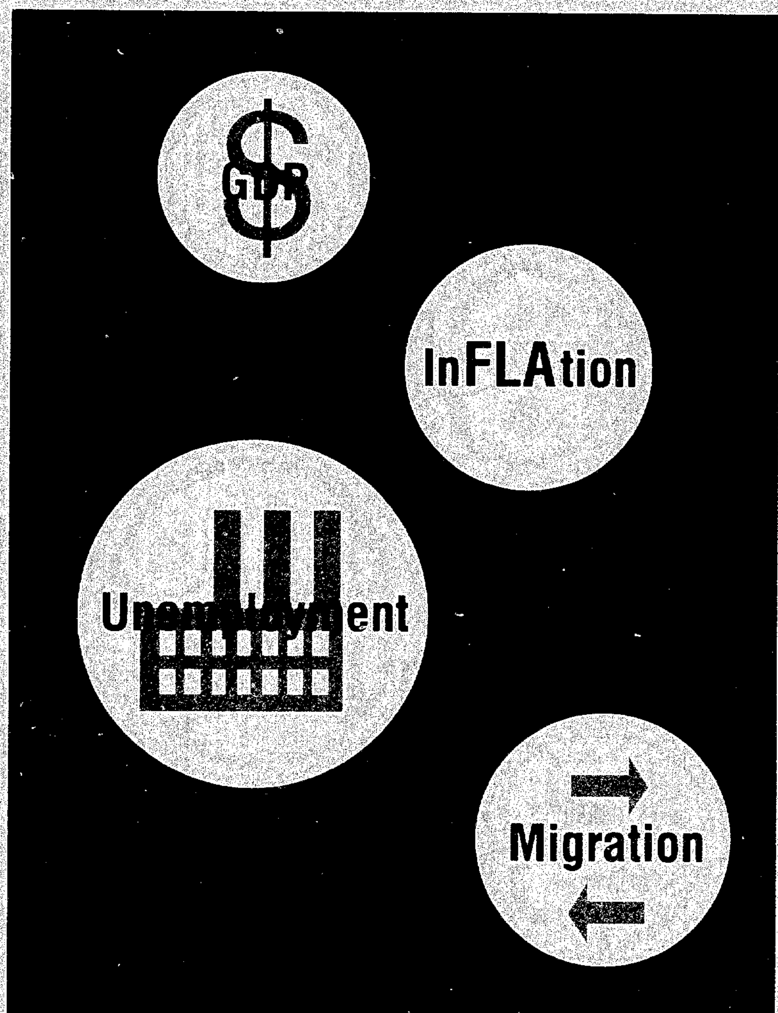
June 1996

Indiana Business Review



Indiana
School of
Business

IBRC

Contents

Indiana Business Review
Volume 71, Number 6
June 1996

Published by the Indiana University School of Business, Indiana Business Research Center

Dean
John Rau

Associate Dean
R. Jeffery Green

Director
Morton J. Marcus

Editorial
Carol O. Rogers
Terry Creeth
Melanie Hunter
Robert A. Calhoun

Layout and Design
Melanie Hunter
Bethany Sprague

Circulation
Melva Needham
Dorothy Fraker

We'd like to hear from you. Please send along your comments, suggestions for articles or topics you would like to see covered, and yes, even your complaints to Carol O. Rogers (address is on the back cover; E-mail is rogersc@indiana.edu).

Redefining Reality: New Measures of Output and Inflation

Willard E. Witte

Associate Professor of Economics, Indiana University

Accurate data on economic conditions can be of vital importance both to policy makers and to those in business. But producing useful and accurate economic data is a difficult task. To begin with, collection of the raw data is at best expensive and time-consuming, and sometimes not feasible at all on a timely basis, requiring that estimates rather than hard numbers be used. In addition, fundamental conceptual issues must be confronted for which no perfect solution is possible.

An important example of this is the construction of measures of the level of output for the economy as a whole, such as real gross domestic product, or for major sectors of the economy, such as business investment. Recently the Bureau of Economic Analysis (BEA) at the U.S. Department of Commerce has implemented a new technique for calculating its real output measures. This article examines the new technique and some of its implications. It briefly describes both the old procedure and the new one, lists some of the advantages and problems of the new technique, and compares the new data with the old.

Data Procedures: Old and New

A basic problem in constructing aggregate measures is that different parts of the economy never move in the same direction in lockstep. If they did, things would be easier. Suppose that the economy produced only apples and oranges, and that in 1995 output of each rose 5%. It is easy to conclude that total output rose by 5%. But what if apple production went up by 8% (say, from 100 bushels to 108), while orange output went up only 2% (from 100 bushels to 102)? Total output certainly went up more than 2% and less than 8%, but where in that range? To a certain extent any answer is arbitrary; one cannot add apples and oranges, and one cannot fully describe an output situation comprised of two different components with a single number. But we can produce approximate measures. For the economy as a whole, real GDP is such a measure. It uses the prices of goods to convert physical output measures into values that can be added and compared.

