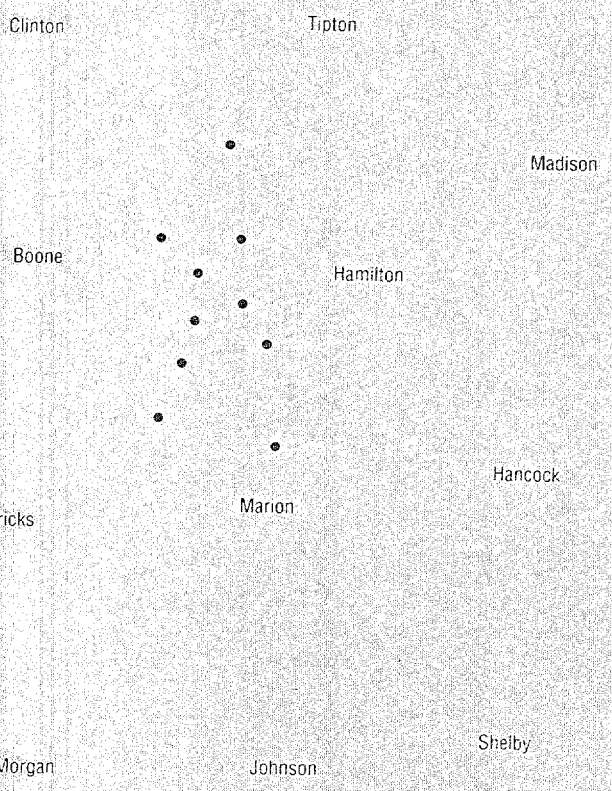
Indiana Business Review



Indiana's Center of Population, 1900-1990

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Indiana's Center of Population, 1900 to 1990

Jerry McKibben

Demography
Division
Research

One of the more popular statistics that appears after each census is the location of the center of population in the United States. Calculated for each census since 1790, the U.S. center of population has marched steadily westward for 200 years. For six decades (1890 to 1940), it was located in the state of Indiana, before slipping over to Illinois in 1950. The 1990 center of population is expected to be somewhere in southeast Missouri when the final census numbers are released.

In itself, a singular center of population is not a very useful statistic. Its strength lies in the fact that the changes in population distribution can be measured over time when a series of centers is plotted. The technical definition of a center of population is "a near point of the population distribution over an area that may be defined as the center of population gravity for the area." In other words, it is the point in which an area would balance if it were a rigid plane without weight and the population were distributed on it, each individual being assumed to have an equal weight and exert an equal influence on the center point proportional to his distance from the point. The pivotal point, therefore, would be the center of gravity (Shryock and Siegel 1976). The greater the distance between the plotted points, the greater the change in population distribution over that period of time. The direction of the change in distribution can also be measured by exar , the angle of change between the plotted points.

Figure 1 shows how the U.S. center of population has shifted over the last 200 years. In 1790, when most U.S. citizens lived on the east coast, the population center was near Baltimore. With each subsequent census it moved west—rapidly in the early 1800s and again after the Civil War due to the high levels of foreign immigration. After the immigration flow was cut off by 1910 and 1924 immigration laws, the changes became much smaller as westward migration slowed. After 1950, with the increase in internal migration, the center moved west again at a faster pace.

Between 1790 and 1950, the center point movement was always westward, with little north-south movement. In fact, for 160 years the point was never more than 16 minutes away from the 39th parallel. This shows that while the U.S. population was moving westward, both the northern and southern regions were growing at an even rate. After 1950, the center began moving south and west, reflecting a trend of stronger growth in the southern half of the country, as well as continued growth in the west. By 1980, the center had crossed the Mississippi River, and it is estimated that the 1990 center will, for the first time, show more movement southward than westward.

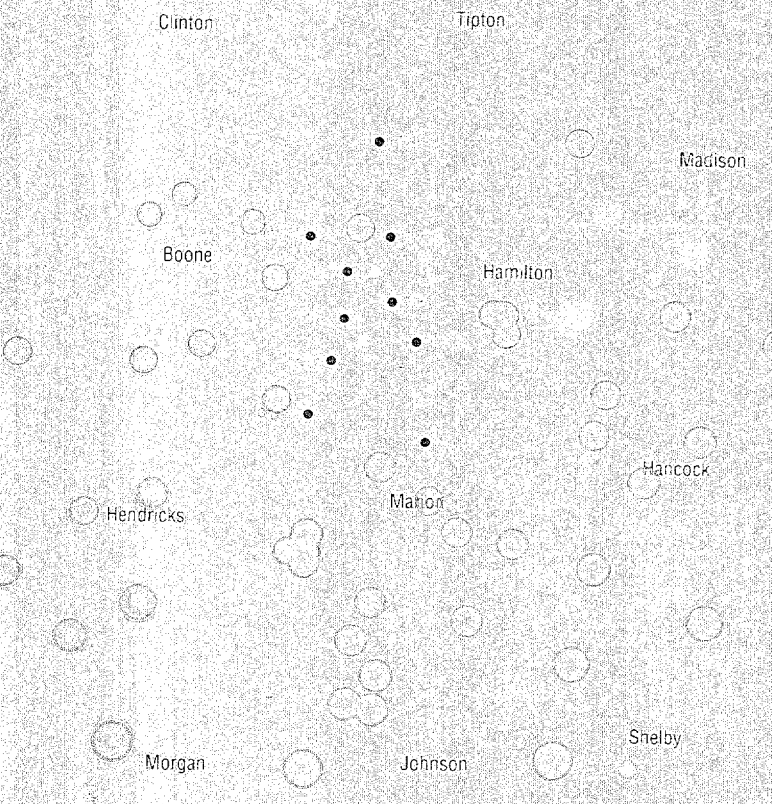
The same concept of comparison of population distribution can be applied to the state level. Indiana's settlement history played a part in the movement of its ce r of population. Unlike the U.S., which was settled east to west, Indiana was settled south to north. In 1820, the state center of population would have been somewhere in Washington County.

