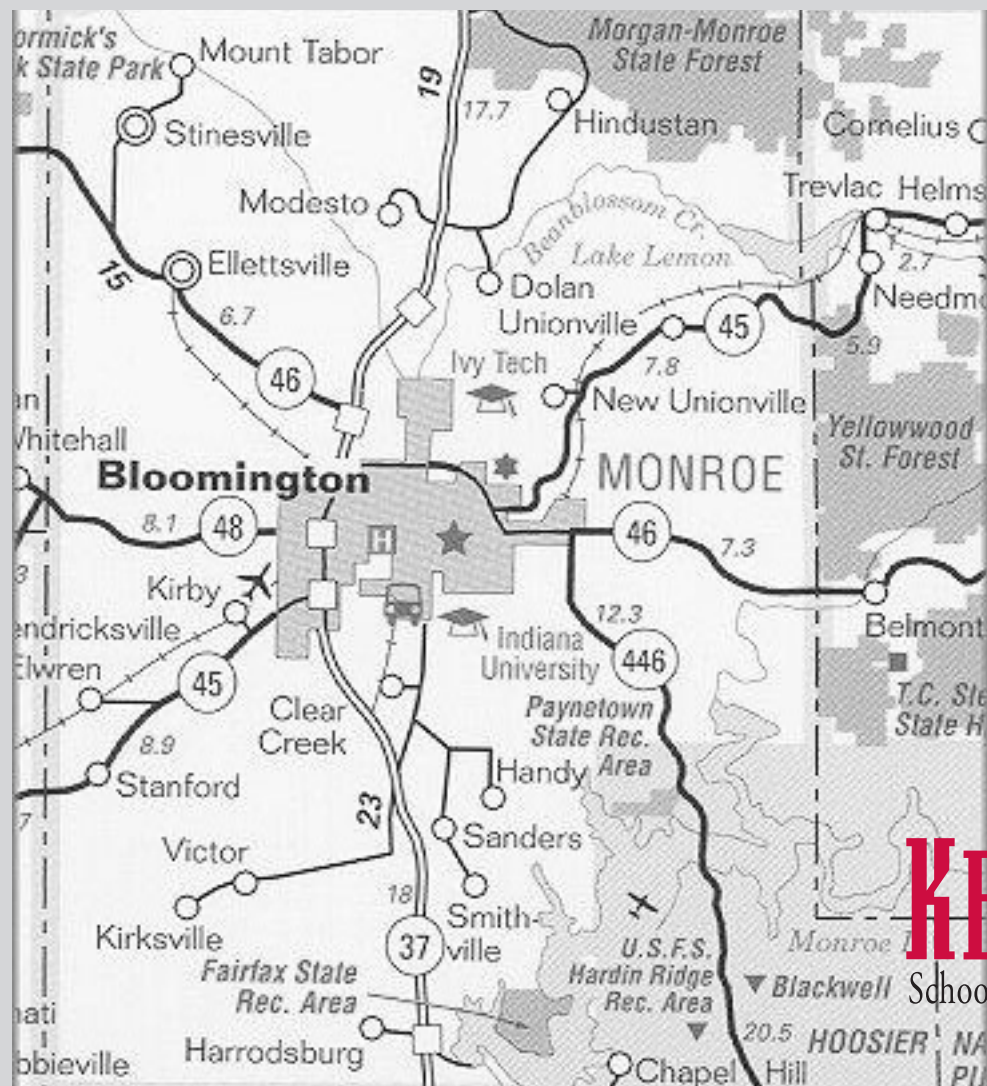




Indiana Business Review

Benchmarking a
Regional Economy



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Associate Editor

Cynthia Gwynne Yaudes

Illustration

Julie A. Dales

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Rebecca Hollingsworth

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Benchmarking a Regional Economy: Bloomington and Monroe County

James C. Smith

Lecturer in Economics and
Public Policy and Research
Economist, Indiana Business
Research Center, Kelley
School of Business

Linda Williamson

President, Bloomington
Economic Development
Corporation

If you receive a 5 percent pay raise, should you be pleased or disappointed? The answer depends greatly on how your peers did. If others in your department all got 3 percent, then your 5 percent sounds pretty good. If everyone else got 10 percent when you were given just 5 percent, then maybe you have a problem.

Regional economic development can be viewed in the same way. If your region grew 5 percent (by some measure), that counts as good performance only if comparable regions mainly grew less than that. The question then is: which regions are comparable to my region?

Last year, the Bloomington Economic Development Corporation (BEDC) brought that question to the Indiana Business Research Center (IBRC) at the Kelley School of Business at Indiana University. BEDC's objective was to benchmark the economic performance of the Bloomington and Monroe County metropolitan area against other metro areas in the United States that could reasonably be considered comparable. Bloomington and Monroe County leaders were not content to view their own economic data in isolation. They wanted to know how their area's performance compared to a peer group.

The Indiana Business Research Center worked with BEDC to conduct a study of all 318 metropolitan areas nationwide. The purpose of the study was to track the economic performance in Bloomington and Monroe County, Indiana over a long period of time. The goal was to use objective, numerical measures and compare Bloomington and Monroe County against other metro areas found to be comparable.

The resulting study covered a period of 29 years, beginning in 1970 and continuing through 1998, the latest year for which reliable data were available. From the pool of 318 U.S. metro areas, 10 were selected as being most like the Bloomington and Monroe County area in 1970. Then, from this more or less

common starting point, the IBRC tracked the economic progress of this group of "comparables."

Comparable metro areas means:

1. Areas similar to the Bloomington and Monroe County area in terms of economic assets—population and economic structure.

2. Areas most like the Bloomington and Monroe County area in 1970, so the performance of initially comparable regions can be tracked over time.

3. Areas designated as Metropolitan Statistical Areas (MSAs), so comparable, reliable data were available:

- MSAs, also called metro areas, are defined by the U.S. Office of Management and Budget. An MSA is made up of one or more counties, centered on the main city in that geographic area.
- The U.S. Bureau of Economic Analysis (BEA) publishes a common set of economic statistics for all MSAs, so the data are as comparable as possible from one metro area to another.
- The Bloomington and Monroe County MSA is defined as all of Monroe County.

Bloomington and Monroe County Comparables

Four economic variables were used as selection criteria to identify comparable metro areas in 1970. The selection criteria were:

Population

Size of population makes a great deal of difference in metro economies

Employment

The number of jobs in the metro area

Earnings

How much money the area generates

Percentage of Earnings from Manufacturing

Manufacturing is a major factor in the Bloomington and Monroe County economy. The study sought to benchmark against metro areas whose economic mix in 1970 was most like that of Bloomington and Monroe County.

The IBRC study also compared the Bloomington and Monroe County economy to the economies of the 10 other Metropolitan Statistical Areas in Indiana.

Bloomington and Monroe County leaders were not content to view their own economic data in isolation. They wanted to know how their area's performance compared to their peer group.

Table 1
Metro Areas, Comparable and Not Comparable to Bloomington

	MSA Name	Population in 1970	Earnings from Manufacturing in 1970
Comparables	Athens, GA	87,090	24.5%
	Bellingham, WA	82,606	18.5%
	Bloomington, IN	85,470	25.4%
	Decatur, AL	105,018	33.1%
	Florence, SC	89,851	28.5%
	Fort Collins-Loveland, CO	91,095	15.4%
	Goldsboro, NC	85,747	17.8%
	Medford-Ashland, OR	95,374	18.9%
	Owensboro, KY	79,519	26.4%
	Sherman-Denison, TX	82,644	29.5%
	State College, PA	99,495	17.6%
Non-Comparables	Ann Arbor, MI	375,479	32.5%
	Austin-San Marcos, TX	401,871	8.6%
	Bloomington, IN	85,470	25.4%
	Iowa City, IA	72,308	7.2%
	Lafayette, IN	140,037	23.7%
	Lexington, KY	310,269	20.3%
	Madison, WI	291,071	11.7%

Comparable Metro Areas

The first 10 metro areas listed in **Table 1** emerged from the IBRC's numerical screening process. These areas were found to be the most comparable to Bloomington and Monroe County in 1970.

Non-Comparable Metro Areas

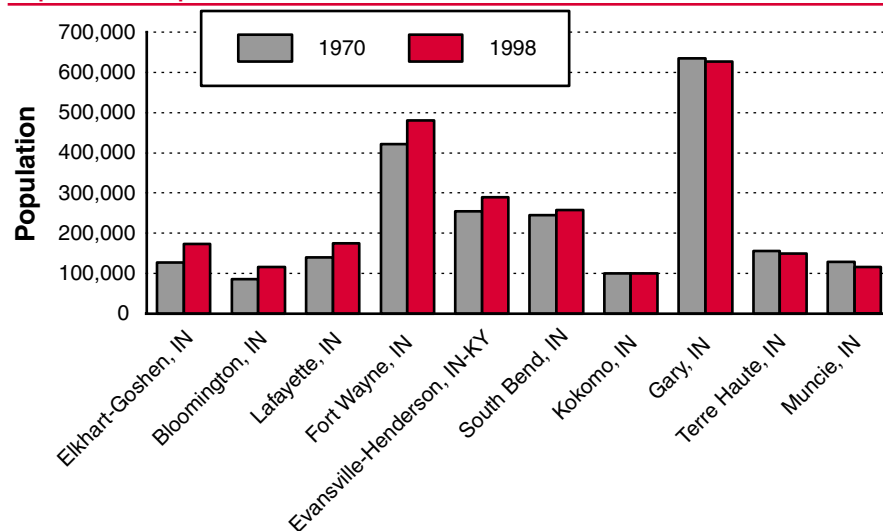
The last seven metro areas listed in **Table 1** are often compared to Bloomington and Monroe County. Yet they differ significantly in population, proportion of earnings from manufacturing, or both. Therefore, they were deemed statistically not comparable.