The traditional way of calculating the real GDP measure has been to use the prices from a specific past year to calculate output values. Recently that "base year" has been 1987. If a bushel of apples sold in 1987 for $20, and oranges were priced at $30, then the value of apple production in my earlier example went up from $2,000 (100 x $20) to $2,160 (108 x $20), whereas orange production went from $3,000 (100 x $30) to $3,060 (102 x $30). Total output value, measured in 1987 dollars, rose from $5,000 to $5,240—an increase of 4.8%.

This procedure, using 1987 prices as the yardstick to measure and add the output values of different goods, works reasonably well, but it is by no means a perfect solution. In particular, problems arise as the prices of different goods drift away from each other over time. When this happens, the 1987 yardstick becomes less and less relevant.

Suppose the actual 1995 prices of apples and oranges were $15 and $45 per bushel, respectively. In other words, oranges were worth three times as much as apples in the market in 1995. But our 1987 yardstick values oranges at only 1.5 times the value of apples ($30 vs. $20). In this case, using the 1987 yardstick understates the importance of oranges and overstates the value of apples. As a result, the 4.8% growth estimate calculated using that yardstick is biased upward. A better measure would be closer to the orange growth rate of 2% and farther from the apple growth rate of 8%.

Economists call this problem "substitution bias." It becomes worse as one gets farther from the base year, because there is more time for prices to drift apart. The Commerce Department has dealt with this issue in the past by moving the base year forward every five years. This reduces the bias in current data, but makes it worse in past years. The latest base year change (to a 1992 price yardstick) would have occurred last year. Instead, the BEA decided to shift to a new procedure.

> *"Different parts of the economy never move in the same direction in lockstep. If they did, things would be easier."*

The new procedure uses a *different* and *double* yardstick for each year. For example, to measure output growth from 1994 to 1995, the BEA performs three calculations: (1) it uses a 1994 price yardstick to calculate an output growth estimate; (2) it calculates a second output growth estimate using a 1995 price yardstick; and (3) it averages the two. In theory, the first estimate will overstate growth (as in the apple and orange example), whereas the second estimate will understate growth. The average will be somewhere in the middle, and hence will provide a better estimate.

Because the yardsticks move along year by year, the BEA calls these new estimates of output "chain-weighted." The new procedure went into use with the data for the fourth quarter of last year, and has now been used to recalculate data for years going back to 1960.

Figure 1
Growth Rate for Real GDP

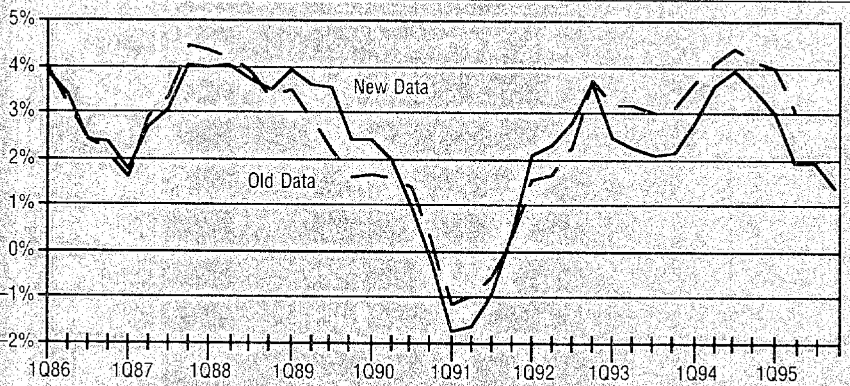


Figure 2
GDP Deflator Inflation Rate

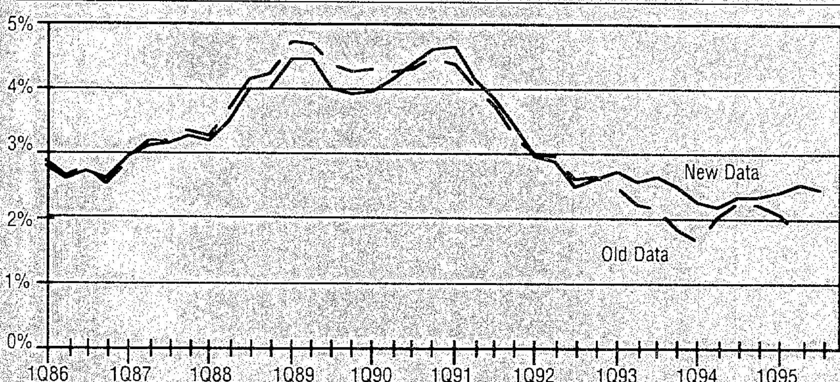
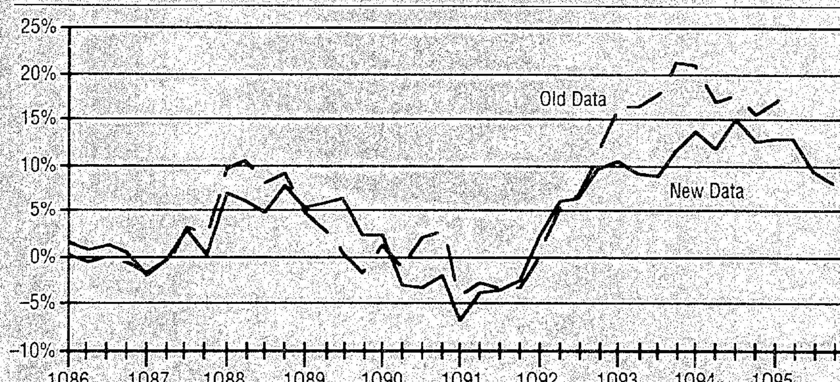