By 1900, however, the county with the largest population was Marion, located in about the exact center of the state. The remaining population lived in about equal proportions north, south, east, and west

of the capital, so the state center of population was in northern Marion County (see **Figure 2**). Given the size of Marion County's population and its location in the center of the state, it has exercised a strong influence on the location of the center of population.

To move the center over time, there must be extraordinary change in the distribution of the state's population, and the change must take place in areas located as far away as possible from the center of Indiana. This is exactly what has happened over the last 90 years. The largest change in Indiana population distribution has occurred in the northern tier of counties and in the Ohio River counties in the south.

Figure 2



Between 1900 and 1910, the population of Lake County more than doubled. This was the primary distribution change of the decade. Therefore, we see a westward and slightly northward movement of the population center by 1910. The growth of the steel industry in just one county over 10 years was enough to move the center about 10 miles. This is perhaps the best example of how population changes in just one area can change the distribution patterns of the entire state.

However, it is important to note that the center of population moved only eight miles in the decade. Thus in Indiana, unlike in the U.S., small changes in the population center can reflect relatively large changes in the state's population distribution.

By 1920 the automobile revolution was well under way, and Indiana was a leader in the manufacturing of automobiles and automobile parts. This industry was centered in the northern third of the state, particularly in St. Joseph, Elkhart, and Allen counties. There was a corresponding flow of in-migration to the area, causing many of the northern counties to grow faster than the state average. This caused the 1920 center of state population to move almost straight north into southeastern Boone County. These trends continued throughout the 1920s, and by 1930 the population center had moved north once again—this time to the area around Northfield in Boone County. This is a rather unique situation, given that the geographic center of the state is in the same area. This gives Indiana the distinction of being one of the few states that has geographic and population centers in roughly the same place.

The Great Depression of the 1930s slowed the change of population distribution in Indiana, just as it did for the rest of the U.S. The industrial growth of the northern part of the state slowed to a standstill. Ratios of population increase for northern counties dropped to near the state average.

Yet the 1940 center of population shifted eastward from the 1930 point. The cause of this change was not population growth, but rather population decline. The agricultural counties in the western part of the state, as well as counties that had large numbers of people employed in mining (particularly coal), saw no growth or outright population decline in the 1930s. This factor was sufficient to shift the 1940 population center about five miles east, to the area around Eagletown, in Hamilton County.

In the 1940s economic growth returned, with the war boom early in the decade and a consumer boom in the last half. The growth in manufacturing in the northern third of the state increased at a rate faster than it had in the 1920s. Population growth followed suit, accented by an increase of in-migration to the state from the southern region of the country. This

coupled with the continued slow population growth in the southern half of the state, moved the 1950 center of state population almost straight north to just outside Sheridan in Hamilton County.

The trends of the 1940s continued in the 1950s and the population center also continued north. An additional factor affecting the northward trend was the post-war baby boom, which would reach its peak in Indiana in 1957. Though both the birth rate and the number of births increased for all areas of the state during the 1950s, the increase was substantially higher in the northern third of the state than in the southern third. This trend accelerated the difference in growth rates of the two parts of the state and the movement of the population center was the greatest change recorded in this century. The results of the 1960 census placed the center in northwest Hamilton County, just east of the Clinton County line. This was to be the apogee of the center's northward progress; the era of high northern population growth was coming to an end.

The 1970 census shows a slowdown in the overall population growth rate for Indiana. The rate for most northern counties slowed to approximately the state average. The major exception was St. Joseph County, which experienced an economic decline that foreshadowed what the rest of the state would go through 15 years later.

With the closing of the Studebaker plant in the mid-1960s, St. Joseph County saw its population growth rate drop by 80 percent. This, in addition to a slowdown in the rural depopulation in the southern half of the state, caused the population center to move south for the first time in the state's history. The 1970 center of state population was just inside Boone County, west of Sheridan.

The decline of heavy industry in other parts of northern Indiana continued the southern movement of the population center in the 1970s. By 1980, the center was located on the Boone-Hamilton county line east of Big Springs. As Indiana began to experience net out-migration, the northern counties became sending areas instead of the receiving areas they had been prior to 1960. With the baby boomers reaching the age when people traditionally migrate (18-24), this trend accelerated as the 1970s wore on. At the same time, there was a minor resurgence of growth in the southern part of the state. Although this "Rural Renaissance" was very small compared to that in other areas of the country, it was enough to help bring the population center a little farther south.

In the early 1980s the bottom dropped out of Indiana's heavy manufacturing economy. This, along with the peak of the baby boom reaching the 18-24 age bracket, resulted in the state experiencing unprecedented levels of out-migration. Whereas the major question of earlier years was, "Who gained the most people?," in the 1980s it became "Who lost the fewest people?" Most counties in the state showed net out-migration for the decade.

Consequently, the counties that were most affected by this out-migration (Lake, LaPorte, Allen, Delaware, Howard, Grant, and Cass) would also have the greatest effect on the population center. Since all of these counties are in the northern part of the state, the population center moved south again.

However, the center also moved east. This was due to the fact that the population loss in Lake County was much higher than in any other part of the state. The county that was responsible for the center's movement north and west early in the century was thus also responsible for the center's movement back to the south and east.

