

RESEARCHBUZZ

Are High Taxes Restricting Indiana's Growth?

BY DR. JOHN A. TATOM

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The “Hoosier Comeback” program, sponsored by the Indiana Economic Development Corporation, is part of a strategy to boost economic growth, in this case through increasing the quantity and quality of available human resources. The plan envisions subsidies to encourage the return of former residents. Indiana’s population growth has been weak relative to the rest of the country, though not as weak as in the 1970s and 80s. It is set to return to a much weaker pace, however, according to the US Census Bureau. In 1972-87, Indiana’s population growth rate was only 0.2 percent per year, well below the US pace of one percent per year. In some years, population even fell (1980-83 and 1986). Subsequently, Indiana’s population grew at a 0.8 percent average annual rate from 1987 to 2005, closer to, but still below, the national pace of 1.2 percent per year. Over the next 25 years US population growth is expected to slow (0.8 percent per year) and Indiana’s is expected to fall back more sharply (to 0.3 percent per year). Such slow growth in population and the workforce will cur-

tail the pace of expansion of overall output and income in the US and all the more so in Indiana.¹

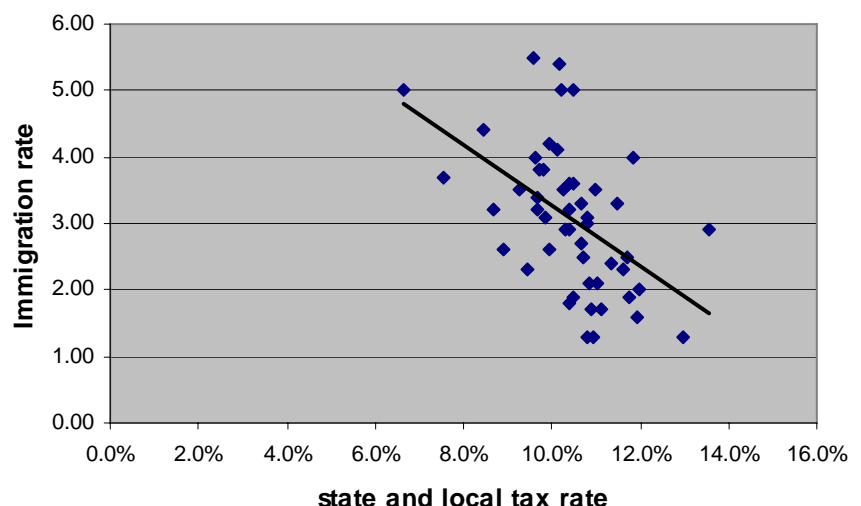
A broader effort could usefully focus on recruiting others to immigrate to Indiana or on inducing existing residents to stay. Charles Tiebout, in a famous paper published a half-century ago, explained that consumers vote with their feet, sorting themselves into political jurisdictions based on their preferences for public sector goods and services. This “Tiebout hypothesis” has found strong statistical support

in a variety of contexts ever since and has become a critical feature of local government expenditure and tax analysis. If people vote with their feet, then governments that reduce government programs or raise taxes would discourage residency and economic activity in their jurisdictions. Indiana could attract back more former residents, or keep those it has, by lowering the tax burden, if people vote with their feet.

Immigration rates are strongly affected by state and local tax rates. The chart below shows the tax rate prepared by the Tax Foundation for the 50 states for 2005 and immigration rates prepared by the US Bureau of the Census for 2005. The immigration rate is measured by the number of residents over one year of age who did not live in a state in the prior year divided by the current population. The tax rate includes all state and local taxes as a percent of net state product. Evidence supporting consumers voting with their feet can be seen in the chart. While there are many other factors that affect immigration, the negative relation between the state and local tax rate and immigration is apparent.

The immigration rate is very sensitive to the tax rate.² In the linear formulation of the data captured by the trend line shown in the figure, each one percentage point rise in the tax rate will

A higher tax rate lowers the immigration rate



reduce the immigration rate by 0.53 percentage points. This effect is statistically significant at a conventional level of significance (t-ratio equals -4.23, which implies that the effect is significantly different from zero at a 99 percent confidence level).