Figure 3
Growth Rate for Investment in Equipment



Pros and Cons of the New Measures

The major advantage of the new calculation procedure is that it should minimize the substitution bias that worsens when prices of different goods have greatly diverged since the base year. In the real world, the most important situation of this type relates to high-technology sectors, such as computers, where prices have been plummeting even as prices in general have been rising. The bias causes the growth estimates for such goods to be overstated. Another advantage of the revised estimates is that because the price yardstick is being adjusted every year, the periodic shifts in the base year will no longer be needed.

There are at least three disadvantages of the new procedure. One is that it is much more complex and hard to understand. A second is that the new estimates don't "add up." With the old numbers using a fixed yardstick, it was possible to figure output by calculating each of its pieces and then adding them together. Total GDP, for example, was the sum of consumption, investment, government spending, and net exports. With the new estimates, though, this is no longer the case because the procedure introduces a type of statistical discrepancy. The good news is that this discrepancy is small enough that it doesn't matter for most practical purposes.

A third problem involves the application of the new procedure to quarterly data. Initial estimates of quarterly numbers cannot use the double yardstick calculation because the second yardstick is not known until the year ends. Consider, for example, data from third quarter 1995. Eventually, output growth will be calculated using 1995 and 1996 yardsticks. But initially neither of these is available. So the first estimates for the third quarter will use 1994 prices. Then, when full year 1995 data are available, the estimate will be revised using a 1995 price yardstick. And a year later, when 1996 prices are known, the final estimates using the double yardstick procedure will be used. In most cases, the revisions should be downward, but at this point it is not possible to gauge how significant they will be in practice.

Old and New Data: Some Comparisons

The BEA presents the new estimates in a number of forms, the most basic being an index number series for each GDP component set to 100 in 1992. It is also preparing measures of real GDP in a dollar-denominated form, called "chained (1992) dollar estimates." These estimates are computed by multiplying the 1992 current dollar (nominal) value of GDP, or a component, by the series of growth rates calculated using the double yardstick procedure. For example, if a component had a 1992 market value of $100 billion, and a 1992 to 1993 growth rate of 8%, then its value for 1993 would be $108 billion.

Figures 1, **2**, and **3** show annual growth rates over the past ten years for output (real GDP), the associated price index (the GDP deflator), and business investment in equipment. The solid line in each chart is based on the new chain-weighted data. The dashed line is from the old fixed yardstick data. Growth rates are calculated over four-quarter periods. For example, the value for real GDP for fourth quarter 1995 (1.4%) is the growth from fourth quarter 1994 to fourth quarter 1995.

In all three figures, the qualitative patterns of the old and new data are quite similar. In general, the new data diminish the recent quantitative performance of the economy. During the recession of 1990-91, for example, the total decline in real GDP is now put at 2.0% rather than the previous estimate of 1.5%. During the ensuing four and a half years of expansion, the annual growth estimate has been lowered to 2.5% from 2.9%. In each figure, the most consistent variation between the old and the new is for the period since 1993, over which the new estimates of output and investment growth are lower than the old while the new inflation numbers are higher.

The recent distortion in the old data is quite large for the equipment investment series. Over the period from first quarter 1993 to second quarter 1995, this component grew at an annual rate of 18.4% in the old data, but at only 11.7% in the new estimates. This latter number is still a robust one, but the revision indicates that a good part of the high-tech investment boom was nothing more than statistical illusion.

* * *

Changes to statistical data series are nothing new, but the recently introduced changes in the estimates of output are more significant than most. The new technique will shift the prices used to aggregate output components on an annual basis. Doing so will reduce a statistical bias in the old procedure caused by changing relative prices. In general this bias caused current output growth estimates to be overstated. As a rough guideline, annual growth rates for total output could average about 0.3% or 0.4% lower than the old procedure would have indicated. For output components whose prices are declining, such as high-tech goods, the growth reduction is more substantial.

Along with these changes in the output calculation procedure, the Commerce Department has also made a number of other, less significant modifications to its income and output calculations. The box below mentions some of these.

Other Changes to the National Income and Product Accounts

In addition to the introduction of the chain-weighted procedure for real output calculation, the Bureau of Economic Analysis has also implemented a variety of other revisions involving both new data and conceptual changes.