A final factor affecting the center's movement in the 1980s was the growth rate of metropolitan Indianapolis. Because more than 20% of the state's population lives in the metro Indianapolis area, the center of the state has always exacted a strong influence on the population center's movement. This is augmented by the fact that the central region has had the highest growth rate in the state. So while the north was losing its "pull" effects on the center of population, the central part of the state was exhibiting a stronger influence.

Connecting the dots representing the 10 centers of population reveals roughly a figure-eight pattern. While the basic movement is north and south, there is also movement east and west during alternate periods in Indiana history. This provides a graphic representation of which areas of the state are growing and declining, as well as the timing of the changes.

The future movement of the Indiana center of population will undoubtedly be in a southerly direction. In fact, if current trends continue, the center at the year 2000 should be in north-central Marion County—very close to where it was in 1900. Thus, in the span of one century, Indiana's population distribution will have undergone a dramatic transition, shaped by a 60-year expansion in the northern tier of the state followed by a 40-year decline in the same area.

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The Indiana Enterprise File Project

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About once a week the Indiana Business Research Center (IBRC) receives a call asking for information about Indiana companies. These calls come from such people as corporate marketers, economists, location specialists, private consultants, and aspiring entrepreneurs, as well as the Department of Commerce, Governor's and Lieutenant Governor's offices, State Board of Health, and Legislative Services. The two groups state their objectives differently. The private sector says, "We're evaluating marketing strategy . . ." or "We're considering opening a new branch/warehouse/plant . . ." or "I'm thinking about starting a new business. . . ." The public sector says, "We're conducting a program evaluation . . ." or "We're analyzing the potential effect of proposed legislation . . ." or "We need to survey Indiana companies that . . ."

However, questions from both sectors fall into two general categories. "How can I get a list of" questions and "How many" questions. The questions are the same, with a few characteristics that vary. These are size, geographic location, industry, age, and change over time. Examples include:

- How can I get a list of small to medium-sized companies in the Indianapolis metro area that have grown by at least 25% in the past two years?
- How many new companies were formed in Indiana this year and what is their total employment?
- How can I get a list of automotive parts manufacturers in Northwest Indiana?
- How many people are employed in downtown areas with Main Street programs and how has that changed in the past five years?

Those in need of a list are referred to companies that specialize in generating lists for marketing purposes or to the few libraries that provide some information on CD-ROM. If the variables are sufficiently broad, the "how many" questions can be answered by public information released by state or federal agencies. The IBRC maintains a data base that contains (among other things) a time series of annual payroll, employment, and number of establishments at the state or county level. Each of these geographic areas can be further broken down by industry division. However, if the variables are defined more narrowly—for instance, if the geographic variable is a city or enterprise zone or the industry variable is grocery stores or shoe manufacturers—we have been unable to answer the question.

In 1987 the Indiana Economic Development Council asked the IBRC to investigate the need for company-specific information by agencies seeking to improve the state's economy. During the 1980s several new agencies and programs had been formed to support Indiana's economic development, and considerable effort and money were being spent—often in duplicative projects—to get information about individual firms in the state.

We conducted interviews with economic development organizations at the state, regional, and local levels. We found that those who seek to help the economies of their respective communities try to aid entrepreneurs, retain existing businesses, and support business expansion. To evaluate programs geared toward entrepreneurs, economic developers need information on new business formations. To evaluate retention efforts, they must know how many companies go out of business. To evaluate expansion efforts, they must know the number of expanding companies and the rate of expansion. Yet currently the only available measures of success are total wages and employment within the county. Whereas increasing employment is the objective of economic development efforts, the ability to evaluate the individual strategies and programs used in the effort is critical. Essentially, the economic developers we interviewed were seeking a method of evaluating and quantifying the vitality and diversity of business activity in their communities.

Simultaneously, we conducted interviews with private vendors and state agencies that collect company-specific information to determine the utility and availability of such information. It became clear that the State of Indiana, through the Indiana Department of Employment and Training Services (IDETS), already collects information that could be used to answer many of the needs expressed by the economic developers we interviewed.

Among other things, IDETS collects unemployment taxes and disperses unemployment benefits when owed. As such, it collects information about companies, known as employing units, and their individual employees. An employing unit is the entity liable for payment of taxes. An establishment, on the other hand, is the discreet operating unit. Therefore, an employing unit may have several establishments throughout the state, and separate establishments may operate in different Standard Industrial Classification (SIC) categories. As such, the tax records alone do not necessarily reflect employment by county or by SIC code.

To create a clearer picture at the county and industry levels, the U.S. Bureau of Labor Statistics funds state "Employment Security" agencies to "itemize" multi-establishment units to reflect the number of employees, total wages, and SIC code of the county level organization. The resulting computer file, known as ES202, is produced quarterly, sent to the Bureau of Labor Statistics (BLS), and a copy is kept in-state for eight quarters.

There are two significant barriers to the use of this information. The first is technical; the data are not

SIC Codes

The Standard Industrial Classification (SIC) is a coding system published by the U.S. Office of Management and Budget and used to classify establishments by industry of operations. An SIC Code is made up of four digits. The first digit identifies the industry division—for example, mining, construction, or manufacturing. The combination of the first two digits identifies a major group—coal mining, building construction, or transportation equipment manufacturing. The combination of the first three digits identifies an industry group—bituminous coal and lignite mining, residential building construction, or aircraft and parts manufacturing. Finally, all four digits identify the industry—underground mining of bituminous coal, single-family housing construction, or aircraft manufacturing. Simply put, each additional digit provides a greater level of detail.

stored or organized to meet the needs of the economic development community. The second is legal: the information is considered confidential by state and federal law.