Once comparable metro areas were identified, the economic performance of the group was analyzed in terms of the four key economic measures described previously: population, employment, earnings and manufacturing. Bloomington and Monroe County results were charted against other Indiana MSAs as well as the 10 comparables.

Population Growth

Figure 1 shows population growth among Indiana MSAs. For each area, the left bar shows 1970 population and the bar on the right gives the 1998 population. The metro areas are listed, left to right, in order of largest to smallest total percent change over the period.

Figure 1
Population Comparison, Indiana Metro Areas, 1970 and 1998



The Bloomington and Monroe County area was the second-fastest growing metro area in the state.

The Bloomington and Monroe County area was the second-fastest growing metro area in the state on a percentage basis, just behind Elkhart-Goshen. With 116,500 people in 1998, the Bloomington and Monroe County area was approximately equal in population to Muncie. Only Kokomo, at 100,100, was smaller. The Indianapolis metropolitan area, with a 1998 population of 1,519,000, is not shown on this chart. Its percentage growth in population since 1970, however, would rank it fourth on this list, just behind Lafayette.

Figure 2
Population Comparison, Comparable U.S. Metro Areas, 1970 and 1998

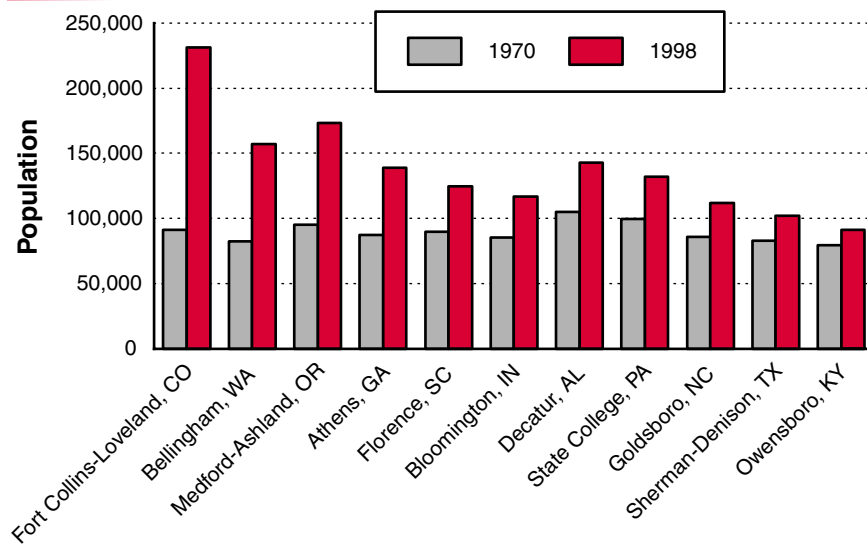


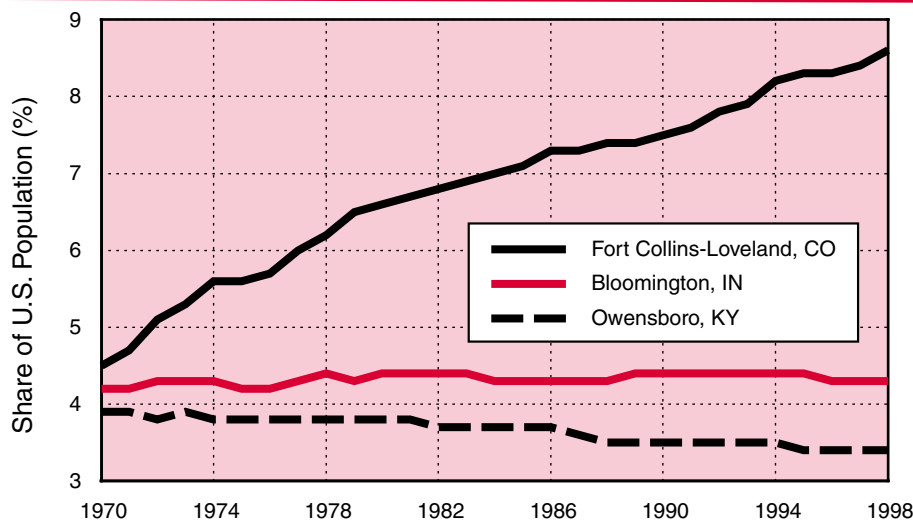
Figure 2 presents the same information for the comparable metro areas outside Indiana. Once again, the metro areas are listed, left to right, in order of largest to smallest percent change.

Fort Collins, Colorado, and other Far West areas led the group in population growth over this period. Athens, Georgia, was not far behind. The Bloomington and Monroe County area is in a cluster in the middle of the group of comparables.

A region's share of the national total of an economic measure is like a market share measure for a private company. Figure 3 shows the highest and lowest performing metro areas among the comparables. Each area's performance is measured by gain or loss of the share of the U.S. population during this 29-year period.

A region's share of the national total of an economic measure is like a market share measure for a private company.

Figure 3
Share of Population, Comparable Metro Areas



This group of comparables all started with approximately the same share in 1970. Some made large gains: Fort Collins topped the list. Others drifted down: Owensboro, Kentucky, lost the most share of any in this group.

The Bloomington and Monroe County area neither gained nor lost significantly in share of U.S. population. Among all 318 MSAs, Bloomington and Monroe County ranked 277th in 1970 and 281st in 1998.

Employment Growth

The Bloomington and Monroe County economy led the state in percentage increase in jobs from 1970 to 1998. Employment more than doubled during this period.

Figure 4
Employment Growth Among Comparable MSAs, 1970-1998

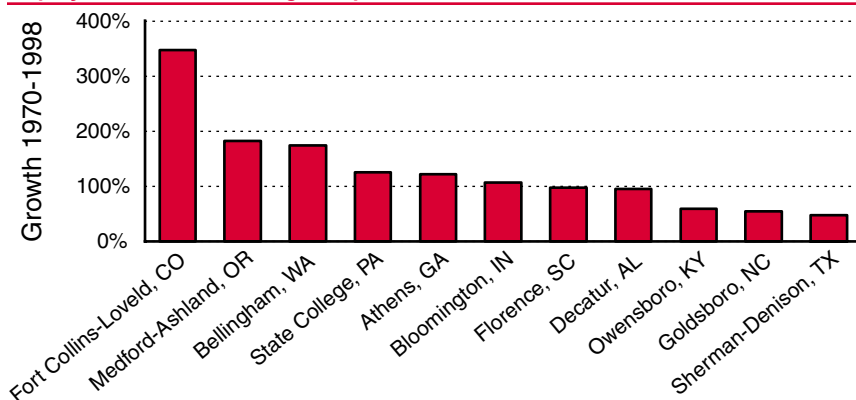
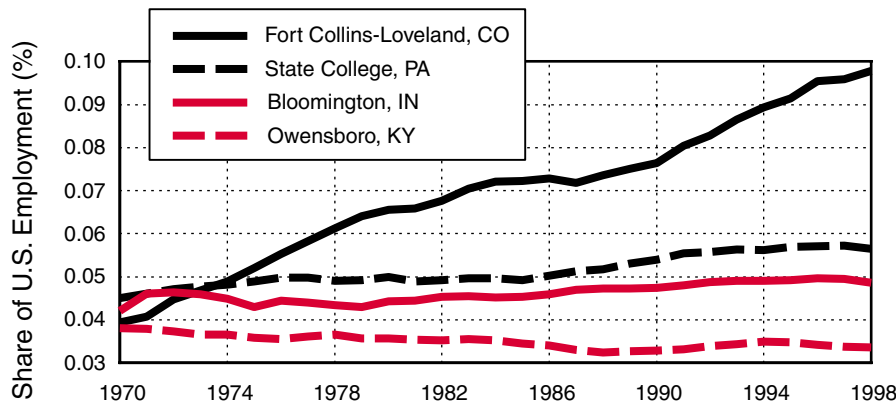


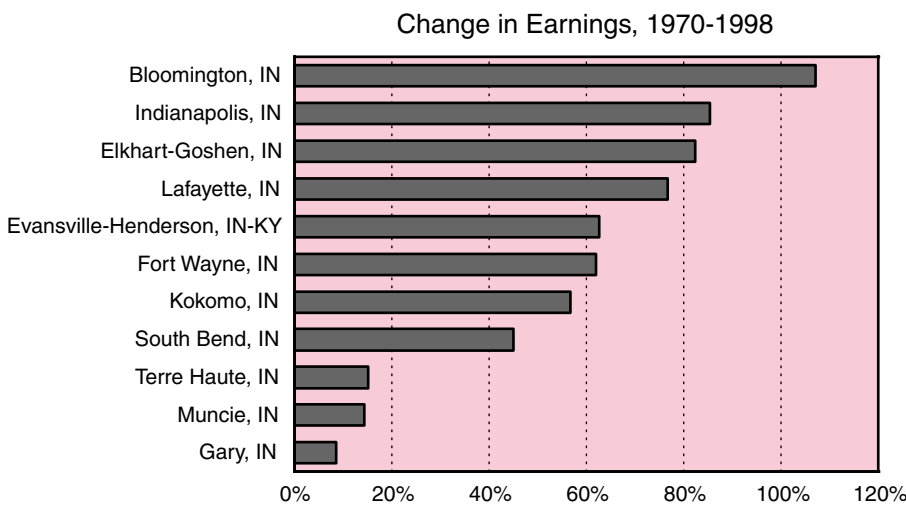
Figure 4 shows how employment growth in Bloomington and Monroe County ranked among its comparables. Though growing, Bloomington and Monroe County did not keep pace with the leaders among the comparables. Employment in Fort Collins more than quadrupled.