- The level of current dollar (nominal) GDP has been revised upward by an average of 2.8%. This upward revision is almost entirely accounted for by increases in the figures for personal consumption expenditures, primarily on services, and in government consumption expenditures. The changes to personal consumption reflect the incorporation of newly available data. The changes in the government sector data are discussed further below. The nominal figures for producers' durable equipment have been revised downward, largely because of reduced estimates of purchases of new autos and communication equipment.

- Personal income is revised upward in all years by an average of 1.1%. This increase is due primarily to higher rental income and higher estimates of other labor income. The increase in rental income is due partly to the incorporation of new data on owner- and tenant-occupied rental payments and partly to a revised treatment of depreciation (discussed further below). The rise in other labor income is a result of new data on employer contributions to private health insurance and to pension plans.

- The new data incorporate a number of other definitional and statistical changes. Two of these—both of which raise the level of GDP—are worth special mention:

  1. Government purchases are now broken down into consumption and investment components. The calculation of the government surplus (government saving) includes only government consumption outlays as an expenditure. This consumption value, however, does include an imputed value representing the services of government fixed assets. The imputation is also included in depreciation on the income side of the accounts.

  2. A new technique is used to estimate depreciation, resulting in generally lower magnitudes. This is particularly true for structures and causes the figures for rental income to be significantly higher than in the old data.

Inside the Labor Force Estimates: A Look at the Unemployment Rate

Charles Mazza

Director, Labor Market Information, Indiana Department of Workforce Development

Work force, labor force, and employed are terms that are often used interchangeably. The labor force, and how many people are estimated to be part of it, is the focus of this article. The brief definition of the labor force is that portion of the population aged 16 years and older who are either working (employed) or able, available, and seeking work (not employed).

How do we know, during any given month, how many of us are in the labor force? The short answer is that we know from the estimates we see reported in local newspapers or on the national news. But do most of us know that the national estimates of the labor force are made from a sample of households across the nation, conducted by the U.S. Bureau of the Census, called the Current Population Survey (CPS)? And that state estimates, including Indiana's, are made using models developed by the Bureau of Labor Statistics at the U.S. Department of Labor? The estimation of the labor force is a combined activity of two federal agencies and the state agency responsible for employment or workforce development in each state. In Indiana, that agency is the Indiana Department of Workforce Development.

About 60,000 households are selected by the Census Bureau from the most recent decennial census to participate in the CPS. Workers interview each household once a month for eight months, after which new households are chosen. Survey questions are asked of the adult members of each household. The first and the fifth times, the interview is conducted on-site, face-to-face with a household adult; the rest of the interviews are conducted by telephone. Interviewers today use computer-assisted personal interviewing (CAPI) and computer-assisted telephone interviewing (CATI) technology.

Following each interview, the results are subjected to field edits by the Census Bureau and are forwarded to the national office in Jeffersonville, Indiana. The raw data are then integrated onto a computer tape file and sent to the Washington office, where they are checked for completeness and consistency.

After the Census Bureau has done its part of the job, the Bureau of Labor Statistics (BLS) then begins the estimation process. This involves weighting the data from each sample person and making non-interview adjustments, two-stage population ratio adjustments, and the composite estimate.

This entire process, from each interview to the estimate, is completed within three weeks. The result is a set of information about the nation that tells us how many people are employed or unemployed, what their demographics are, when the data were collected (during the reference week of the 12th day of the month), what the industry classifications are, and what their occupations are within those industries.

The concept of being "employed" is significant, and includes:

1. all those who did any work at all for a business as paid employees, or worked in their own business, or worked 15 hours or more as unpaid workers in a family-operated business;
2. all those who did not work but had jobs or businesses from which they were temporarily absent due to illness, bad weather, vacation, labor-management dispute, or various personal reasons—whether or not they were paid.

Alternately, the concept of unemployed is defined as:

1. those who did not work at all during the reference period, were actively looking for work, and were available for work;
2. those who had made specific efforts to find work during the preceding four-week period. (Registering at a public or private employment agency, writing letters of application, and canvassing are considered to be looking for work.)

How does all of that relate to the labor force estimates for the state of Indiana and the other 49 states? Although the CPS provides adequate statistics for the nation with a sample that comes from every state, data for individual states do not yield reliable monthly statistics. However, a minimum number of annual statistics for each of the states is possible.

> *"How do we know, during any given month, how many of us are in the labor force?"*

For the 50 states and the District of Columbia, monthly labor force estimates are developed using models that consider the monthly CPS estimates as being the sum of the "true labor force value" and error due to sampling. Through the use of statistical techniques (in this case, time series regression with variable coefficients and correlated components), the "true labor force value" and the sampling error are identified.

With the "true value" now known, the next step is to break the labor force down into its components: employment and unemployment. Three major data sources are used:

1. the CPS;
2. Current Employment Statistics (CES), which uses data collected from employers and is described in greater detail later; and
3. Unemployment Insurance (UI).

