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About the Authors

Srikant Devaraj, PhD candidate, is a research assistant professor at Ball State CBER. He holds master's degrees in business administration and information and communication sciences from Ball State and is completing his doctorate in health economics at IUPUI.

Sushil Sharma, PhD, is a professor of information systems and the associate dean of the Miller College of Business. His research interests include information systems security, e-learning, human computer interaction (HCI), and community and social informatics. Sharma has published 12 books and 240+ manuscripts including 80+ refereed journal articles in some of the best journals in his field.

Michael J. Hicks, PhD, is director of Ball State CBER and the George & Frances Ball distinguished professor of economics in the Miller College of Business. His research interest is in state and local public finance and the effect of public policy on the location, composition, and size of economic activity. Hicks earned doctoral and master's degrees in economics from the University of Tennessee and a bachelor's degree in economics from Virginia Military Institute.

Dagney Faulk, PhD, is director of research at Ball State CBER. Her research focuses on state and local tax policy and regional economic development issues. She received her doctorate in economics from the Andrew Young School of Policy Studies at Georgia State University.

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Center for Business and Economic Research 2000 W. University Ave. (WB 149) Muncie, IN 47306 765-285-5926 • cber@bsu.edu www.bsu.edu/cber • www.cberdata.org facebook.com/BallStateCBER twitter.com/BallStateCBER



PRIMACY of PLACE

Three factors comprise the Human Development Index health, education, and living standards. We examine those factors and provide a framework for policy considerations.

The Human Development of Indiana Counties: *A Policy Perspective*

- Srikant Devaraj, PhD candidate, research assistant professor, CBER
- Sushil Sharma, PhD, professor of information systems and associate dean, Miller College of Business
- Michael J. Hicks, PhD, director, CBER George & Frances Ball distinguished professor of economics, Miller College of Business
- Dagney Faulk, PhD, director of research, CBER

Center for Business and Economic Research, Ball State University

Key Topics: #Placemaking #QualityOfPlace #EconDevt

Background

Measuring the relative economic performance of nations and regions has a long genesis. Early measures tended to focus on single measures such as gross domestic product or per capita income. Single measures of economic condition suffer obvious weaknesses. They may have actual data errors, and single dimension measures necessarily do little to directly explain the other features of an economy that may influence the wellbeing of residents.

In 1990, the United Nations Development Program (UNDP) introduced a multidimensional Human Development Index (HDI) that provides country-level data for a wide range of well-being indicators. The index has evolved and now also assesses the relative socioeconomic growth of countries over time. Today the HDI is a ranking system that integrates three major factors:

- 1. Life expectancy at birth to measure a population's health and longevity.
- 2. Adult literacy rate to measure knowledge and education.
- 3. A nation's per capita GDP adjusted for purchasing power parity (PPP) to eliminate national level prices as a measure of the standard of living.

In other words, HDI measures human development across countries, which is based on three basic dimensions—health, education and living standards. HDI is computed by taking the geometric mean of normalized indices of those three basic dimensions (Anand and Sen, 1993).

Though the United Nations uses HDI to compare countries, it can also be estimated at a more local level (state, county, etc.) using the three dimensions to compare the human development of communities within a specific country or state (Measure of America, 2010).

In 2014, Devaraj, Sharma, Hicks, and Faulk estimated the relative Human Development Index of Indiana counties by constructing a composite index of health, education, and standard of living. They estimate the health index using the life expectancy at birth and years of potential life gained indicators. Their education index measure combines both educational attainment and enrollment, and the living standards takes into account the per capita income and average monthly earnings. In this publication, we offer an expanded explanation of the Human Development Index and discuss policy implications.

Data and Methods

The Human Development Index offers an index number that permits relative ranking of geographies (counties, for our purposes) on three critical dimensions. These county-level rankings for Indiana compare the counties relatively across all three dimensions. The construction of the index is relatively straightforward. For the individual dimensions of HDI (health, education, and living standards indexes), Devaraj et al. (2014) follow the Anand and Sen (1993) method of normalizing the indexes as:

Index_{ij} =
$$\frac{X_{ij} - \min_{(of 92)} \{X_i\}}{\max_{(of 92)} \{X_i\} - \min_{(of 92)} \{X_i\}} \times 100$$

Equation (1)

...where i is the individual dimensions of Human Development Index and j is the county. There are 92 counties in total.

Devaraj et al. (2014) extend Measure of America's modified American Human Development Index (Measure of America, 2010) by using two relevant indicators instead of one for each of the three dimensions of the Human Development Index. The outliers of individual dimension indexes are hence adjusted with this approach. The components of the individual dimensions of HDI as presented in Devaraj, et al. (2014) warrant explanation.

Report Focus

In this report, we find the Human Development Index of all 92 counties in Indiana, building upon a detailed construction of the HDI by Devaraj, et. al. (2014). We extend this work by analyzing the Human Development Index at the regional and metropolitan areas within the state. We also provide a framework for policy considerations for Indiana, and offer qualitative comparisons to the existing county-level rankings in Indiana.



PRIMACY of PLACE BALL STATE UNIVERSITY

At Ball State University, Primacy of Place is an interdisciplinary initiative directed by the Indiana Communities Institute. Primacy of Place focuses on fostering sustainable community growth through the attraction and retention of talented people and families. The Center for Business and Economic Research is a research partner and collaborator in this endeavour.