Figure 5
Share of U. S. Employment, Comparable Metro Areas, 1970-1998



The change in share of total U.S. employment for selected comparables is charted in **Figure 5**. Comparable metro areas all started with about the same share of employment in 1970. Bloomington's share edged up slightly during these 29 years, to about five-hundredths of one percent of national employment. Fort Collins, by contrast, more than doubled its share of U.S. jobs. State College, Pennsylvania increased its share by 25 percent.

Figure 6
Change in Earnings by Place of Work, Indiana Metro Areas, 1970-1998
(in constant U.S. dollars)



Of Indiana metro areas, only Bloomington and Monroe County exceeded the national increase – though Indianapolis and Elkhart-Goshen were close.

Earnings

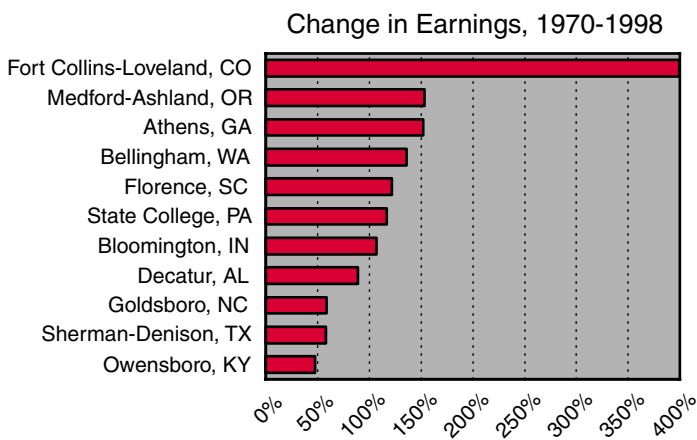
Earnings growth is an excellent measure of a regional economy's strength. It highlights the dollars being generated by the area's economy and shows the ability of the economy to increase these dollars.

The Bloomington and Monroe County area led the state in earnings growth over this period (see **Figure 6**). Total U.S. earnings grew 89 percent in constant dollars over the same period. Of Indiana metro areas, only Bloomington and Monroe County exceeded the national increase – though Indianapolis and Elkhart-Goshen were close to the national figure.

Among the comparable metro areas, the Bloomington and Monroe County area ranked in the middle in earnings growth from 1970 to 1998 (in constant dollars), as shown in **Figure 7**. Six out of the 10 comparables exceeded the national percentage growth in earnings. The other comparable metro areas with major universities (Fort Collins, Athens and State College) all posted higher earnings growth than Bloomington and Monroe County.

Share of U.S. earnings reveals whether an area kept up with the growth in the nation, grew faster, or grew slower. The Bloomington and Monroe County metro area managed a small increase. Its share of national earnings was up 9 percent in 1998 over 1970. Several of the comparables made significant increases in earnings share. Three lost share. Fort Collins' share in 1998 was more than one-and-a-half times what it was in 1970. Medford and Athens grew their shares by a third, and State College's share was up by 25 percent.

Figure 7
Change in Earnings by Place of Work, Comparable Metro Areas, 1970-1998 (in constant U.S. dollars)



Earnings per Job

Earnings per job can indicate the quality and productivity of employment in a region, an important perspective on employment growth. **Figure 8** tracks the earnings per job in Bloomington and Monroe County as a percent of the U.S. average.

Bloomington and Monroe County was more than 15 percent below the national average over this entire period. In 1998, it stood at 78 percent of the national average. The trend in this statistic was down throughout the 1970s and early 1980s. Since then it has been essentially unchanged.

By 1998, earnings from manufacturing had dipped to 20 percent of earnings. By national standards, though, that was still a high figure.

Economic Mix

The economic mix across the U.S. has shifted toward service industries in recent years. The Bloomington and Monroe County area is no exception. As **Figure 9** shows, manufacturing was a major factor in the region's economy in 1970, accounting for 28 percent of wages earned that year. By 1998, earnings from manufacturing had dipped to 20 percent of earnings. By national standards, though, that was still a high figure.

Figure 8
Earnings Per Job as a Percent of U.S. Average, Bloomington and Monroe County, 1970-1998

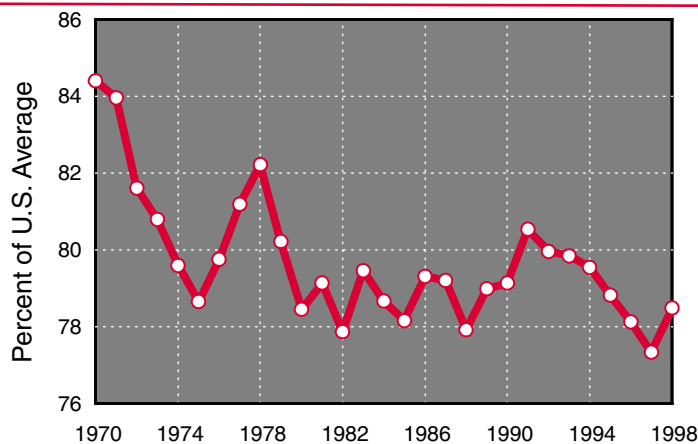


Figure 9
Bloomington and Monroe County Metro Area
Share of Earnings by Industry Sector, 1970 & 1998

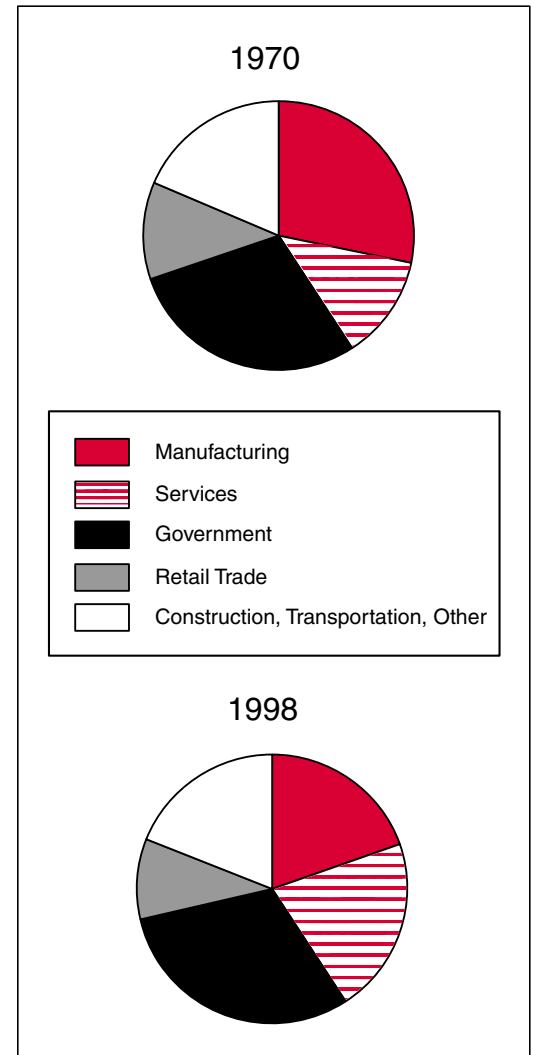


Figure 10 displays the change from 1970 to 1998 in the percent of earnings from manufacturing in the comparable metro areas. Areas are listed, left to right, in order of earnings share growth. At the left are those areas that gained the most in share of U.S. earnings over the period. At the right are those that lost share.

Most areas experienced substantial declines in the percent of area earnings coming from manufacturing. The percent of earnings from manufacturing in the Bloomington and Monroe County area dropped by half. There is no clear correlation, however, between change in manufacturing earnings and overall earnings share growth. Both high-growth areas (at the left of the chart) and low-growth areas (at the right) showed varying degrees of change in the size of the manufacturing sector.

Bloomington and Monroe County's economic performance has been among the best in Indiana.

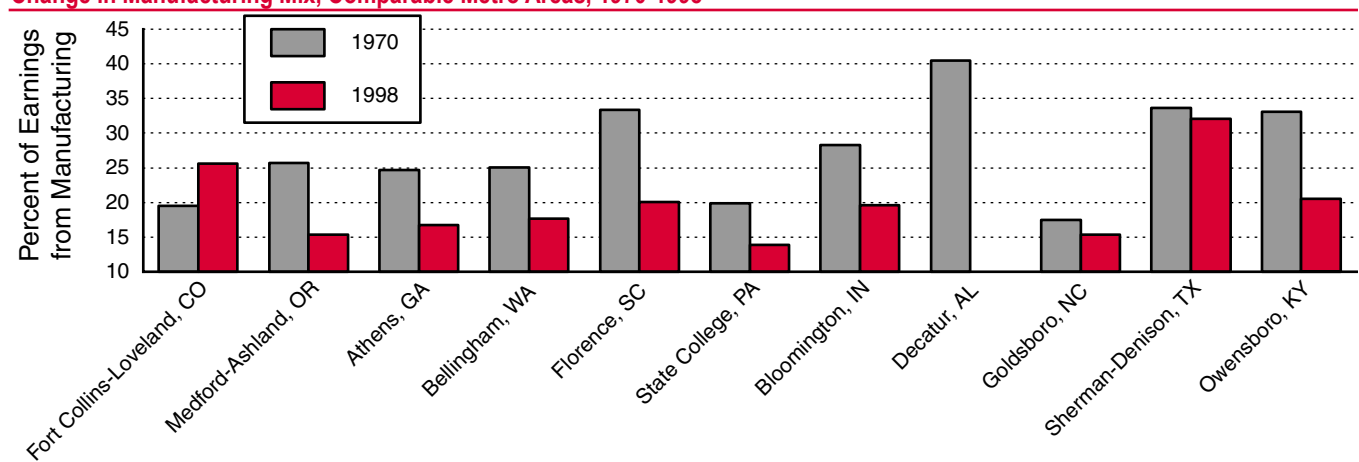
Conclusions about Bloomington

Bloomington and Monroe County's economic performance has been among the best in Indiana. The area led the state in job growth between 1970 and 1998, and it led the state in real earnings growth over the period.