Armed with more than ten years of data from these sources, the BLS developed two models for each state: one to estimate the employment level and one to estimate the unemployment rate. Each state's separately determined model has been specifically tailored to its historical and current data. Indiana's employment model is made up of the employment estimate from the CES program, which provides the largest portion of the total employment estimate. Other variables are included to account for workers not included in the CES survey data, such as the self-employed, unpaid family workers, private household domestic workers, and agricultural workers. Then the estimate of the employment level of the labor force is made. In short, the employment is estimated as the sum of the CES employment, plus factored numbers to account for the employment not included in the CES definition.

The Indiana unemployment rate is estimated using the ratio of unemployment insurance claims to the CES. This ratio is a relative measure of the number of workers collecting unemployment insurance benefits (UI beneficiaries). Other variables include an employment-to-population (E/P) ratio and an entrant rate. The E/P ratio is used as a measure of labor market tightness. (Also, we can't have the sum of the employed and unemployed greater than the population.) The entrant rate is included to account for the unemployed new entrants and the re-entrants into the labor force and to measure seasonal movements of the unemployment rate (for example, nonworkers who want to work part-time during holidays and summer vacation). As you probably have figured out by now, the E/P ratio and the entrant rate come from regression analysis of CPS data. By the way, the entrant rate is very seasonal.

Once again we have the desired result—in this case, the unemployment rate. This is simply the ratio of UI beneficiaries to nonagricultural establishment employment, plus the E/P ratio, plus the entrant rate. Because it accounts for a large part of the labor force estimate, the CES estimate of nonagricultural establishment employment may be of interest.

A more detailed explanation of these methods can be found in the *BLS Handbook of Methods*, Bulletin 2414, U.S. Department of Labor, Bureau of Labor Statistics. The national labor force estimates and establishment employment estimates are published monthly in the *Monthly Labor Review* and *Employment and Earnings*, Bureau of Labor Statistics. Indiana's labor force estimates and nonagricultural establishment employment statistics are available monthly by calling (317) 232-0195. They are also available on the Internet at http://www.dwd.state.in.us. Click on the LMI icon. Frequent analysis of these estimates are produced by the IBRC and are available in this publication as well as on the IBRC web site.

Current Employment Statistics

Employment estimates for the various industry classifications, except agriculture, are made monthly from data collected from employing establishments. This concept of employment differs in several respects from the labor force employment.

First, these data come from employers' places of business: shops, factories, stores, construction sites—wherever the work is performed. Labor force data, on the other hand, originate at worker households. Second, establishment employment pertains to all industry classifications except agriculture, whereas labor force employment includes all industry classifications. Third, the self-employed, unpaid family workers and domestic workers in private households are not included in establishment employment, whereas they are counted in the labor force employment.

The state employment security agencies—in this case, the Indiana Department of Workforce Development—collect data each month on employment hours and earnings from a sample of non-farm establishments. The number of surveyed establishments is about 400,000 nationally and 7,200 in Indiana.

The BLS receives the data from the states after a series of edits are performed for correctness, completeness, and consistency. It then processes the information to make national estimates in great industry detail using a random, stratified sample of the establishments. This means that industry classification groups of various size are sampled with differing sample sizes, providing efficiency and economy in operations and still yielding valid statistical results.

The national and state estimates are made using similar techniques called link-relative estimation. This requires that the surveyed establishments must have responded for two consecutive months and have benchmark data before the information can be used in the estimating procedure. The estimation is made at the cell level or aggregation of like industry firms. This "link" provides the change factor for the current month's estimate for the industry group represented by the establishments in that group.

These estimates are then multiplied by bias adjustment factors. As these factors are used to compensate for the inability of the sampling to capture new firms, it is necessary to use modeling techniques to account for this activity. Data from new firms being started after the fact are related to the original estimated employment data over a period of three years. This provides a baseline adjustment factor that takes into account a moving three-year average of historically observed differences between purely sample-based estimates and complete population counts.

To recap, what is published in the *Indiana Employment Review* as nonagricultural establishment employment estimates are made as follows: A sample of employing establishments are surveyed to obtain their current employment. When the firms have participated for two consecutive months, a link is created measuring the upward or downward movement. Firms are grouped by industry classification into estimating cells. The link is benchmarked to a prior baseline consisting of the universe of that industry group or estimating cell. The movement of the link of the sample data is applied to the estimating cell. The estimating cell is multiplied by a bias adjustment factor to account for new firms started outside the sample. The results of all the estimating cells are added to become the estimate of total nonagricultural establishment employment for the surveyed month.

Back Home In Indiana: A Migration Profile

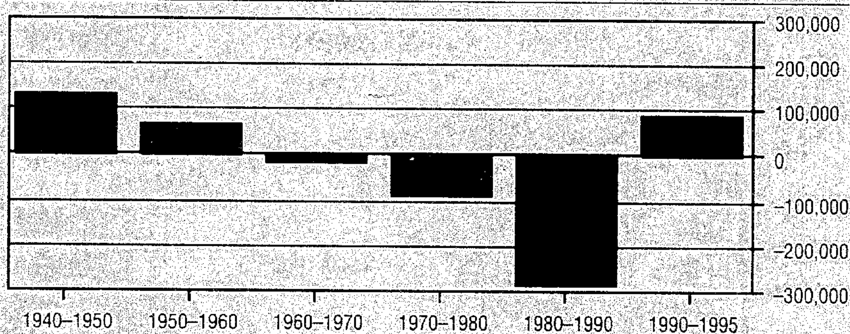
Susan Brudvig

Research Demographer, Indiana Business Research Center. The author wishes to acknowledge Gwen Hoberty and Steve Geswein for research assistance.