Technical Barriers

The organization of ES202 files makes analysis over time very difficult. It is as if each establishment has a file folder for the quarter, and all file folders for that quarter are stored in one file cabinet. To get a historical picture of any given establishment, one would have to pull its folder from each of eight cabinets. Additionally, an eight-quarter view does not provide enough history for many applications. Five years of data are frequently requested. If the data were kept for five years, 20 file cabinets would have to be searched.

Legal Barriers

These data are considered confidential by state law. Specifically, the law states that this information "shall not be published nor be open to public inspection, in any manner, revealing the individual's or the employing unit's identity. . . ." In practice, this means that aggregate figures must be based on at least three establishments in which no individual establishment comprises more than 80% of the total.

There is good cause for the confidentiality clauses surrounding the *public* release of such information on privately held firms. The law establishes that ES202 data may be accessed by other state agencies. However, the law does not clearly address uses that may be made once the data are accessed. Therefore, assurances of confidentiality have also restricted the flow of information to those responsible for public policy decisions.

Opportunities at Greater Levels of Disaggregation

We remained convinced that the data could be organized and manipulated to yield a better picture of the dynamics and diversity of the Indiana economy, even within the confidentiality restrictions. Since there is a record for every employer in the state, the ES202 data set is quite large. We needed to work with a subset of the file to prove our contention. We chose to work with data on establishments in Grant County. In this article we present examples that conform to confidentiality restrictions but are nonetheless at a level of detail that is not currently available. These sample situations would gain in value if compared to the state or other similar counties and if more than eight quarters of activity were available for analysis.

By SIC Code

One of our objectives for the pilot project was to identify growth industries in Grant County. Our first job was to determine the growth parameter—employment, payroll, or number of establishments. We chose change in wages, adjusted for inflation, as the most relevant measure of growth. The second task was to determine the appropriate industry level. ES202 records contain four-digit SIC codes; however, we decided to begin with a broader look, using the first two digits of the SIC code, and then focus on areas of interest. Using these parameters, we identified the 15 industries in Grant County demonstrating greatest growth from third quarter 1987 to third quarter 1988 (shown in **Table 1**).

At this point, we began to wonder about the underlying components of this growth. For instance, are all three-digit SICs within the broad two-digit classification growing? As can be seen in **Table 2**, movement at the three-digit level is not always in the same direction as at the two-digit level. Business services is a good case in point. Overall, business services grew 18.3%. Service to dwellings, which includes pest control and janitorial services, showed the greatest percentage increase (78.2%); computer-related services had the greatest dollar increase ($91,299) in the cat-

Table 1

Rank	SIC Description	SIC Code	Difference in Real Wages (1982 Base)	Percent Change
1	Undisclosed due to confidentiality restrictions			41.2
2	Fabricated metal products	34	$1,386,953	3.9
3	Educational services	82	1,250,331	16.2
4	Health services	80	706,193	4.7
5	Executive/Legislative/General	91	491,643	25.5
6	Auto dealers, service stations	55	314,405	12.7
7	Paper & allied products	26	282,126	6.4
8	Trucking & warehouses	42	260,162	11.0
9	Industrial machinery & equipment	35	227,259	20.4
10	Rubber & miscellaneous plastic products	30	226,291	6.6
11	Wholesale trade durable goods	50	189,295	14.6
12	Transportation equipment	37	187,116	3.7
13	Business services	73	179,043	18.3
14	Depository institutions	60	160,760	9.9
15	Special trade contractors	17	157,246	8.4

Table 2

SIC Description	SIC Code	Diffs. in Real Wages	% Change
Business Services	73	$179,043	18.3
Credit Reporting, Collection	732	1,386	3.7
Service to Dwellings	734	67,156	78.2
Misc. Equip. Rental & Leasing	735	(1,700)	-2.3
Computer Related Services	737	91,299	21.1
Misc. Business Services	738	11,382	4.2
Non-Disclosed		9,520	12.8

Table 3

SIC Description	SIC Code	Entry	Increase	Decrease	Exit
Business Services	73	4	21	5	5
Credit Reporting, Collection	732		3	1	
Service to Dwellings	734	1	3		
Misc. Equip. Rental & Leasing	735		3	1	
Computer-related Services	737	2	4	1	1
N.e.c. Business Services	738	1	7	2	2
Not Disclosed			1	1	2

Employment Range	3rd Quarter 1987 # Units	# Emps	Total Wages	3rd Quarter 1988 # Units	# Emps	Total Wages
0	23	0	$62,799	30	0	$254,790
1-9	943	3,509	10,754,511	937	3,378	10,799,938
10-19	185	2,510	8,538,745	197	2,623	9,853,561
20-49	107	3,029	11,692,966	109	3,318	12,063,960
50-99	39	2,792	8,379,793	46	2,991	10,268,971
100-249	26	4,231	18,486,035	29	4,574	21,748,051
250-499	8	2,697	11,307,606	7	2,427	10,982,160
500+	8	10,407	80,319,020	8	11,119	91,792,090
TOTAL	1,344	29,275	$149,565,475	1,363	30,430	$167,763,521