By identifying other U.S. metro areas which were economically comparable to Bloomington and Monroe County, however, the IBRC study placed the area's performance from a national perspective. Relative to comparable metro areas outside Indiana, the record of the Bloomington and Monroe County economy from 1970 to 1998 was only average. Some of the comparable area economies grew very rapidly. Others experienced little or no growth. Bloomington and Monroe County's experience placed it in the middle of the pack.

Share measures confirm that the Bloomington and Monroe County area's economic performance was solid but not outstanding. The area's share of total U.S. population was basically unchanged over this period. Share of U.S. earnings showed a small increase, ranking the area in the middle of the group of comparables.

Figure 10
Change in Manufacturing Mix, Comparable Metro Areas, 1970-1998



More Hoosiers, Less Representation

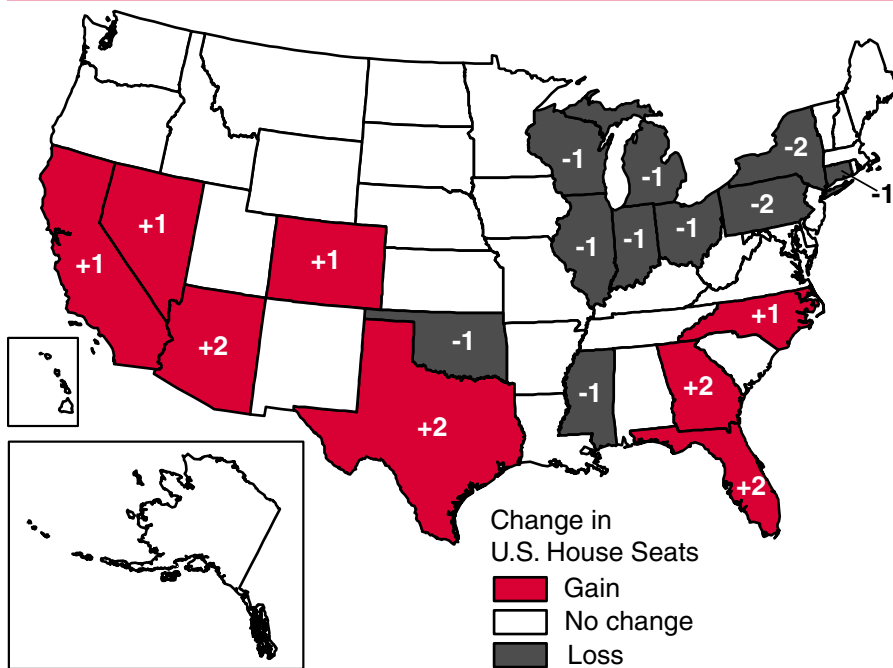
Joan Morand

Research Director, Indiana
Business Research Center,
Kelley School of Business,
Indiana University

The Census Bureau's December release of the first state numbers from Census 2000 generated much interest in the population counts for states, as well as in the resulting reapportionment of the seats in the next U.S. House of Representatives. The release also raised questions: how does the apportionment process work? How can it result in districts of such widely varying sizes among the states?

By examining some of the details involved in the method of equal proportions, one can gain a better understanding of the apportionment process, how it works and how district size varies by state. In particular, the focus here is on Indiana and its widely publicized loss of a seat in the next House.

Figure 1
Changes in U.S. House Seats Resulting from Reapportionment



A Brief Overview

Apportionment is the process of dividing the 435 seats in the U.S. House of Representatives among the 50 states. After each decennial census, population counts for states are used to calculate the number of House seats each state is entitled to for the next decade.

The Results

The size of Indiana's delegation will drop from 10 to 9 in the 108th Congress, which begins in 2003. A total of twelve seats will change hands, with 10 states losing seats and 8 states gaining seats. **Figure 1** shows the seat changes resulting from the reapportionment.

Not surprisingly, states that have grown more slowly than the nation are among those losing seats: Pennsylvania and New York will each drop two seats; Connecticut, Illinois, Indiana, Michigan, Mississippi, Ohio, Oklahoma and Wisconsin will each lose one seat. The Great Lakes region will lose a total of nine House seats. Rapidly growing states in the south and west will gain seats. Arizona, Florida, Georgia and Texas will each pick up two seats, while California, Colorado, Nevada and North Carolina will each gain one seat.

The Method

Each state receives one seat in the House. The remaining 385 seats are distributed to the states based on the method of equal proportions, used after every census since 1940.

The method of equal proportions assigns seats according to priority values. The priority values are determined by multiplying the population of each state by a series of seat factors. The factor for seat n equals 1 divided by (the square root of $(n \text{ times } (n-1))$). The resulting priority values are sorted in descending order, and the highest 385 priority values are assigned to seats 51 through 435.

For example the priority value for Indiana's 2nd seat following Census 2000 is:

$$6,090,782 * (1/\text{SQRT}(2*1)) = 6,090,782 * 0.7071067 = 4,306,833$$

Table 1 shows the assignment of Indiana's 2nd seat in the House, in seat number 80, the 30th seat assigned by the method (after each state receives one seat). Notice that California has received 8 seats before Indiana receives its 2nd seat.

Table 1**Assignment of Seats 51 Through 80 in the U.S. House of Representatives**

State	State's Seat	Priority Value	House Seat
California	2	23,992,697	51
Texas	2	14,781,356	52
California	3	13,852,190	53
New York	2	13,438,545	54
Florida	2	11,334,137	55
California	4	9,794,978	56
Illinois	2	8,795,731	57
Pennsylvania	2	8,697,887	58
Texas	3	8,534,020	59
Ohio	2	8,043,014	60
New York	3	7,758,748	61
California	5	7,587,157	62
Michigan	2	7,039,834	63
Florida	3	6,543,767	64
California	6	6,194,888	65
Texas	4	6,034,463	66
New Jersey	2	5,956,918	67
Georgia	2	5,803,208	68
North Carolina	2	5,704,706	69
New York	4	5,486,263	70
California	7	5,235,636	71
Illinois	3	5,078,218	72
Pennsylvania	3	5,021,727	73
Virginia	2	5,020,955	74
Texas	5	4,674,275	75
Ohio	3	4,643,637	76
Florida	4	4,627,142	77
California	8	4,534,194	78
Massachusetts	2	4,494,065	79
Indiana	2	4,306,833	80

How close was Indiana to retaining its 10th seat? Indiana would have needed a 10th seat priority value exceeding 645,931 in order to take North Carolina's 13th seat. This translates to needing more than 37,000 additional Hoosiers counted in Census 2000.

Ideal District Size

In 1990, the nation's apportionment population, which includes overseas federal employees, was 249,022,783. Dividing by 435, the number of seats in the House, results in an ideal district size of 572,000 people per representative. Indiana's 1990 apportionment population of 5,564,228 divided by 10 representatives yields an average of 556,000 people per representative. For Indiana's average district size to equal the ideal district size after the census in 1990, Indiana would have deserved 9.7 seats.

In 2000, the nation's apportionment population had grown to 281,424,177. With the number of seats fixed at 435, the ideal district size grew to 647,000. Indiana's 2000 apportionment population of 6,090,782 divided by 9 representatives yields an average of 677,000 people per representative. For Indiana's average district size to equal the ideal district size after Census 2000, Indiana would deserve 9.4 seats.

Figure 2 illustrates the growing ideal size of congressional districts between 1900 and 2000, along with Indiana's average district sizes. Several observations can be made:

- As long as the population of the nation grows and the number of seats in the House remains fixed at 435, the ideal district size will continue to grow.

- As long as fractional seats are not allowed in the House and as long as House districts cannot cross state boundaries, states will not be represented equally in the House. In the 1990s, Indiana was somewhat over-represented, and in the next decade, the state will be somewhat under-represented.

- Indiana is now facing the same situation that it experienced following the loss of a seat in 1980. The combination of a growing population and the loss of a seat result in a large increase in the state's average population per representative.