Indiana has witnessed a migration reversal. In this decade, the Census Bureau estimates that almost 86,000 more people have moved into the state than have moved out. These new estimates reverse a 30-year trend; the 1950s was the last decade in which Indiana experienced more people moving in than moving out (see **Figure 1**).

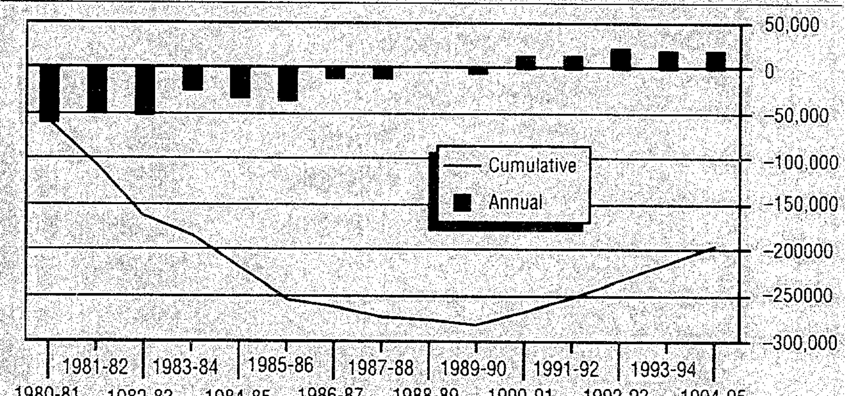
The state was hard hit in the 1980s, losing more than 284,000 people to migration. The losses were especially large in the early part of the 1980s, though they slowed down as 1990 approached (see **Figure 2**). Indiana still has not recovered from such a drain. There has been a cumulative loss of people—approximately 198,000—to migration since 1980, despite the state's being on the other side of zero in this decade. Add to this the number of people lost and gained due to migration since 1940, as shown in Figure 1, and it will take 100,000 people calling Indiana home to recoup the total loss of people to migration in slightly more than half a decade.

Figure 1
Net Migration In Indiana Since 1940



NOTE: The source of all data for tables and figures is the U.S. Bureau of the Census.

Figure 2
Annual And Cumulative Net Migration, 1980–1995



NOTE: These are annual periods except 1980-81 and 1990-91 (5 quarters) and 1989-90 (3 quarters).

Who Are The New In-Migrants?

Unfortunately, the Census Bureau's estimates of migration cannot answer that question. The data released annually by the Bureau are for aggregate net migration, with no characteristics of migrants. And the annual estimates are residual, incorporating error from estimating all the components of population change. However, data from the 1990 Census may help us find out who is migrating to Indiana.

This article, the first in a series about migration, identifies the basic facts of Indiana's in- and out-migration between 1985 and 1990. The data used are based on responses to a question that asked a sample of census respondents where they lived five years prior to the 1990 census. The data set, known as the County-to-County Migration tally (STP 28), allows us to identify migrants by their age and education, as well as by other characteristics. In addition, we can pinpoint the movements of in-migrants and out-migrants. Because the data are for two points in time (1985 and 1990), it underestimates total migration because people could move more than one time during the five-year period.

The data show that between 1985 and 1990, about 434,000 people moved *to* Indiana from other states, whereas about 431,000 moved *from* Indiana to other states. Those excluded from this article are the more than 32,000 immigrants who moved to Indiana from other countries. People who moved *to* other countries are not known from the census questionnaire; the question was not asked of nonresidents.

A Demographic Truism: Migration Is Selective

Young adults, who are more likely to move than other people, made up the largest share of migrants in and out of Indiana between 1985 and 1990 (see **Figure 3**). Of this group, people aged 25 to 29 were the most numerous. In total, people between the ages of 20 and 34 in 1990 made up 41% of Indiana's out-migrants and 43% of the state's in-migrants.

Highly educated people are also more likely to move, so education plays a role in migration (see **Table 1**). Among people aged 25 or older in 1990 with college degrees, 21,000 more left the state than entered it. This figure, however, which is often used as evidence of a brain drain in the state, may be a bit overstated. Indiana is a net importer of college students, attracting more students to higher education than it sends to other states. We would expect many of those out-of-state students to return home once they receive their degrees. And this plays out in the figures: the net migration of people aged 30 or older in 1990 was −5,500 between 1985 and 1990—about one-quarter of the total shown in Table 1 of those with bachelor's degrees or higher.