Employment Range	ESTABLISHMENTS % Change	# Change	EMPLOYMENT % Change	# Change	WAGES % Change	# Change
0	30.43%	7	N/A	N/A	207.72%	$171,991
1-9	-1.16%	-11	-3.73%	(131)	0.42%	45,427
10-19	6.49%	12	4.50%	113	15.40%	1,314,816
20-49	1.87%	2	-0.33%	(11)	3.16%	368,994
50-99	17.95%	7	15.39%	399	22.54%	1,889,178
100-249	11.54%	3	8.11%	343	17.63%	3,260,016
250-499	-12.50%	-1	-10.01%	(270)	-2.88%	(325,446)
500+	0.00%	0	6.84%	712	14.28%	11,473,070
TOTAL	1.41%	19	3.95%	1,155	12.17%	$18,198,046

TO / FROM	Not Existing	0	1 to 9	10 to 19	20 to 49	50 to 99	100 to 249	250 to 499	500+	Total 3:87
Not Existing		7	97	12	5	2	1		1	**(+125)**
0	11	4	8							23
1 to 9	81	19	807	40	1					948
10 to 19	7		23	135	19	1				185
20 to 49	3		1	10	81	12				107
50 to 99	3		1		3	29	3			39
100 to 249						2	24			26
250 to 499							1	7		8
500+	1								7	8
TOTAL 3:88	**(-106)**	30	937	197	109	46	29	7	8	

egory. Simultaneously, however, equipment rental and leasing showed a decrease in real wages from one year to the next. Percent changes at the four-digit level were even more dramatic, varying from 87.6% to -100%.

Now one may ask, "Where did the growth occur? Was it in existing firms or can it be attributed to new companies?" With access to establishment records, we can count the numbers of records that are entering or exiting from the previous period—or increasing or decreasing in employment. This kind of expansion has been done for business services and is presented in **Table 3**. It is interesting to note that the stellar performers, service to dwellings and computer-related services, have a net gain (entries minus exits) of one new firm each. The others either remained the same or lost establishments.

Working with establishment-specific records, similar tabulations of the direction of growth (decline) can be done by employment range. We began by summing the number of reporting units (establishments), employees, and quarterly nominal wages (**Table 4**). We then computed the change in each of these elements from one year to the next (**Table 5**).

However, these calculations alone gave limited information. For instance, we note a net gain of seven establishments in employment range 50-99. Are these new businesses, or did they move into the 50-99 range from some other category? If the latter, did they "grow" or "shrink" to the new category? So again we sought to determine the components of the change. These tabulations are presented in **Table 6**.

We can see from this that the net gain in 50-99 is composed of the following:

Entry (in 2nd period/not 1st)	+2
Growing from 50-99 to another range	-3
Growing to 50-99 from another range	+13
Shrinking to 50-99 from another range	+2
Shrinking from 50-99 to another range	-4
Exit (in 1st period/not 2nd)	-3
NET CHANGE	+7

Note the totals for the row and column in Table 6 headed "not existing." These totals appear in bold and in parentheses. The row total, +125, is the number of records that appeared in third quarter 1988 but not in 1987. The column total, -106, is the number of records that appeared in third quarter 1987 but not in 1988. One may be tempted to identify these as 125 new establishments and 106 establishments that went out of business. This identification would be inaccurate, because these entry/exit movements may only reflect a change in ownership. Without clear prede-

cessor/successor identification, the net change of +19 is the only relevant figure.

Limitations and Caveats

ES202 files are a rich source of time series information on Indiana establishments. Although we believe this source to be the most accurate and useful for our stated purposes, there are significant limitations as well.

First, as indicated above, there is no indication of predecessor/successor relationship in cases of change in ownership. In some cases, a purchaser of an existing business will assume the existing employment security account. In other cases, the purchaser may opt to open a new account. In the latter case, a new account number would appear in the file and the old account number would become inactive. Obviously this affects our ability to identify entries and exits, since an account change could appear as one entry and one exit. Therefore, net change in number of establishments is relevant, but counts of entries and exits are not.

Second, the address is not available on all records. When it is, it is a mailing address for the person who fills out the report, not necessarily the location address. We were able to identify that 33% of the Grant County records either had no address, only a P.O. Box, or a mailing address that is out of the county. This figure does not account for mailing addresses that may be administrative offices of multi-operating units in the same county. This finding severely limits the ability to use the data to facilitate planning or program evaluation in sub-county areas.

Each of these limitations is surmountable. In fact, the BLS recognized the need to overcome these deficiencies several years ago. The BLS launched an initiative to identify the def encies and opportunities define necessary procedures and forms, and implement the subsequent recommendations. This effort is known as the Business Establishment List (BEL) project. In 1990, the BLS provided seed money to state employment agencies to begin implementation. To date, Indiana is one of the few states that have not started work on BEL implementation. Efforts are under way to correct this in the upcoming legislative session.

One final caveat is noteworthy. Total wages and number of employees are not in the same time window. Wages are continuous and cumulative throughout the quarter, total employment is defined as the number of employees in the week that includes the 12th of the middle month of the quarter. Therefore an establishment can have positive wages but no employees. Under such circumstances, a wage per employee calculation is meaningless.

The preceding examples have illustrated ways in which we can count companies and the data associated with them. It is important to remember that one of the most critical needs is to generate lists of companies based on industry, employment, or geographic criteria.

If the state-held UBETS data could be used to make these identifications, we could reduce costs associated with acquiring proprietary marketing lists. Additionally, this data could be used to generate lists based on a parameter not available through providers of marketing information—growth in employment or payroll. This capability would allow company surveys to be linked back to historical growth data and serve as a significant program evaluation and needs analysis tool.

These examples were intended to illustrate a few of the ways in which company-specific data can be used to give a clearer picture of Indiana business patterns and support public policy decision making. Additionally, we hope the examples have served to trigger ideas for other uses. The State of Indiana owns a valuable asset that is not being optimally utilized. However, before embarking on an effort to design systems to achieve any or all of these uses, it is critical to address the questions regarding legal use. Once these questions are answered, systems can be designed to protect confidentiality while allowing flexible data access for legal uses by authorized users.