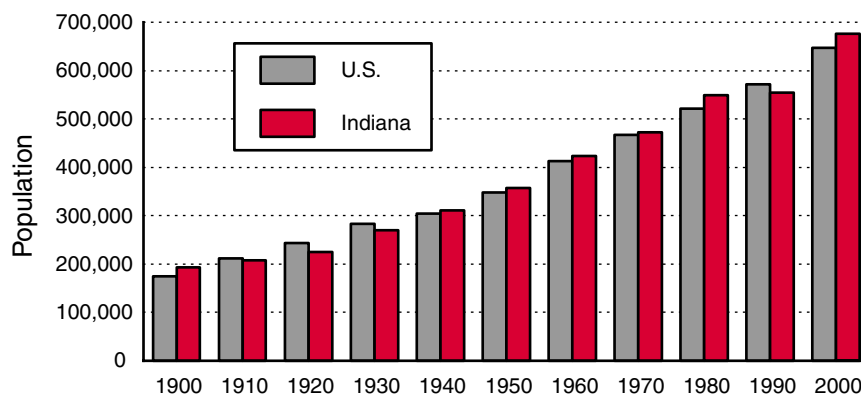
Figure 2**Average Population Per Congressional District, 1900-2000**

Table 2
Average Congressional District Sizes Following Census 2000

Rank	Apportionment Population	Number of Seats After 2000 Census	People Per Representative	With One More Seat	With One Less Seat
United States	281,424,177	435	646,952		
1 Montana	905,316	1	905,316	452,658	NA
2 Delaware	785,068	1	785,068	392,534	NA
3 South Dakota	756,874	1	756,874	378,437	NA
4 Utah	2,236,714	3	745,571	559,179	1,118,357
5 Mississippi	2,852,927	4	713,232	570,585	950,976
6 Oklahoma	3,458,819	5	691,764	576,470	864,705
7 Oregon	3,428,543	5	685,709	571,424	857,136
8 Connecticut	3,409,535	5	681,907	568,256	852,384
9 Indiana	6,090,782	9	676,754	609,078	761,348
10 Kentucky	4,049,431	6	674,905	578,490	809,886
11 Kansas	2,693,824	4	673,456	538,765	897,941
12 Wisconsin	5,371,210	8	671,401	596,801	767,316
13 S. Carolina	4,025,061	6	670,844	575,009	805,012
14 Arkansas	2,679,733	4	669,933	535,947	893,244
15 Nevada	2,002,032	3	667,344	500,508	1,001,016
16 Michigan	9,955,829	15	663,722	622,239	711,131
17 Maryland	5,307,886	8	663,486	589,765	758,269
18 Washington	5,908,684	9	656,520	590,868	738,586
19 New York	19,004,973	29	655,344	633,499	678,749
20 Illinois	12,429,042	19	654,686	621,952	691,058
21 Texas	20,903,994	32	653,250	633,454	674,322
22 Idaho	1,297,274	2	648,637	432,425	1,297,274
23 New Jersey	8,424,354	13	648,027	601,740	702,030
24 Pennsylvania	12,300,670	19	647,404	615,034	683,371
25 Virginia	7,100,702	11	645,518	591,725	710,070
26 North Dakota	643,756	1	643,756	321,878	NA
27 Arizona	5,140,683	8	642,585	571,187	734,383
28 Florida	16,028,890	25	641,156	616,496	667,870
29 California	33,930,798	53	640,204	628,348	652,515
30 Louisiana	4,480,271	7	640,039	560,034	746,712
31 Maine	1,277,731	2	638,866	425,910	1,277,731
32 Alabama	4,461,130	7	637,304	557,641	743,522
33 Massachusetts	6,355,568	10	635,557	577,779	706,174
34 Tennessee	5,700,037	9	633,337	570,004	712,505
35 Ohio	11,374,540	18	631,919	598,660	669,091
36 Georgia	8,206,975	13	631,306	586,213	683,915
37 Alaska	628,933	1	628,933	314,467	NA
38 Missouri	5,606,260	9	622,918	560,626	700,783
39 N. Carolina	8,067,673	13	620,590	576,262	672,306
40 New Hampshire	1,238,415	2	619,208	412,805	1,238,415
41 Colorado	4,311,882	7	615,983	538,985	718,647
42 Minnesota	4,925,670	8	615,709	547,297	703,667
43 Vermont	609,890	1	609,890	304,945	NA
44 Hawaii	1,216,642	2	608,321	405,547	1,216,642
45 New Mexico	1,823,821	3	607,940	455,955	911,911
46 West Virginia	1,813,077	3	604,359	453,269	906,539
47 Iowa	2,931,923	5	586,385	488,654	732,981
48 Nebraska	1,715,369	3	571,790	428,842	857,685
49 Rhode Island	1,049,662	2	524,831	349,887	1,049,662
50 Wyoming	495,304	1	495,304	247,652	NA

District Sizes for States

Table 2 illustrates that average district sizes for states will range from a high of 905,000 in Montana to a low of 495,000 in Wyoming. Indiana will have the 9th largest average district size in the nation, at 677,000. The table also shows the average district sizes that would result if each state had one more or one less seat in the House. These numbers can help illustrate that the method of equal proportions minimizes the relative differences between levels of representation (or average district sizes) for the states.

For example, what would happen if Montana received a second seat? With an additional seat, Montana would have 453,000 persons per representative, making the state's average district size the smallest in the nation, instead of the largest. Which state should contribute a seat to Montana? One might think that California could most afford to give up one of its 53 seats. The result would be 653,000 persons per representative in California instead of 640,000. California's average district size would rank 22nd in the nation, instead of 29th.

This might appear reasonable to many people, especially to those in Montana. However, the result would be a larger relative difference between district sizes in these two states. To calculate relative difference between two values, subtract the smaller value from the larger one; then divide the difference by the smaller value.

Using the post-2000 district sizes for Montana and California, one obtains a relative difference of $(905,316 - 640,204) / 640,204 = 0.414$. With an additional seat for Montana and one fewer for California, the relative difference between district sizes for these two states would be $(652,515 - 452,658) / 452,658 = 0.442$ which is larger than the relative difference calculated above.

As mentioned previously, no apportionment method will produce equal representation for all states. Congress has considered various apportionment methods over the years. Different methods minimize different measures of discrepancy between district sizes for pairs of states. Using a different apportionment method, for instance one that minimizes the absolute difference between district sizes would result in a different apportionment of the House seats.

FAQ

Questions and Answers About Indiana's Loss of a Seat in the U.S. House of Representatives

Q: Will Indiana lose a seat because of declining population?

A: No. Indiana's population grew 9.7% between 1990 and 2000.

Q: Then why will Indiana lose a seat?

A: **Figure 3** helps answer this question. The apportionment formula does not explicitly use "share of the nation's population" in determining the number of seats for each state. However, as long as the number of seats remains fixed at 435, those states with declining shares of the nation's population are candidates to lose seats, while states that are growing faster than the nation are candidates to gain seats.

Note that by inspecting **Figure 3**, Indiana's share of the nation's population continues to decline. This decline has been accompanied by the loss of a house seat in 1930, 1940, 1980 and 2000.

Q: Indiana barely grew in the 1980s and yet held onto 10 seats. Now with much more rapid growth in the 1990s, the state will lose a seat. How can this be?

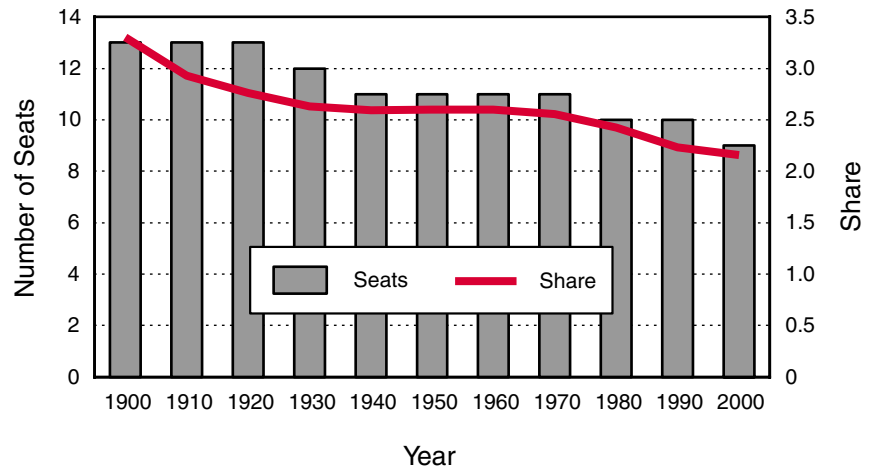
A: It may take more than a decade for slower growth than the nation to result in the loss of a seat. Indiana's declining share of the nation's population "caught up with it" in 2000. To take it a step farther, one could argue that Indiana was slightly over-represented after the 1990 census, when the state deserved 9.7 seats but held onto 10. Now the Hoosier state will be slightly under-represented with 9 seats, when the state deserves 9.4 seats.

Q: Indiana and Kentucky both enjoyed the same population growth rate since 1990 (9.7%). Yet Indiana will lose a seat and Kentucky will not. Why is that?

A: The method of equal proportions used in apportioning the seats to the states does not use growth rates. Instead, the method minimizes the relative difference between the levels of representation for the states. Looking specifically at Indiana and Kentucky, the new apportionment results in approximately 677,000 persons per representative in Indiana and 675,000 people per representative in Kentucky. With one fewer representative, Kentucky's average district size would be 810,000.

Figure 3

Indiana's Declining Share of the Nation's Population and Number of Seats in the U.S. House of Representatives



What If?

What if the overseas population had not been included in the apportionment process? In other words, if the resident population counts had been used to apportion the House seats, would it have made a difference?

Table 3 illustrates the assignment of the last 5 seats in the House, seats 431 through 435, along with the first five states that would have just missed receiving an additional seat, if the overseas population had not been included. Utah would have gained a seat in the House, instead of North Carolina in this scenario. Indiana would have remained the 5th state in line for an additional seat.