Where Did They Come From? Where Did They Go? Indiana's in-migrants moved from our neighboring states, as well as from some of the nation's largest states (see **Table 2**). Illinois (#1) sent more than 76,000 people to Indiana, while Ohio (#2) sent nearly 46,000 and Michigan (#3) and Kentucky (#4) sent more than 30,000 each. Texas, Florida, and California each sent at least 20,000. Rounding out the top ten states sending people to Indiana are Wisconsin, New York, and Pennsylvania.

Florida was the top destination for Indiana's out-migrants between 1985 and 1990, but these former Hoosiers were not retirees, as one might assume. Three out of four people moving from Indiana to Florida were under 60 years of age in 1990. Our neighboring states received a share of former Hoosiers, rounding out the top five destinations. California (#6) and Texas (#7) each received more than 20,000 former Hoosiers. More than 10,000 former Hoosiers moved to Tennessee (#8), Georgia (#9), and Arizona (#10).

Indiana won the battle of net migration among its neighbors (see **Figure 4**). In the Industrial Midwest, the Hoosier state attracted more residents than it sent to other states. Reflecting a geographic shift in population, more former Hoosiers call the South or West their home than vice versa.

Figure 3
Indiana Migration by Age, 1985-1990

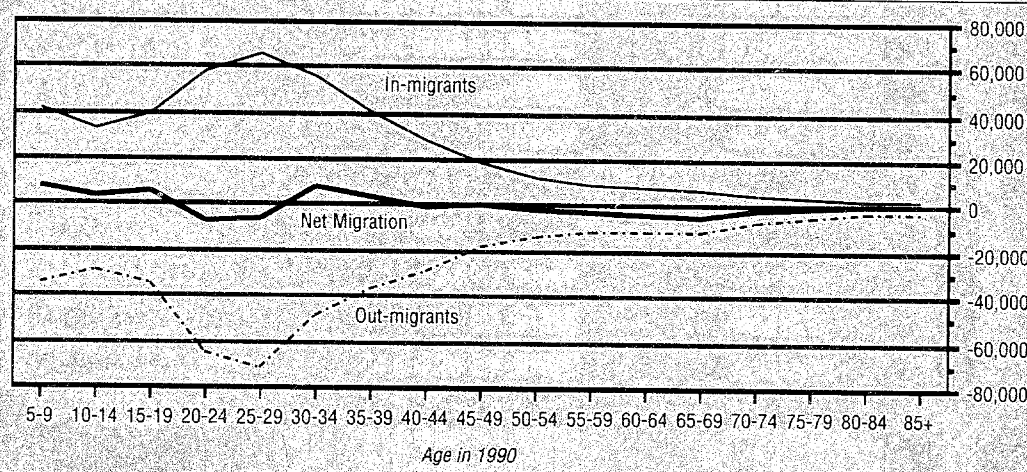


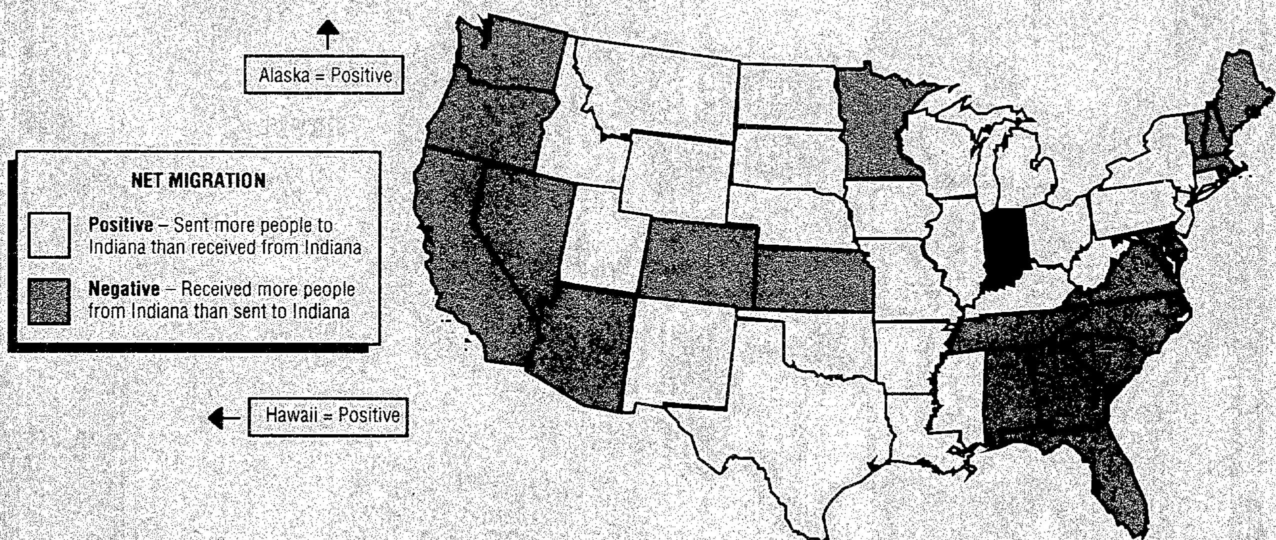
Table 1
Educational Characteristics Of Indiana's In- And Out-Migrants, 1985–1990