In Indiana, the state and local tax rate rose from 9.9 percent to 11 percent between 2000 and 2005. According to the linear relationship in the data, this tax hike would reduce the immigration rate by 0.6 percentage points. This is slightly larger than the decline in population growth for the 2005-30 period projected by the Census Bureau. Placed on top of the decline already projected, this would bring the population growth rate to below zero from 2005 to 2030. On the other hand, pushing taxes back down by a similar amount could raise the immigration rate enough to boost the population growth rate above the US average rate and keep the state's share of population and income from declining. Accounting for out-migration would reinforce these effects on population growth.

The recent increase in the tax rate is unusually large and puts Indiana taxes at a relatively high level. According to Tax Foundation data, Indiana's state and local tax burden rose from 35th in the nation in 2000 to 12th in 2005.³ This is one of the largest deteriorations among the 50 states since 1970. In 2000 and earlier, Indiana was a moderate tax state, but over a short period climbed to a relatively high-tax state. In particular, in 2000 Indiana had a lower tax rate than all of its neighbors. Since then, all of these states had rising tax rates, but Indiana's tax rate increase was sufficiently large to put it above the rates in Illinois, Kentucky and Michigan. Only Ohio had a higher tax rate in 2005; at 11.9 percent, a full percent higher than in 2000, Ohio's tax rate put the state at the 4th highest level in the nation. Ohio's immigration rate was only 1.6 percent in 2005, below Indiana's 2.1 percent and higher than the rate in only New York, California, Michigan and California, the other high-tax states with the lowest immigration rates in 2005.

The Tax Foundation also prepares a State Business Tax Index, which assesses the attractiveness of a state based on its tax system.⁴ Their index is based on five subcomponents of the tax system: individual income taxes, corporate in-

come taxes, sales taxes, unemployment insurance taxes and property taxes. Somewhat ironically, their index shows Indiana as a very attractive state. With a ranking of 12th in the 2006 and 2007 rankings, Indiana has a tax climate that matches their rank for the level of taxes. How can a state have the 12th highest taxes in the land and yet have the 12th best tax climate? The answer is that the Tax Foundation ranks low individual income taxes with an especially large weight compared with other taxes and Indiana has one of the lowest individual tax rates in the country, ranking eleventh lowest.⁵

Indiana apparently relies more heavily on corporate income taxes and property taxes than other states and while sales taxes are relatively low, these tax rates have increased most rapidly since 2000. It is arguable that a given tax burden arising from an income tax is substantially less onerous than taxes on corporate capital income or property taxes, but this is not reflected in the Tax Foundation's State Business Climate Index. Even the climate index shows deterioration, however. In the first two estimates of the index for 2003 and 2004, Indiana ranked 10th in the country. Some of the deterioration, at least judged by the climb in the tax rate, occurred between 2000 and 2003.

Whether immigration rates could be boosted more by cuts in income tax rates or by cuts in the corporate, sales or property taxes is an open issue, but the taxes that have risen most in recent years have been sales and property taxes. The Tax Foundation's State Business Climate Index suggests that more bang would come from cutting the individual income tax. Economic theory would suggest that cutting taxes on corporate capital income, or property (structures) would have the largest efficiency gains because the underlying resources are the most mobile.

■ Tatom is Director of Research at Networks Financial Institute.

Recommended reading:

Dubay, Curtis S. and Chris Atkins, "2007 State Business Tax Climate Index," Tax Foundation Background Paper No. 52, October 2006.

Epple, Dennis, Thomas Romer and Holger Sieg, "Interjurisdictional Sorting and Majority Rule: An Empirical Analysis," *Econometrica*, vol. 69(6), November

2001, pages 1437-1465.

Indiana Economic Development Commission, *Accelerating Growth: Indiana's Strategic Economic Development Plan*, 2006, April 2006.

Tiebout, Charles, "A Pure Theory of Local Government Expenditure," *Journal of Political Economy*, 64, (1956), pp. 416-24.