Table 3

What If Overseas Population Had Not Been Included? The Assignment of the Last Five Seats in the House

State	State's Seat	Priority Value	House Seat
Iowa	5	654,346	431
Florida	25	652,478	432
Ohio	18	649,016	433
California	53	645,204	434
Utah	4	644,660	435
North Carolina	13	644,461	436
New York	30	643,362	437
Texas	33	641,670	438
Michigan	16	641,524	439
Indiana	10	640,939	440

A Short Retrospective on 20th Century U.S. Population Change

John Besl

Research Demographer,
Indiana Business Research
Center, Kelley School of
Business, Indiana University

The initial release of Census 2000 data, in the form of state population counts, enables researchers to take a look back at 20th century population change in the United States. From a predominantly rural country of 76.2 million persons in 1900 to a mostly urban-suburban population totaling 281.4 million in 2000, the U.S. more than tripled in population size over the course of the 20th century. The net gain of 205.2 million Americans represents a growth rate of 269 percent over 100 years.

For Indiana, the century's population change was less dramatic. In 1900, 2.5 million residents were counted in Indiana. One hundred years later, the 2000 census enumerated 6.1 million Hoosiers, a gain of 3.6 million persons, or 142 percent.

More could be written about the country's cumulative population change in the past century, but another intriguing avenue for census data analysis is the opportunity to compare and examine 10 distinct decades of population change for 50 states. Each state and decade was, of course, characterized by a different set of demographic dynamics. **Figure 1** portrays a simple comparison of population growth rates for the United States, Indiana, and the Midwest census region (composed of 12 states, including Indiana), for each decade of the 20th century. In each of the first three decades, the Hoosier state's

population growth rate trailed both the Midwest region and the U.S. The largest gap between the U.S. and Indiana growth rates, almost 14 percentage points, occurred in the 1900-1910 decade.

A close inspection of the chart reveals that Indiana lagged behind the U.S. in percent change for eight of 10 decades, holding a slight advantage only in the 1940-1950 interval and matching the national trend in the following decade. In comparison with the Midwest, Indiana's growth rate exceeds the regional rate in six of 10 decades. The largest Indiana advantage over the Midwest came in the 1940s, when the Hoosier state grew by 15 percent, compared to 11 percent for the Midwest. In the 1950-1960 decade, both Indiana and the Midwest reached their 20th century high-water marks in population growth rate: 18.5 percent for Indiana, and 16.1 percent for the Midwest. This same decade saw the U.S. post its second highest growth rate of the century, matching Indiana with an increase of 18.5 percent. The U.S. achieved its highest 20th century growth rate, 21.0 percent, in the 1900-1910 decade. The country's lowest decennial growth rate came in the 1930s, during the Great Depression, when national population growth slowed to 7.3 percent. For Indiana and the Midwest, though, the decade of slowest growth was 1980-1990, with marginal gains of 1.0 percent and 1.4 percent, respectively.

It should be noted that Alaska and Hawaii are included in the national population counts for each census year in this analysis, even though they did not become states until the 1950s. If we consider Alaska and Hawaii as states for the entire century, and omit the District of Columbia, we have a total of 500 state decennial growth rates since 1900 (50 states x 10 decades). From the entire set of 500 state rates, only three states exceeded 100 percent in any single decade, all in the 1900-1910 interval: Washington, 120 percent; Oklahoma, 110 percent; and Idaho, 101 percent.

Figure 2 portrays each state's share of the total United States population in the 2000 census. The Census Bureau counted at least 5 percent of the nation's residents within the borders of four states: California, 12.0 percent; Texas, 7.4 percent; New York, 6.7 percent; and Florida, 5.7 percent. At the opposite end of the spectrum, 19 states each account for less than 1 percent of the U.S. total population, including rapidly growing Nevada (0.7 percent), despite its unique status as the leader in rate of population growth for each of the last four decades.

Figure 1
Population Growth Rates, By Decade

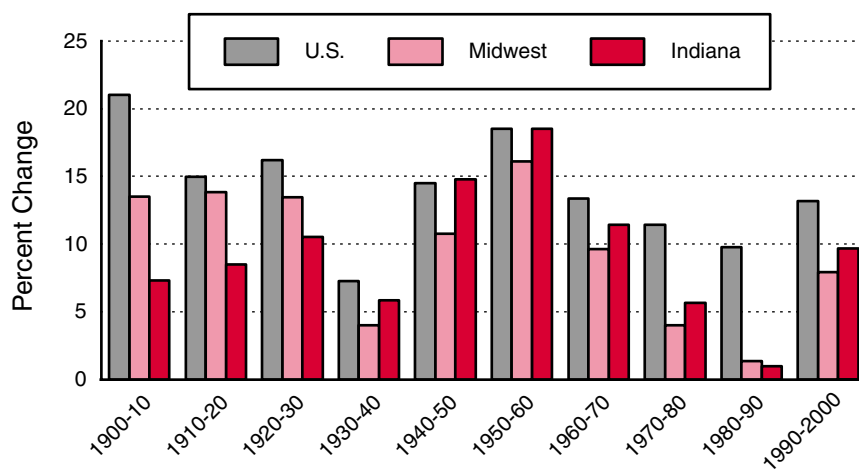
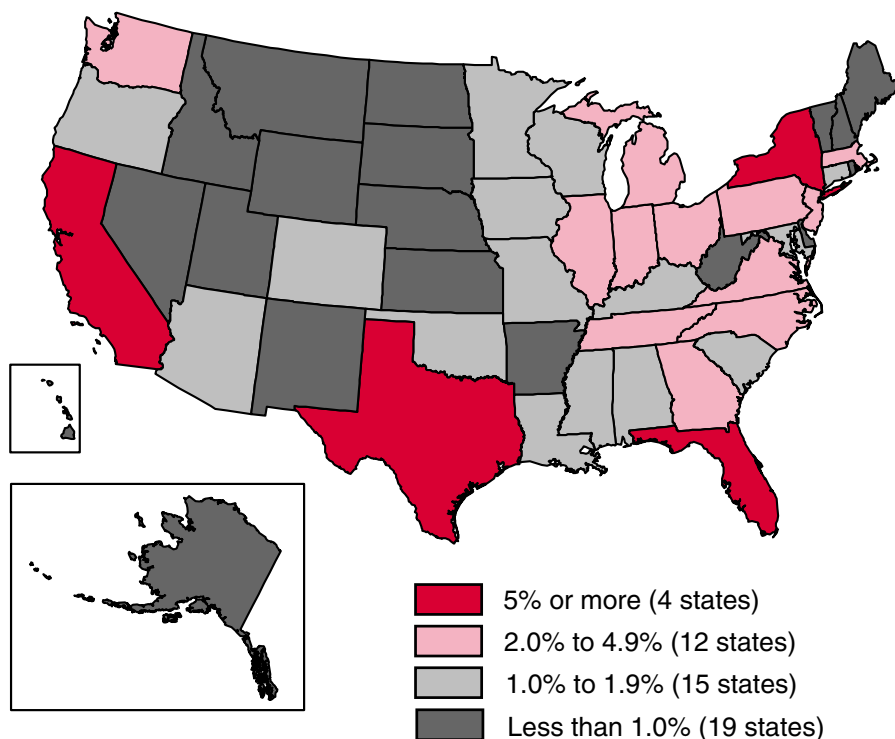


Figure 2
State Share of U.S. Population, 2000

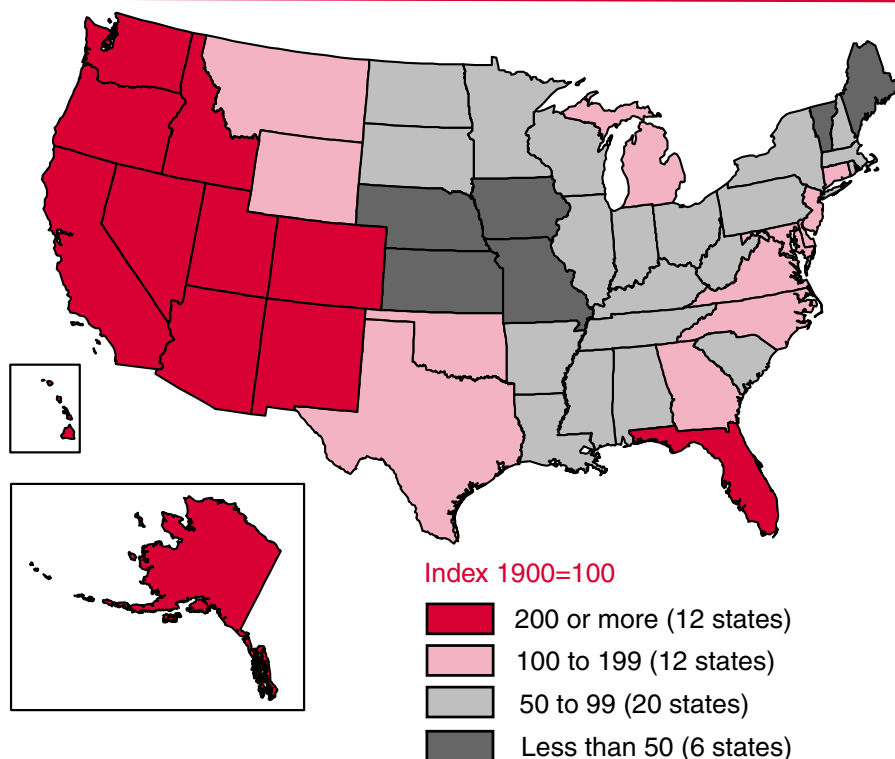


To illustrate the momentous westward shift of the United States population in the past 100 years, a measure called a state population share index was created. Each state's share of the total national population in 1900 forms the baseline for this measure. Using Indiana as an example, divide the state's share of the U.S. population in 1900 (0.0330) by itself, then multiply by 100 to yield Indiana's 1900 index, equal to 100. In turn, the 2000 state share index for Indiana is calculated by dividing the state's share of U.S. population in 2000 (0.0216) by the share in 1900, and multiply by 100. With rounding, the 2000 state share index for Indiana is 65. A value less than 100 on a state's 2000 index indicates that the state lost population share since 1900. With a 2000 state share index of 65, it can be surmised that Indiana lost 35 percent of its national population share since 1900.