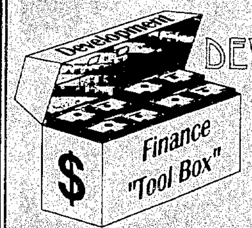
	In-Migrants	*Out-Migrants*	*Net Migration*
People 25 and Older	260,906	269,145	-8,239
Not a High School Graduate	41,903	39,352	2,551
High School Graduate	71,410	64,672	6,738
Some College or Associate's Degree	73,647	69,980	3,667
Bachelor's Degree or Higher	73,946	95,141	-21,195

Table 2
Migration To And From Indiana, 1985–1990

	In-Migrants		*Out-Migrants*		*Net Migration*	
	Number	*Rank*	*Number*	*Rank*	*Number*	*Rank*
Alabama	3,938	24	5,534	20	–1,596	40
Alaska	1,269	39	1,198	39	71	27
Arizona	7,665	13	10,863	10	–3,198	45
Arkansas	3,921	25	3,498	27	423	18
California	23,787	7	28,099	6	–4,312	46
Colorado	6,217	17	6,703	17	–486	37
Connecticut	2,913	30	2,352	32	561	14
Delaware	451	49	782	43	–331	35
Dist. of Columbia	629	47	824	42	–195	32
Florida	26,447	6	58,374	1	–31,927	50
Georgia	7,015	15	14,151	9	–7,136	49
Hawaii	1,876	34	1,684	36	192	22
Idaho	782	43	639	46	143	25
Illinois	76,458	1	45,547	2	30,911	1
Iowa	5,828	19	3,754	25	2,074	9
Kansas	3,961	23	3,975	23	–14	28
Kentucky	32,605	4	28,782	5	3,823	4
Louisiana	4,693	21	2,855	30	1,838	11
Maine	674	46	887	41	–213	33
Maryland	3,681	26	4,654	21	–973	38
Massachusetts	3,267	27	3,664	26	–397	36
Michigan	33,671	3	30,354	4	3,317	6
Minnesota	4,246	22	5,893	18	–1,647	41
Mississippi	3,122	29	2,759	31	363	19
Missouri	10,663	11	10,474	12	189	23
Montana	969	42	660	45	309	21
Nebraska	2,070	33	1,618	37	452	15
Nevada	1,323	38	3,157	29	–1,834	42
New Hampshire	737	45	904	40	–167	31
New Jersey	4,963	20	3,879	24	1,084	12
New Mexico	1,852	35	1,718	35	134	26
New York	10,811	9	7,396	16	3,415	5
North Carolina	6,235	16	10,713	11	–4,478	47
North Dakota	771	44	607	47	164	24
Ohio	45,982	2	36,547	3	9,435	2
Oklahoma	6,018	18	3,232	28	2,786	7
Oregon	1,546	37	1,793	34	–247	34
Pennsylvania	10,787	10	8,350	15	2,437	8
Rhode Island	456	48	470	50	–14	28
South Carolina	3,184	28	5,699	19	–2,515	43
South Dakota	998	41	560	48	438	16
Tennessee	9,146	12	15,421	8	–6,275	48
Texas	28,543	5	21,270	7	7,273	3
Utah	1,630	36	1,201	38	429	17
Vermont	374	50	524	49	–150	30
Virginia	7,509	14	10,439	13	–2,930	44
Washington	2,887	31	4,330	22	–1,443	39
West Virginia	2,830	32	1,828	33	1,002	13
Wisconsin	11,252	8	9,222	14	2,030	10
Wyoming	1,026	40	713	44	313	20

Figure 4
Net Migration To And From Indiana, 1985–1990





Third Annual
DEVELOPMENT FINANCE TOOL BOX CONFERENCE
Indianapolis
June 19, 1996

Are you involved with industrial development, business assistance, community development, or housing?

You will not want to miss this conference!

- Participate in a Roundtable Discussions with program heads and finance experts
- Learn how changes in federal funding will affect state and policy programs
- See how the Toyota Project was structured
- Receive the new, updated *Tool Box Reference Guide*, which profiles over 100 finance programs and other funding tools

Cost of the conference is $95.00, including the *Tool Box Reference Guide*.
To be placed on the mailing list, contact the Indiana Economic Development Association (317) 573-2990.

Indiana Business Research Center

SCHOOL OF BUSINESS

Overview	Economy	Population	EDIN	Business Review	Links

We're on the Web!

http://www.bus.indiana.edu/research

Indiana Business Review
June 1996

Indiana Business Research Center
School of Business
Indiana University
1309 E. 10th Street
Bloomington, IN 47405-1701

ADDRESS CORRECTION REQUESTED

Nonprofit Organization
U.S. Postage
PAID
Bloomington, Indiana
Permit No. 2

00899
SRI ACQUISITIONS
CONGRESSIONAL INFO SERV
4520 EAST WEST HIGHWAY
BETHESDA MD 20814-3389