Footnotes:

1. See U.S. Census Bureau, Population Division, Interim State Population Projections, 2005.

2. The elasticity of the immigration rate with respect to the tax rate is -1.66, according to the data for 2005, which means that a doubling of the tax rate will cut the immigration rate by more than one-half.

3. See the Tax Foundation's web site for data on Indiana (<http://www.taxfoundation.org/taxdata/show/453.html>)

4. See Dubay and Atkins (2006) for a description of the index and its latest rankings.

5. In addition, there are other features of the tax system that are ranked; indeed, there are 113 variables that factor in to the five subcomponents of the tax climate index.

Matt Muckler joins NFI's graduate fellows

BY MARTHA H. MCCORMICK
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NFI congratulates Elizabeth Illyes, Jay Page and Kyle Plesniak, its first three graduates of its graduate fellows program. Returning this year in the MBA program as NFI graduate fellows are Jason Dean and Rebecca Shorter. In addition, we welcome one new graduate fellow to the Master of Public Administration program, Matthew Muckler. Muckler's B.S. is in business administration from St. Louis University. He spent several years in the retail trade in Missouri and also was elected for a term as a Missouri state representative for Jefferson City, MO; he sponsored legislation revising the use of local taxes and served on the Appropriations, Health Care, Retirement and Senior Security Committees. Following his term in the Missouri legislature, Muckler worked as Legislative Director for the Washington State Catholic Conference in Seattle, WA.

Mixed Results in Indiana's Banking Industry

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Increase in interest rates and slowing growth in the housing market appear to be taking their toll on Indiana-based commercial banks. After achieving the highest rate of return on equity, for the period 1995-2006, with 24.28% in 2003, commercial banks' return on equity have declined reaching 8.97% in June 2006. Indiana-based commercial banks performed relatively better compared to the national average between 2002 and 2005. However, there has been a sharp drop in the rate of return on equity from since 2003.

Table 1: Indiana-based commercial banks achieved significantly higher ROE between 2002 and 2005

	US	Indiana	Illinois	Kentucky	Ohio	Michigan
06/2006	13.66	8.97	13.56	14.09	12.34	10.3
06/2005	13.75	14.95	14.83	12.86	9.38	10.88
06/2004	14.83	19.12	15.15	12.63	20.5	9.54
06/2003	15.3	24.28	11.67	10.16	19.13	16.22
06/2002	14.89	16.11	13.18	11.47	19.27	13.79
06/2001	14.24	11.14	13.18	13.95	14.74	11.08
06/2000	13.84	9.32	10.58	14.94	15.97	16.03
06/1999	14.94	19.56	12.37	14.9	16.65	18.42
06/1998	14.83	15.02	12.93	15.37	18.46	15.55
06/1997	14.89	14.36	12.54	14.72	17.51	15.61
06/1996	14.42	14.16	11.03	13.83	17.28	15.88
06/1995	14.29	13.9	12.02	14.01	17.15	16.71

Source: FDIC

In 2006, total net income was also at its lowest level since 2001. However, this figure alone does not really reveal a lot about what has been happening in the banking industry. Due to the general trend of consolidation in the banking industry and also the failure of a few banks, the number of Indiana-based commercial banks has declined each year. For example, there were 215 and 154 commercial banks in 1995 and 2000 respectively. There are now 131 Indiana-based commercial banks. So, rather than comparing the dollar figures, it is helpful to focus attention on ratios such as performance and condition ratios.

One of the most important performance indicators for commercial banks is the net interest margin, which represents the dollar difference between interest income and interest expenses as a

percentage of average earning assets. Except 2005, the net interest margin of Indiana-based commercial banks has been higher than the national average since 1995. Income from sources other than interest revenues has become more and more important for commercial banks. Higher competition is also forcing banks to find more ways to generate income. Since the interest rate banks can charge is largely limited and out of their control, they are increasing their efforts in generating non-interest income. For example, total non-interest income of Indiana-based commercial banks was slightly higher than their net interest income in 2005. A drop in noninterest income largely accounted for the sharp drop in net income and the rate of return on equity in 2006. Banks were able to increase their net interest income in 2006, but, a sharp drop in non-interest income was more than enough to wipe out those gains. Some of the items under non-interest income include fees from the sale of checks, money orders, cashiers' checks, travelers' checks, income from performing data processing services for others and fees from mortgage servicing arrangements.