Similar measures are calculated for all 50 states, with the 1900 index for each state fixed at 100. **Figure 3** presents the 2000 state share index, in four value ranges. The 2000 index values range from 35 for Iowa to Nevada's 1,183. The six states in the lowest range, with 2000 index values of under 50, saw their state's share of total U.S. population cut in half since 1900. Four of these six states (Iowa, Kansas, Missouri, and Nebraska) are located in the nation's agricultural heartland, reflecting the transformation away from an agrarian economy. The next category of 2000 index values, from 50 to 99, includes Indiana and most of its neighboring states. Only Michigan, among all the Midwestern and/or Great Lakes states, increased its population share in the 20th century. This is no doubt due to the development of the automobile industry after 1900 and the many thousands of migrants who moved to Michigan to fill the demand for labor.

Twelve states achieved the highest category of 2000 index values, 200 or more, meaning that these high-growth states doubled their share of the U.S. population over the last century. A total of 39 states managed to double in population size since 1900, but these elite 12 actually doubled their population *share*, a more notable accomplishment in a country that itself more than tripled in size. Nevada and Arizona led the way, as each increased their population share by a magnitude of 10. The importance of one invention, air conditioning, is evident in the geographic distribution shown in **Figure 3**. One hundred years ago, places like Florida and Arizona were considered inhospitable for human habitation, but heat is no longer an obstacle and these states are now desirable destinations, especially among the elderly. In 1900 this situation was probably hard to imagine, except perhaps among the rare dreamers and innovators who envisioned air conditioning systems. What will the next hundred years bring?

Figure 3
State Population Share Index, 2000 (1900=100)



Highlights from the First Returns

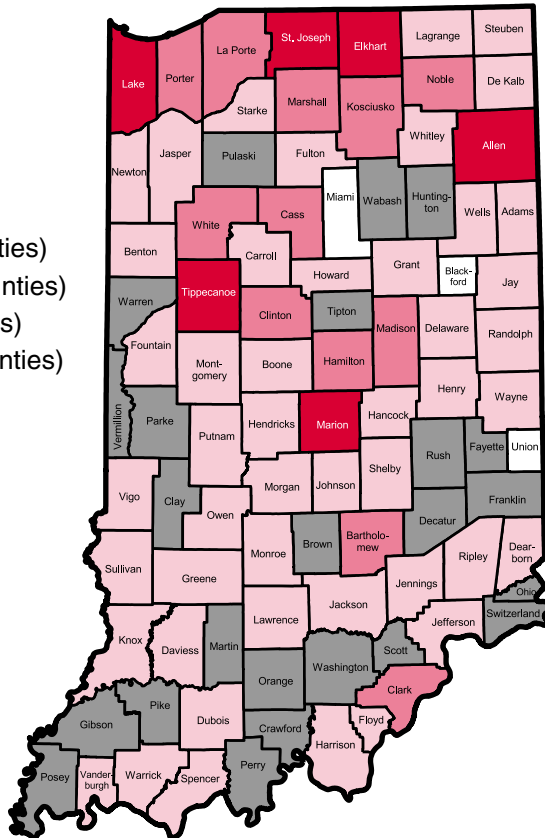
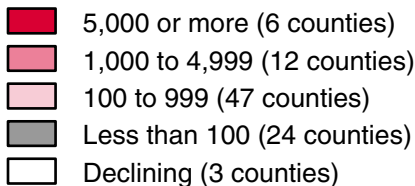
Joan Morand

Research Director, Indiana
Business Research Center,
Kelley School of Business,
Indiana University

The U.S. Census Bureau delivered to Governor Frank O'Bannon and the leaders of the state legislature the official Census 2000 Redistricting Data File for Indiana on March 9, 2001. These data are among the first released from the census that

was conducted on April 1, 2000. The counts will be used to redraw boundaries for federal, state and local legislative districts. The census counts also provide information about the size and composition of the state's population.

Numeric Growth in Hispanic Population, 1990-2000

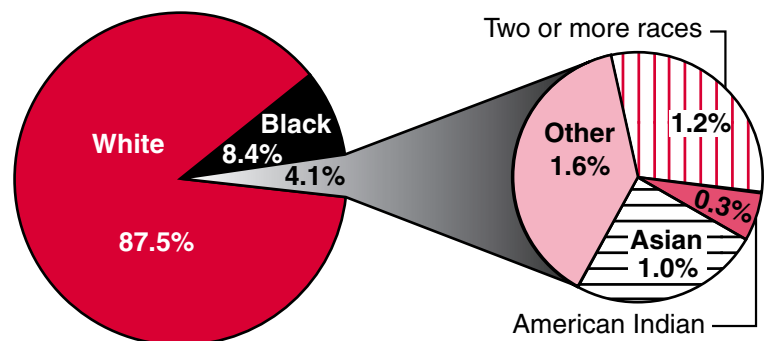


Hispanic Population

- As anticipated, the state's Hispanic population has grown substantially, from about 99,000 in 1990 to almost 215,000 in 2000, for growth of 116,000 or 117 percent.
- Only 1.8 percent of Indiana's 1990 population claimed Hispanic ethnicity, while 3.5 percent indicated Hispanic ethnicity on their census forms in 2000.
- Counties showing the largest numeric growth in Hispanic population include Marion, Lake, Elkhart, Allen, St. Joseph, Tippecanoe and Porter. Together these counties accounted for 70 percent of the state's Hispanic population and for 68 percent of the state's growth in Hispanic population.
- Cass County's Hispanic population skyrocketed, growing from 230 in 1990 to 2,905 in 2000, for a growth rate of over 1,000 percent.

The Race Data

- A small portion of Indiana's population, 1.2 percent responded with more than one race category, a new option in 2000.
- Looking at those who responded to the race question with a single category (98.8 percent of all Hoosiers), growth rates for the race categories were: White (6 percent), Black (18 percent), Asian (62 percent), American Indian (24 percent).
- In 1990, 90.6 percent of Indiana's population checked the white category for race. In 2000, of those who responded with a single race, 88.6 percent considered their race to be white.
- Growth in the Hispanic population and more rapid growth in minority race categories support the general observation that Indiana has become more racially and ethnically diverse.
- At the same time, population in the minority categories still represents a small portion of the state's population. Although growing rapidly, the Asian population in Indiana represents only 1 percent of the total population.

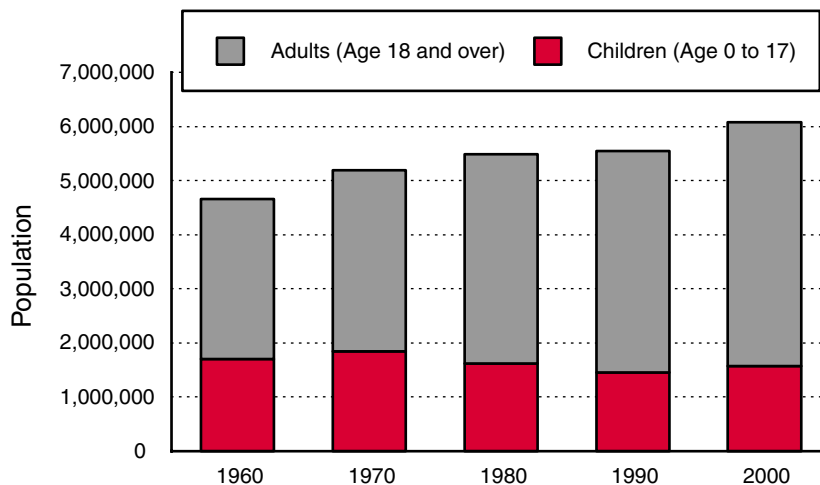
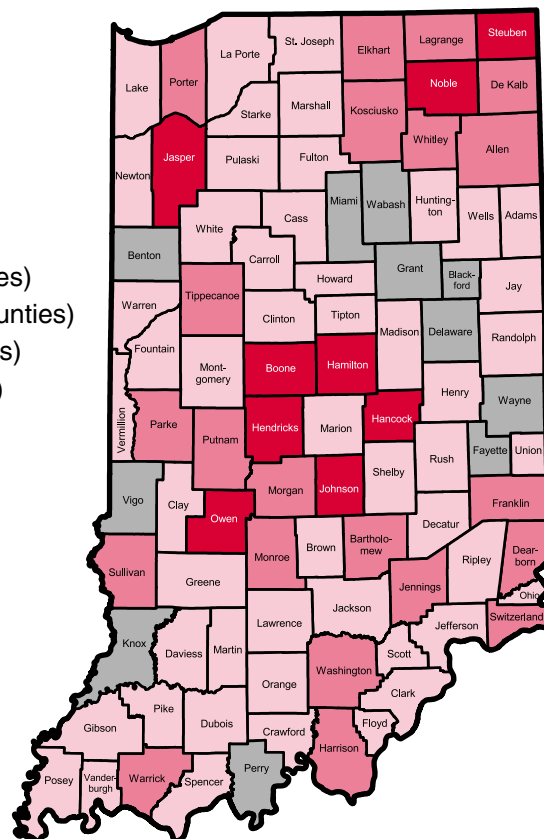