1. Please note that in this example we did not adjust for inflation, as we did in the previous example.

Market Research: Students Helping Business

When a new international joint venture was considering how to direct its U.S. sales efforts, it turned to the Indiana University graduate business students for marketing expertise.

The company, TBD-Paoli International of Hope, Indiana, wanted assistance in identifying possible markets for its materials handling equipment. Its Master of Business Administration students Julia Bernhart, Martha Bostic, Julia Gray, Shailendra Kumar, and Geri Van de Paul wanted experience and a good grade in class. Bartholomew County economic development officials who helped bring the company and students together for a marketing class project welcomed the help for its efforts to provide ongoing assistance to local industry.

"A lot of these small companies have technical expertise or the access to that expertise, but many of them need market research or help in developing a marketing strategy," said Brooke Tuttle, president of the Columbus Economic Development Board. "What you get is a win-win situation, where the companies will get the marketing assistance and support in a cost-effective manner, and the students get experience working in a consulting relationship in a real world, live situation," added Tuttle, who received an MBA from IU in 1964.

Since the mid-1970s, hundreds of IU MBA students have quietly consulted with more than 100 Indiana and U.S. companies on problems ranging from whether to establish new locations to the introduction of new products.

The marketing courses take many students off campus and around the state. Rather than bury themselves in books and papers, they apply textbook knowledge as they are placed inside decision-making processes at companies as large as Procter and Gamble and DowBrands Inc. or as small as Naptown Brewers, an Indianapolis microbrewery.

And the experiences are as varied as one could imagine.

• Fifty students in a product development class formed teams to develop new product concepts for DowBrands companies. Ten of their 15 reports were endorsed by the company for further study and potential marketing. Two IU alumni in the company team worked with the students.

• A Knox County public hospital received assistance in surveying local business and industry about their health care needs and programming. Based on the students' suggestions, the hospital decided what programs and initiatives to pursue.

• A Northeast Indiana medical implant company used student research to determine the value of broadening its marketing efforts.

Donald H. Granbois, chairperson and professor of marketing, said the projects help make the subject matter more relevant to students. "A substantial percentage of our students have previous business experience. This helps them to tie what they're learning in the course back to the prior experience," Granbois said. "If these were textbook courses, for people with work experience, it would seem remote and too abstract."

David B. MacKay, IU professor of marketing and geography and one of three instructors of M503, Marketing Research, agrees. "My course is structured so that the different aspects being taught correspond with the stages that students are at in their relationships with their clients," MacKay said.

For example, MacKay said he lectures on questionnaire design at the point in the semester when his students are putting one together for their clients. "It becomes something that is not an abstract list of rules to remember, but they have an immediate application," MacKay said. "Hopefully, they will be relating everything to the problem they have and it becomes much more vivid."

Gregory C. Willman, a DowBrands new product development business analyst and a 1990 IU MBA graduate, affirms this view: "It's very important to the student that it [the experience] verifies that what they are doing in class is extremely relevant to what they're going to encounter once they enter the workforce."

When the course was first taught, the dilemmas marketing research students faced appeared realistic but were merely hypothetical. Gradually, faculty decided to encourage students to work with Bloomington-area companies. Still, their consulting activities only accounted for 25 percent of the final grade.

Since then, "the course has really evolved from what was largely a textbook course into a course where half of the experience is dealing with clients," MacKay said. "That's the part of the course that the students remember. They don't remember at all what they get in lecture but they do remember the experiences they have working with the clients."

Granbois said he and other marketing faculty soon recognized the value of first-hand experience on their students' coursework and decided to boost its level of importance. "It really gets people involved in the managerial consequences throughout the process, and that's what I think really makes the difference," Granbois said. "Besides learning how research fits in, they really get some other skills out of doing the projects as well."

For the client company, the service is also a good deal. It merely has to cheerfully pay all reasonable expenses—far less than fees charged by most consultants today.

"The best projects are the ones where management heavily invests themselves along with the stu-

Three MBA students board a plane to work with DePuy Corp. of Warsaw, Indiana. The students are, from left to right Harold Colby, of Grosse Pointe, Michigan, Ray Witt, of Rockville, Maryland, and Robert Whiting, of Winston-Salem, North Carolina.

dents," MacKay said. "For the best results, companies need to be willing to provide the necessary resources, particularly time and effort. The students solve managerial problems. They are not data collectors."

Dr. Maury Kulwin, director of marketing at Good Samaritan Hospital in Vincennes, agreed, saying, "The institution gets very professional work done at minimal cost, while the students get real-life experience doing real-life work with real-life results."

Good Samaritan asked four students to survey businesses in its market area and determine the extent to which the firms and their employees used its facilities. The hospital used the findings to learn where it was not meeting local needs and whether companies would be amenable to new programs, such as smoking cessation, weight loss, and workplace safety.

"Instead of us cold-calling companies, it's more effective to understand—prior to meeting with directors or vice presidents of human resources—what, if any, interests exist and, more specifically, what programs they're most interested in," Kulwin said. "The students to me represent a consulting firm. If I didn't believe in their competency . . . I wouldn't be engaging them."

Warsaw-based DePuy Corp., an international medical implant maker, had been successful in reaching doctors about its product line but wondered whether it could broaden its marketing efforts by targeting hospital purchasing agents. Enter students Harold Colby, Robert Whitling, and Ray Witt, who designed a questionnaire to determine the influence of purchasing agents.