Small banks (with total assets lower than \$100 million) don't perform as well as larger banks in generating non-interest income. Between 1995 and 2006, Indiana-based small banks' average ratio of non-interest income to assets was 0.70%. It was 2.44% for larger banks. However, they both performed poorly compared to the national averages of 1.22% and 2.80% for small banks and large banks, respectively.

Small banks might be seeing benefits of being close to their customers and offering more personal services for traditional banking products, especially loans. On a national level, the average yield on earning assets is 0.26 points higher for small banks than larger banks. However, this is not the case for Indiana. Indiana small banks' yield on earning assets is 0.02 points less than larger banks. Small banks narrow this gap by having a lower cost of funding compared with the average cost of funding that larger banks pay. (total interest expense on deposits and other borrowed money as a percent of average earning assets). Indiana small banks pay 11 basis points less (100 basis points equal to one percent.) to attract deposits compared to larger banks, but they

pay nine basis points more than their peers throughout the nation.

Another interesting finding is that small banks have much better net interest margins compared to larger banks. Nationally, the average rate net interest margin of smaller banks was 46 basis points higher than those of larger banks for the period 1995 through 2006. Indiana-based small banks do not enjoy that much of advantage, but their net interest margin is, on average, nine basis points higher than large banks. However, small banks need to catch up with their national peers' net interest margins by increasing the yield on earning assets they receive and by keeping their costs lower.

Table 2: Net interest margin of smaller banks is considerable higher than those of a larger banks.

Year	Total Assets <\$100m		Total Assets >\$100m	
	US	IN	US	IN
2006	4.24	4.17	3.53	3.89
2005	4.23	4.12	3.65	3.51
2004	4.15	4.17	3.68	4.13
2003	4.16	4.14	3.84	4.15
2002	4.32	4.18	4.13	4.4
2001	4.27	4.13	3.84	3.91
2000	4.58	4.25	3.96	4.02
1999	4.36	4.14	4.04	4.29
1998	4.57	4.32	4.07	4.14
1997	4.67	4.39	4.21	4.5
1996	4.63	4.43	4.21	4.45
1995	4.76	4.47	4.27	4.42

Source: FDIC

Demand for loans in Indiana has been very strong since 2000, but it is slowing. The ratio of net loans and leases to total deposits has been higher than 100% since 2000 and higher than the US average since 1995. After reaching 133% in 2003, it slowed down to 105% in 2006. Increases in interest rates could be one of the main reasons behind this slow down. Larger banks in Indiana enjoyed significantly higher demand for loans from consumers. Net loans and leases were 76.4% of total deposits at small banks and 104.1% at large banks for the period of 1995 to 2006. However, small bank lending was still higher in Indiana compared with the U.S average of 70.4%.

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Article Summary: The Value Premium and the CAPM

FAMA, EUGENE F.; FRENCH, KENNETH R.,
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The required rate of return of an asset can be determined by using the capital asset pricing model (CAPM). The model uses beta, the expected return of the market and a risk-free asset. Earlier empirical studies indicate that the variation in stock returns is not adequately explained by the model. One critique of the model, by Richard Roll (1977), states that CAPM might not be empirically testable. According to the CAPM, the market portfolio should include all types of assets available in the market. Since the market portfolio is not practically achievable, substituting a stock index as a proxy can result in incorrect inferences regarding to the validity of the CAPM.

Fama and French examine change in value premiums according to firm size, whether value premiums are explained by the CAPM model, and whether differences in the CAPM predictions of β are compensated by general average returns. [remove paragraph break]The authors present evidence indicating that value premiums do not differ substantially for small and big U.S. stocks for the period of 1926 to 1963. For the period of 1963 to 2004, the authors run tests with both book-to-market ratios (B/M) and earnings-to-price ratios (E/P). Using E/P rather than B/M, they find that there is little difference between value premiums for small and big U.S. stocks. In addition, the authors also look at international value premiums from 14 major markets for the period of 1975 to 2004. Test results indicate that using either B/M or E/P, value premiums for both small and big stocks are similar. These findings indicate that value premiums do not change significantly according to the firm size.