County Totals

- Hamilton was the fastest growing Indiana county, growing from 109,000 in 1990 to almost 183,000 in 2000, for growth of 74,000 persons or 68 percent. Hamilton's growth outpaced all other Indiana counties, the state as a whole, which grew at 9.7 percent and the nation, which grew at 13.2 percent.
- Other rapidly growing counties included Hendricks, Johnson, Owen, Noble, Hancock, Steuben, Boone and Jasper. Each of these counties grew by at least 20 percent since 1990.
- The high population growth rates in many suburban Hoosier counties are consistent with growth patterns experienced by the nation as a whole, with much of the rapid population growth occurring in suburban areas.
- Marion County grew by 7.9 percent between 1990 and 2000. By far the most populous Hoosier county, Marion's population stood at 860,000 on census day 2000. This population growth exceeded what previously released estimates had indicated when the county's 1999 population had been estimated to be 811,000.
- The Indianapolis Metro Area, consisting of Marion and eight surrounding counties grew by 227,000 persons, or 16.4 percent. In 1990, one in four Hoosiers lived in the Indy Metro Area. In 2000, 26.4 percent of the state's population lived in the Indianapolis Metro Area.
- Miami County is a good example of the incomplete picture that we get when we look only at two endpoints of a time interval. The counts indicate that Miami County's population declined by 815 people between 1990 and 2000. However, it is likely that the county's population bottomed out mid-decade (its 1995 estimate was 32,400) after the restructuring of Grissom Air Force Base and that the county's population has rebounded since 1995, almost to its 1990 level.

Percent Change in Total Population, 1990-2000

- 20% or more (9 counties)
- 10% to 19.99% (21 counties)
- 0 to 9.99% (51 counties)
- Declining (11 counties)



Children and Adults

- The number of children (age 0 to 17) grew between 1990 and 2000 by 118,000 or 8.1 percent. This occurred after declines in the number of children during the previous two decades.
- The number of adults (age 18 and over) continues to grow, with an increase of 418,000 or 10.2 percent between 1990 and 2000.
- As a result of more rapid growth of the adult population, children represent a shrinking segment of Hoosier population, down from 36 percent in 1960 to 26 percent in 2000.

Census 2000 Update: Challenges and Retabulations; Defining Metro and Rural; and Data Dates



Carol O. Rogers

Editor, and Information
Services Director, Indiana
Business Research Center,
Kelley School of Business,
Indiana University

Challenges and Retabulations—Two Ways to a Different Count

Unhappy with the census count for your city or town or county or township? After every census, there will be those communities that find themselves surprised and dissatisfied with the count. There is a program in place that will provide a way for some to challenge the results of the 2000 census. This program doesn't allow for a general sense that the census was "wrong." Local governments will be required to provide specific evidence with maps and address lists. The *Census Question Resolution Program* (CQR) is scheduled to begin June 1, 2001. Through this program, the federal government will allow governmental units to challenge the census based on boundary disputes or other geographic displacement. The CQR does not allow for challenges directly to the population count. Quoting from the January 22, 2001 Federal Register Notice, "no additional data will be collected as part of the CQR program. We will only use those data that have already been collected."

Three criteria form the essential core of this program:

- (1) Boundary corrections—that is, correcting faulty jurisdictional boundaries.
- (2) Geocoding corrections—corrections within a jurisdiction. For example, if a nursing home was incorrectly tabulated on one side of town when it actually belongs on the other side. This won't result in a different count for the town.
- (3) Coverage corrections—specific housing units or group quarters that were identified during the Census 2000 process but were erroneously included or excluded due to processing errors; such corrections could be additions or deletions.

The bottom line—no recount. Essentially, the count will be shifted within a jurisdiction (criteria 2), between jurisdictions (criteria 1), or by combining through the data collected through a variety of processes to identify wrongly included or excluded housing units or group quarters (criteria 3).

Read the Federal Register notice online at www.census.indiana.edu and click on "Challenges."

Retabulate to Capture Annexations

When a city or town annexes territory with significant numbers of people, the State of Indiana will accept a Census 2000 Retabulation. That is, if the community submits its new boundaries to the Census Bureau, the Bureau can re-sum (or retabulate) to those new boundaries. This is not free. And it isn't necessarily easy. However, it is an acceptable method of obtaining

a Census 2000 count that reflects new territory. For more information, see the Challenges section of the Census in Indiana web site at www.census.indiana.edu.

A New Definition of Metro is Coming Our Way

By 2003, the terms Consolidated and Primary Statistical Area will be no more. New terms will be added to the data gatherer's lexicon - Core Based and Micropolitan. The newly named classifications (with their incumbent new standards) will use the umbrella term Core Based Statistical Area. Two categories of metro areas will be defined: Metropolitan Statistical Areas (at least one urbanized area populated by 50,000 or more persons) and Micropolitan Statistical Areas (at least one urban cluster of 10,000 to 49,000 people). Counties will continue to be the building blocks of these areas (except in certain states in New England). A central city will continue to identify or title the area. There will also be a way of combining adjacent metro areas and those combinations will be called, not surprisingly, Combined Statistical Areas.

All very similar to the previous definitions. For the gritty details, see the Census in Indiana web site (www.census.indiana.edu) and click on "Geography."

Urban and Rural Definitions

What is urban and what is rural are important delineations in Indiana, with its more than 600 cities, towns and census designated places.

The criteria for determining urbanized areas and urban clusters have been published in the Federal Register (March 28, 2001) with a comment period running through April 27, 2001.

Based on the census results, an urbanized area will consist of a densely settled core of census block groups and census blocks that meet minimum population density requirements and have a population of at least 50,000 people.

An urban cluster also must have a core of densely settled block groups and blocks that together encompass a population of at least 2,500 people but fewer than 50,000.

Those areas in Indiana that don't meet the above criteria will be considered rural. For detailed specifications, please see the Federal Register notice online at www.census.indiana.edu (click on "Geography").

Census 2000 Data Dates

Anxious as many people and organizations are to see and use the results of the census, patience will be required. The data will be released on a flow basis, with the responses to the short form coming first in 2001 and data from the long form in 2002 and 2003. Highlights of the planned releases, with their date of release ranges, are provided here. As always, more detail can be found on the Census in Indiana web site (www.census.indiana.edu).

100% Count Releases (based on short form)

Demographic Profile

Data: Totals and selected characteristics of population and housing will be released in profile form for places (print) and census tracts (Internet).

Dates: May through July 2001

Race & Hispanic Summary File

Data: A special cd/rom with race and Hispanic totals down to the place level.

Dates: July 2001

Summary File 1 (SF 1)

Data: Population and housing characteristics, many tabulated by race. This file will include household relationships, age groupings, and whether housing is owned or rented. One file per state, released on a flow basis on the Internet and cd/rom.

Dates: June through September 2001

Summary File 2 (SF 2)

Data: Population and housing detailed for many race and Hispanic categories. One file per state, released on a flow basis via the Internet and Cd/rom, with data down to the census tract level.

Dates: September through December 2001

Advanced Query Requests on the Internet

Data: User specified tabulations from the full file. However, specifics on access and confidentiality (and possible fees) have not yet been decided by the Census Bureau.

Dates: September through December 2001

Sample Count Releases (based on long form)

Demographic Profile

Data: Demographic, social, economic, and housing characteristics in print (places), cd/rom, and on the Internet.

Dates: March through May 2002

Summary File 3 (SF 3)

Data: Economic and social characteristics, such as education, occupation, poverty, income, ancestry groups, and more down to the block group level.

Dates: June through September 2002

Summary File 4 (SF 4)

Data: The data on SF3, but by race and Hispanic origin plus some more complicated cross tabulations helpful for social programs.

Dates: October 2002 through February 2003

PUMS (Public Use Microdata Samples)

Data: A 1-percent sample (for the nation, states, and sub-state areas where appropriate) and a 5-percent sample (for state and sub-state areas) that allow the user to create tabulations tailored to specific needs. Available on cd/rom and DVD.

Dates: 1-percent sample - 2002

5-percent sample - 2003

Will anything be in print?

A little, such as the Demographic Profiles and three other specific publications (with 1990 Census counterparts):

Summary Population and Housing Characteristics (PHC-1)

Data: General characteristics of population and housing from the short form, with some helpful percentages.

Dates: January through November 2002

Summary Social, Economic and Housing Characteristics (PHC-2)

Data: Educational attainment, travel time to work, occupations by sex, poverty and income, plumbing and selected other data from the long form tabulations.

Dates: 2003

Inside:

- **Benchmarking a Regional Economy: Bloomington and Monroe County**
- **More Hoosiers, Less Representation**
- **A Short Retrospective on 20th Century U.S. Population Change**
- **Highlights from the First Census Returns**
- **A Census 2000 Update**

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www.ibrc.indiana.edu *your link to the IBR and other trends and analysis*

www.stats.indiana.edu *all data, all the time*

www.census.indiana.edu *Census 2000 for Indiana*

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Indiana Business Research Center
Indiana University Research Park
501 N. Morton, Suite 110
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