They found that although not many in their target group were involved in buying decisions, many would have a greater voice as in-house consultants in coming years. As a result of the study, DePuy will use focus groups to consult with purchasing agents on a more direct basis, thus laying a groundwork for the future.

"We've already conducted the focus groups with purchasing agents and we also expanded our focus based on what they told us through their research," said Shirley Engelhardt, director of market research and strategic services for DePuy. "What we're trying to do is establish a win-win relationship with everyone in the hospital and these guys helped us realize that," she said. "They helped us look at another side of the story. The more we understand our different segments, the better off we're going to be." Without the students' aid, the company likely would have done the study on its own, but at a much higher cost.

"In some ways it might have been of a little better quality because our grade was dependent on it," said Colby. "That forced us to get into the project. But once we did get going on it, everyone in the group became almost obsessed with it, in terms of wanting to get it done and not dropping the ball at the end.

"It forced us to take the textbook knowledge and apply it to a real world situation. Essentially every lecture in the class was related directly to one aspect of the project, and it really enhanced the learning process," he said. "You really got and had a chance to apply those theories."

Marketing professor Thomas P. Hustad, who has coordinated numerous development projects with students and companies since coming to IU in 1977, sees another, long-term benefit.

"One challenge facing organizations is understanding how to cope with the increasing diversity of their served markets. Since all managers regularly work together, it is important that they extend their vision of relevant opportunities," Hustad said. "Dealing with 50 MBA students automatically ensures diversity thinking.

"At its best, this process challenges conventional opinions by injecting various insights from students, who come from all parts of the United States, Europe, Latin America, and Asia," he continued. "It allows local business to capitalize on the international composition of our students, while simultaneously giving the students the exposure to the hard edge of profit-oriented decision making in a corporate world."

DePuy's Englehardt adds, "It shows us what kind of talent lies ahead for the marketplace. . . . These people are an untapped resource."

Indiana's Changing Population: A Graphic Overview

Morton J. Marcus

Indiana ranked 38th in the nation with a population growth rate of just 1.0 percent from 1980 to 1990 (see **Figure 1**). The 50 states together grew by 9.8%. Nevada led the nation with a 50.2% increase, while four states declined during the decade. Each of Indiana's four neighboring states grew even less rapidly than did the Hoosier state.

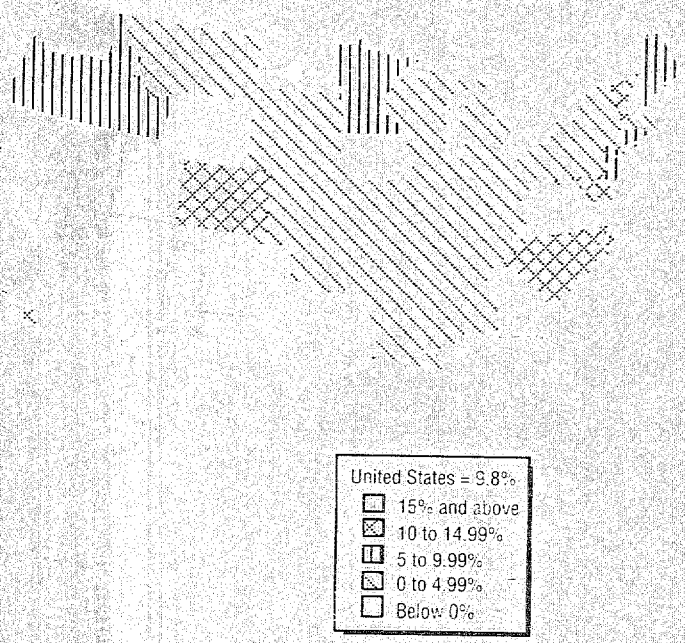
Since the addition of more than 727,000 persons in the 1950s, Indiana's population growth has moderated sharply. In the 1980s, the state grew by less than 54,000 persons (see **Figure 2**). This is the least amount of growth the state has experienced in this century. The fall-off in growth of the Hoosier state is much more severe than the decline of growth nationally (see Figure 2). For the past three decades the nation has added between 22 and 24 million persons, following the 28 million increase in the 1950s.

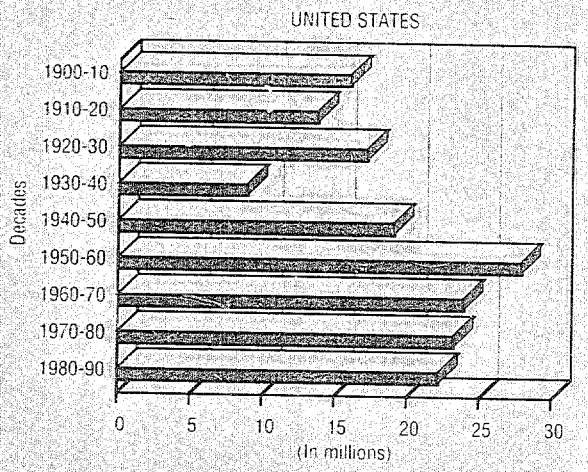
Hamilton County led the state with a 32.8% growth of population from 1980 to 1990 (see **Figure 3**). Seven other Hoosier counties exceeded the national rate of population growth (9.8%). The northeastern counties, suburban Indianapolis, and suburban Cincinnati led the way. In all, 43 counties grew during the decade of the 1980s.

