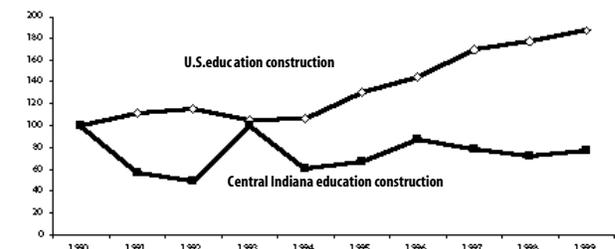
facilities. The difference in the regional and national trends in part reflects the much more central importance of manufacturing to the underlying economic structure of the Central Indiana region.

However, comparisons to national trends are not as positive for other selected Central Indiana construction sectors. For example, there is a marked divergence from the national trend in the 1990–99 levels of health facility construction in Central Indiana (see Figure 5). After a peak well above the U.S. trend in 1992, health construction in Central Indiana had declined by 1999 to about one-half the level it was in 1990. During the same period, U.S. hospital construction essentially stayed flat, but it did not lose ground compared to 1990.

As shown in Figure 6, until 1996 the Central Indiana trend in street infrastructure construction was tracking or even exceeding the U.S. trend levels. But thereafter, Central Indiana began to decline toward its 1990 level of street construction, at the same time that the overall U.S. trend in streets and highway construction began a slow but steady increase.

Perhaps the most serious shift away from national trends occurred in education construction in Central Indiana (see Figure 7). Expenditures for educational facility construction in Central Indiana have been hovering around 80 percent of 1990 levels, while for the United States, education construction had increased by 1999 to 180 percent of its 1990 level. The Central Indiana trend was moving opposite that of the nation as a whole. However, as shown in Table 1, the region had a higher share of total construction in education than the United States, so Central Indiana educational investment may be starting to improve.

**Figure 7: Real Change in Annual Education Construction**  
*Base year=1990=100*





## Lagging Investment Trends May Spell Trouble for Central Indiana

Two basic questions emerge concerning the differences between trends in construction spending in Central Indiana and the United States. First, why do these differences in the 1990–99 trends exist? And second, do the differences matter to regional economic development and the quality of life within the region?

One plausible reason for the differences could be the age of infrastructure and buildings, which might be somewhat older in Central Indiana than in other newer and faster-developing areas (e.g., the southwest and southeast). With older structures, more investment in Central Indiana may be linked to additions or alterations rather than new construction, pushing total construction values downward in areas where more modifications than new construction are occurring.<sup>3</sup> Generally, though, this does not appear to be the case. Table 2 (see page 6) indicates that about three-quarters of built investment in Central Indiana was for new construction rather than alterations and additions.<sup>4</sup> However, the reliance on new construction varies with different categories. Some sectors (e.g., health and education) have a large stock of existing structures that require modifications rather than new construction. In Central Indiana, nine of every 10 dollars invested in residential construction activity was new, while only four of 10 dollars invested in education was for new construction. Nearly 60 percent of health investment was in additions and alterations. In five of 17 built investment categories, alterations and additions accounted for more than one-half of the decade's investments in Central Indiana, but these generally are infrastructure (i.e., education, health, streets, waste, and water investments). It is possible that in other faster-growing regions, separate new facilities are being added to the fixed capital of the region that inflates the total value of built investment.

Another reason could simply be fiscal decision making. Central Indiana public policy choices may lead to lower levels of investment by the public sector, which would force totals lower. In fact, in 1996, the state of Indiana was ranked 39th (that is, at the 22nd percentile) among all states in per capita

capital outlays by state and local governments.<sup>5</sup> By this measure, public capital investment in Indiana clearly is low. A comparative study from the mid-1990s of infrastructure spending by municipal governments in Indiana and Texas found that per capita spending in Indiana was lower in all categories of infrastructure investment even after controlling for the effects of economic growth, population change, governmental form, cross-sectional differences, and time trends.<sup>6</sup> This is a significant point because Central Indiana policymakers at both the state and local levels have substantial influence over public expenditures for health, street, and educational infrastructure. Decisions to simply spend less on these critical sectors may be placing Central Indiana and its local jurisdictions farther behind other regions. The trends in Central Indiana in the education and health sectors fall far short of the nation as a whole.