In order to test whether the value premium in average returns is explained by the CAPM model, the authors regress rate of returns of Value Mi-

nus Growth portfolios* (which also include Value Minus Growth Small and Big stock portfolios) on excess market return. By looking at intercept values (for the CAPM model to explain value premiums, intercepts should be 0), the authors conclude that the CAPM model fails in explaining the value premiums for the period of 1963 to 2004. However, some of the earlier studies indicate that when β is allowed to vary over time, the CAPM model can explain the value premiums. The authors test 4 different scenarios, including a constant β , a single break in β , changes in β every 5 years and annual changes in β . Results indicate that the value premiums in the average returns can be explained by the CAPM model for the period of 1926 to 1963, when β is allowed to vary annually. However, for the period of 1963 to 2004, test results do not change the authors' earlier conclusion that the CAPM model fails in explaining the value premiums.

Finally, regarding the question of whether there is any compensation for differences in beta estimated by the CAPM model, the authors find that differences in firm size and B/M are mainly compensated by average returns, not differences in beta. Moreover, evidence also indicates that this is the case for both small stocks and big stocks. The authors conclude by stating that the CAPM model has significant problems throughout the 1926 to 2004 period and they expect more challenges to the model coming in the near future.

■ Erdem is Research Associate at Networks Financial Institute.

* Value Minus Growth portfolios formed by creating six portfolios on size and book to market equity.

References:

Roll, Richard, 1977, A critique of the asset pricing theory's tests' Part I: On past and potential testability of the theory, Journal of Financial Economics 4, 129-176.

In Search of Effective Corporate Governance

8:00 a.m. - 11:45 a.m.

Tuesday, November 28, 2006 • Columbia Club • Indianapolis, IN

Government regulation of corporate governance has taken major and controversial strides since the crisis of corporate governance and scandals that contributed to the high-tech stock price boom of the 1990s and subsequent stock market crash. Sarbanes-Oxley was passed in 2002, but its most onerous provision, section 404, has only recently come in to effect for most firms. Controversial new mandates and proposals for regulating governance of mutual funds, hedge funds, and other financial firms are continuing to proliferate.

This Forum will address these issues and whether the steps taken in recent years should be revisited.



Tuesday, November 28, 2006 • Columbia Club • Indianapolis, IN

8:00 a.m. - 8:30 a.m. Registration, Continental Breakfast
8:30 a.m. - 8:40 a.m. Introduction
8:40 a.m. - 9:25 a.m. Ken Lehn
9:25 a.m. - 10:10 a.m. Roman Weil
10:10 a.m. - 10:25 a.m. Break
10:25 a.m. - 11:10 a.m. Lawrence J. White
11:10 p.m. - 11:45 a.m. Questions & Answers



Professor Kenneth Lehn is the Samuel A. McCullough Professor of Finance in the Katz School of Business at the University of Pittsburgh, where he teaches courses in financial economics. Professor Lehn also is an affiliated professor of law in the School of Law at the University of Pittsburgh. Professor Lehn's research focuses on topics in corporate finance, including mergers and acquisitions, corporate governance, and capital structure.



Roman L. Weil, Ph.D., CMA, CPA, is V. Duane Rath Professor of Accounting at the Graduate School of Business of the University of Chicago and Director of the Chicago/Wharton/Stanford Law School Directors' Consortium. He has consulted for several governmental agencies and multiple corporate clients. He has served on numerous boards and government committees.



Lawrence J. White is Arthur E. Imperatore Professor of Economics at New York University's Stern School of Business and Deputy Chair of the Economics Department at Stern. He has served as Board Member, Federal Home Loan Bank Board, and as Director of the Economic Policy Office, Antitrust Division, U.S. Department of Justice. He is currently the General Editor of The Review of Industrial Organization.

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