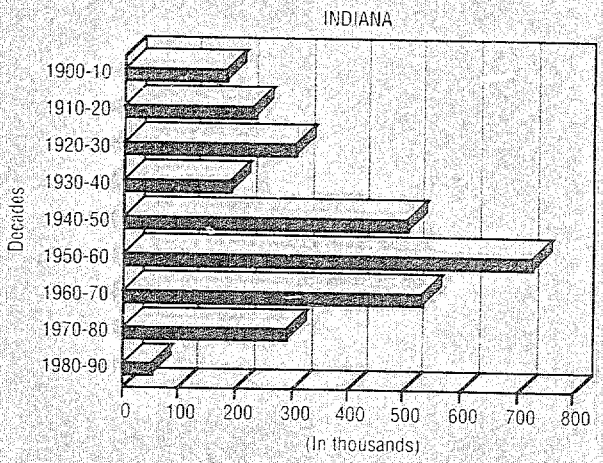
The majority (49 of 92) of Hoosier counties lost population from 1980 to 1990 (see **Figure 4**). Generally, all counties on the western border and in a broad sweep from Hammond to Richmond saw declines. Sullivan County had the sharpest fall at 10%, with Blackford, Randolph, Henry, and Lake just behind (losses over 9%).

Only 41 of the state's 92 counties grew in both the 1970s and the 1980s (see **Figure 5**). All but one of these 41 counties had less absolute growth in numbers during the 1980s than they had in the 1970s. The two-decade growth leader was Hamilton County, which added nearly 27,500 in the 1970s and another 26,900 in the 1980s. Porter County, after

Figure 1
Percent Change in Population, 1980-1990







posting a state-leading 32,700 growth in the 1970s, fell off to an addition of just 9,100 in the 1980s. The exceptional county was Elkhart, which alone among the counties growing in both periods added more to its numbers in the 1980s (18,900) than it did in the 1970s (10,800).

In 24 counties, the growth of the 1970s exceeded the decline of the 1980s sufficiently to leave a net increase for the two decades together. For example, Jasper County added 5,700 in the 1970s and lost nearly 1,200 in the 1980s, ending with a net increase of 4,500 for the 20-year period.

Two counties posted dramatic positive turnarounds, Marion and St. Joseph had both lost population in the 1970s. In the 1980s these two counties experienced growing populations that offset the earlier declines, so in 1990 their totals were greater than they had been in 1970.

Fifteen Indiana counties posted declines in the 1980s that wiped out the gains in population made in those counties during the 1970s. Howard County, for example, lost nearly 6,100 persons in the 1980s after gaining 3,700 in the 1970s—a net loss of nearly 2,400.

Ten Hoosier counties continued to lose population in the 1980s, just as they did in the 1970s. Of these, all but Benton lost more people in the 1980s than in the 1970s. For example, Lake County's loss grew from 23,300 in the 1970s to 47,400 in the 1980s.

In sum, only three Indiana counties (Elkhart, Marion, and St. Joseph) saw more population growth in the 1980s than they experienced in the 1970s. For the rest of the state, the 1980s were a period of reduced growth or decline in population.

Figure 3
Counties with Increasing Population
Percent Change 1980 to 1990

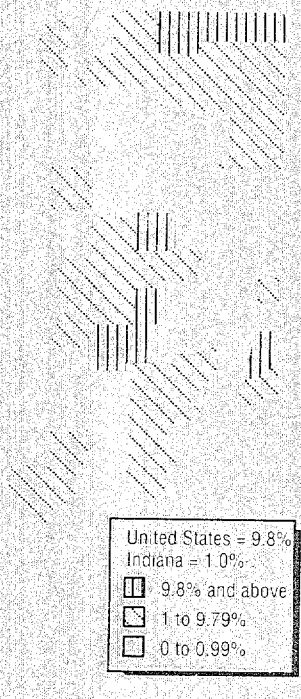


Figure 4
Counties with Decreasing Population
Percent Change 1980 to 1990

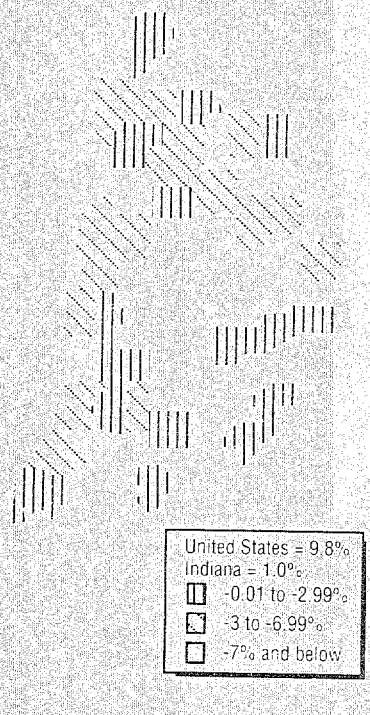
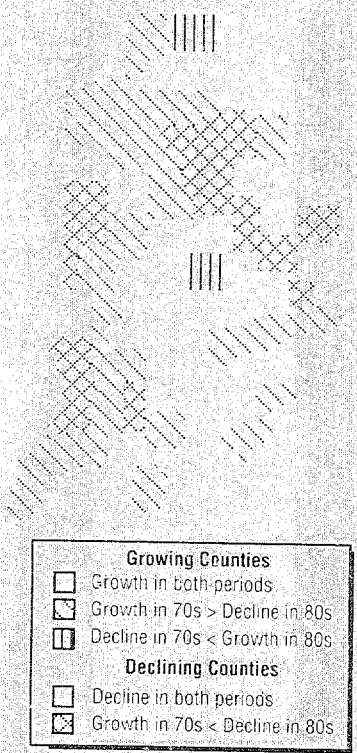


Figure 5
Changes in Population
Comparison of the 1970s and the 1980s



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