As for the question of how lagging investment trends might affect regional economic development in Central Indiana, certainly the prospects for the region will not be greatly improved by a slowing rate of investments in crucial sectors such as education and health. Key areas of investment for the new economy are information technology and telecommunications, as well as the life sciences. The region's investment in telecommunications was proportionally much smaller than the nation as a whole. The life science category—a key economic and strategic strength of the Central Indiana region—includes laboratories and health facilities that can serve as fundamental components of the research infrastructure for breakthroughs in genomics and other health innovations. The decline in Central

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<sup>3</sup> This assumes that new construction costs more than renovation or additions, which may not be the case.

<sup>4</sup> The U.S. construction put-in-place data do not systematically distinguish between new construction and other types. As a result, comparisons between new building and additions cannot be made here with U.S. figures.

<sup>5</sup> U.S. Bureau of the Census. *State and Local Governmental Finances, 1997 Census of Governments*. Washington, D.C. Accessed 4-25-01. <http://www.census.gov/govs/www/estimate97.html>.

<sup>6</sup> Nunn, S. (1996, March). Urban Infrastructure Policies and Capital Spending in City Manager and Strong Mayor Cities. *American Review of Public Administration* 26(1):93–112.



**Table 2: Total Investment in Built Structures by Construction Category and Type of Construction Activity, 1990–2000**  
(Constant 1992 \$000. All 44 Counties in Central Indiana)

	Type of Construction Activity			Totals
	New Construction	Alteration	Addition	
Telecom infrastructure	\$47,293	\$16,241	\$9,142	\$72,676
Percent by construction activity	65.1%	22.3%	12.6%	100%
Commercial	\$3,407,678	\$1,085,478	\$477,163	\$4,970,319
Percent by construction activity	68.6%	21.8%	9.6%	100%
Culture/recreation/religion	\$757,849	\$220,290	\$530,797	\$1,508,936
Percent by construction activity	50.2%	14.6%	35.2%	100%
Education	\$1,518,900	\$692,552	\$1,688,538	\$3,899,990
Percent by construction activity	38.9%	17.8%	43.3%	100%
Government	\$565,575	\$132,713	\$99,874	\$798,162
Percent by construction activity	70.9%	16.6%	12.5%	100%
Health	\$668,723	\$352,098	\$541,861	\$1,562,682
Percent by construction activity	42.8%	22.5%	34.7%	100%
Laboratories	\$314,931	\$69,615	\$58,109	\$442,655
Percent by construction activity	71.1%	15.7%	13.1%	100%
Manufacturing	\$916,502	\$147,114	\$420,187	\$1,483,803
Percent by construction activity	61.8%	9.9%	28.3%	100%
Zoological/animal facilities	\$49,868	\$12,589	\$10,061	\$72,518
Percent by construction activity	68.8%	17.4%	13.9%	100%
Power/gas infrastructure	\$516,636	\$52,082	\$83,060	\$651,778
Percent by construction activity	79.3%	8.0%	12.7%	100%
Street infrastructure	\$1,245,107	\$1,472,111	\$354,216	\$3,071,434
Percent by construction activity	40.5%	47.9%	11.5%	100%
Transportation	\$376,112	\$87,178	\$69,531	\$532,821
Percent by construction activity	70.6%	16.4%	13.0%	100%
Warehouse	\$1,224,282	\$73,746	\$261,404	\$1,559,432
Percent by construction activity	78.5%	4.7%	16.8%	100%
Waste Infrastructure	\$258,318	\$202,336	\$176,474	\$637,128
Percent by construction activity	40.5%	31.8%	27.7%	100%
Water Infrastructure	\$220,653	\$177,835	\$109,868	\$508,356
Percent by construction activity	43.4%	35.0%	21.6%	100%
Residential	\$21,405,204	\$371,103	\$62,989	\$21,839,296
Percent by construction activity	98.0%	1.7%	0.3%	100%
Parks/landscape/outside recreation	\$899,794	\$101,469	\$35,040	\$1,036,303
Percent by construction activity	86.8%	9.8%	3.4%	100%
Totals	\$34,393,425	\$5,266,550	\$4,988,314	\$44,648,289
Percent by construction activity	77.0%	11.8%	11.2%	100%

Source: Data adapted from F.W. Dodge construction reports. Period reported is January 1990–March 2000.



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Indiana's investments in health facilities, when compared to overall national growth, may set the stage for fewer innovations and less development within the region's important life science sector.

Furthermore, the quality of life in the region is greatly affected by the three areas in which Central Indiana lags behind national trends: education, health, and transportation. Health and education are major components of the social infrastructure of the region, while transportation is part of both the social and economic infrastructure that enables basic circulation and commuting within the region. All three sectors of investment are critical to the social well-being and future development of all the region's households. From an economic development perspective, business firms seeking profitable and competitive locations often focus on the education and health infrastructures of regions because of their importance to the quality of life desired by company executives and employees. The future social and economic trajectory of Central Indiana will face serious challenges by having to play "catch-up" just to stay even with built investment trends elsewhere.

## **Policymakers Should Investigate Increasing Built Investment in Health, Education, and Infrastructure**

The comparisons of Central Indiana built investment to that of the United States clearly suggest that in some crucial areas the region has not kept up with national trends. In particular, the education, transportation, and health sectors in Central Indiana have fallen behind the investment trends underway in the United States. These sectors absolutely are crucial to establishing and maintaining competitive success in the new economy. The new economies of knowledge production in information technology, life sciences, and advanced manufacturing have become key objectives for the Central Indiana economy—indeed, for the entire state. To that end, state agencies such as the Department of Commerce and nonprofit organizations such as the Indiana Technology

Partnership have begun to promote ways to create and improve Indiana's "new economy." Lags in the level of investment in education, health, and telecommunications may do serious damage to Central Indiana's standing in the new economy and its capacity to engage in successful competition with other regions. If the investment gap grows wider, as it appears to have done in the 1990s, Central Indiana, if not the entire state, will be faced with even greater divergence from other regions that are pulling farther ahead in the construction of the built environment.

Central Indiana policymakers need to understand more about how built investment in the region can influence development and the move toward a new economy. These indicators of lagging investment trends may be an early warning for public officials and business leaders that they should seek information about why investment in education, health, and other selected sectors seems to be falling behind the nation as a whole. For example, how does built investment in Central Indiana compare to investments in other regions with burgeoning new economies such as Austin, Sacramento, and Raleigh-Durham? Should investments in Central Indiana be increased? What kinds of impacts on income, employment, and innovation can be expected if policymakers direct more resources into telecommunications, infrastructure, and the life sciences? More sustained analysis of built investment may be needed to ensure a strategic niche for Central Indiana's future.



## Central Indiana's Future: Understanding the Region and Identifying Choices

The Center for Urban Policy and the Environment has launched a new research project—Central Indiana's Future: Understanding the Region and Identifying Choices—funded by an award of general support from the Lilly Endowment. The aim of the project is to increase understanding of the region and to inform decision-makers about the array of options for improving the quality of life for Central Indiana residents. Researchers from several universities are working to understand how the broad range of investments made by households, governments, businesses, and nonprofit organizations within the Central Indiana region contribute to quality of life. The geographic scope of the project includes 44 counties in an integrated economic region identified by the U.S. Bureau of Economic Analysis.

This report explains strengths and weaknesses of Central Indiana investment in buildings and infrastructure (built investment) by drawing comparisons to construction put-in-place in the United States during the 1990s. One comparison examines the pro rata shares of built investment in the United States as a whole and Central Indiana in several selected construction categories. A second comparison examines the real annual changes in built investment during the 1990s using trend lines for Central Indiana in contrast to the United States.



Central Indiana Region

The Center for Urban Policy and the Environment is part of the School of Public and Environmental Affairs at Indiana University—Purdue University Indianapolis. For more information about the Central Indiana Project or the research reported here, contact the center at 317-261-3000 or visit the center's Web site at [www.urbancenter.iupui.edu](http://www.urbancenter.iupui.edu).

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