Health Dimension

To construct the health index we use average life expectancy of the county population (Kulkarni et al., 2011) and years of potential life lost (computed from County Health Rankings, 2011). The life expectancy was weighted by gender and by population of a county. The years of potential life lost (YPLL) depicts premature death and helps to estimate the social and economic loss of early death. These two indicators are individually normalized across 92 counties in a scale of 0 to 100, with 100 being the county with best health dimension and 0 being the county with the worst health dimension for that indicator (as in *Equation (1)*). For consistency, we create another variable, years of potential life gained (YPLG) by subtracting the normalized YPLL index from 100. The health dimension was calculated by further normalizing the geometric mean of life expectancy index and the YPLG index.

Health
Dimension_j =
$$\sqrt[2]{}$$
 Life Expectancy × YPLG
Index_j × Index_j

Equation (2)

Education Dimension

We use education enrollment and education attainment (American Community Survey, 2010) to estimate the education dimension. Education enrollment is the share of population in a county enrolled in high school or more, whereas education attainment is the share of population in a county with a high school degree or more. These indicators are normalized on a scale of 0 to 100 as in *Equation (1)*. The education dimension was calculated by further normalizing the geometric mean of the enrollment and attainment indices.

$$\frac{\text{Education}}{\text{Dimension}_{j}} = \frac{\sqrt{2} \text{Enrollment}}{\text{Index}_{j}} \times \frac{\text{Attainment}}{\text{Index}_{j}}$$

Equation (3)

Table 1: Descriptive Statistics for the IndexesSource: Devaraj et al. (2014)Note: n = 92 counties in Indiana * Natural log

Variables	Mean	Standard Deviation
Health index	39.81	15.59
YPLG index	40.35	16.47
Life expectancy index	39.95	16.07
Education index	38.57	12.39
Enrollment index	19.58	13.20
Attainment index	69.78	12.96
Living standards index	50.62	17.84
Per capita index*	51.91	14.59
Avg earnings index*	42.77	20.47
Human development index	53.22	16.54

Living Standards Dimension

We use per-capita income (Bureau of Economic Analysis, 2009) and average monthly earnings (US Census Quarterly Workforce Indicators, 2010) to estimate the living standards dimension. We take log of these indicators and then normalize them to a scale of 0 to 100 to obtain respective indexes as in *Equation (1)*. The living standards dimension was calculated by taking the geometric mean of these indexes and further normalizing it.

Living
Standards =
$$\sqrt[2]{ln (per Capita Standards = In (or Capita Income Index)_j \times In (or Capita Standards = In (or Capi$$

Note: In stands for the mathematical natural log

Equation (4)

Human Development Dimension Aggregate

We obtain the human development dimension by taking the geometric mean of three dimensions: health, education, and living standards.



Equation (5)

We further normalize this human development dimension as in *Equation (1)*.

Results

Table 1 shows the summary statistics for each index. The average health index is 39.81; education index is 38.57; whereas the average living standards index is 50.62. The average Human Development Index across all counties in Indiana is 53.22. Importantly, these are county-to-county comparisons. Internationally, the United States does well, with a ranking of 91.4, or 5th overall in 2014. Indiana ranks far less well within the U.S., ranking 39th out of 50 states in 2014 (Measure of America, 2014).

Human Development Index of 92 Counties

Figure 1 shows the geographic results of indexes for health, education, and living standards; and the overall Human Development Index. We find that there is significant disparity in indexes among counties. Both the health and average living standards have high standard deviations, which is a measure of the variability of the calculations across Indiana counties. We also see evidence of clustering of scores among neighboring counties across all dimensions of the Human Development Index. Urban areas tend to do better in health and living standards, while the education dimension appears to cluster at the high end in places with research universities, while more rural places tend to have the low scores.

Figure 1: County Performance in Each Dimension of the Human Development Index, Indiana, 2014 Source: Devaraj et al. (2014)

Note: See the Data and Methods section of this report for an explanation of the scores. Higher scores are ideal. A spreadsheet of scores can be found in the Appendix.





D. Living Standards Dimension



B. Health Dimension





C. Education Dimension

Counties in the Top and Bottom of HDI

The five counties with highest HDI score are Hamilton, Monroe, Tippecanoe, Porter, and Boone. Hamilton County achieved the highest health and living standards indexes, and thus received the highest HDI (See *Table 2*). This was followed by Monroe County (with HDI of 92.09) and Tippecanoe County (with HDI of 88.86). Indiana's two largest public universities reside within Monroe and Tippecanoe counties. There is a clear benefit to urban locations and the presence of universities for a variety of factors related to health, education, and income. This is apparent in the individual and the aggregate HDI rankings.

The five counties with lowest HDI are LaGrange, Scott, Switzerland, Starke, and Crawford. These are extremely rural counties; LaGrange County has the highest share of Amish households in the state, which likely biases both the income and education dimensions. We address considerations for counties with large Amish populations in a separate study (see Heupel, et. al., 2015).

Table 2: Top 5 and Bottom 5 Counties in HDI, 2014

Source: Devaraj et al. (2014)

Note: * LaGrange County includes a very large Amish population. See Heupel et al., 2015 for how to account for this consideration.

Panel A. Top 5 Counties in HDI							
Indiana Counties	HDI 🔻	Health Index	Education Index	Living Standards Index			
Hamilton Co.	100.00	100.00	45.82	100.00			
Monroe Co.	92.09	65.36	100.00	54.75			
Tippecanoe Co.	88.86	55.60	89.61	64.52			
Porter Co.	80.05	57.33	51.33	79.88			
Boone Co.	79.20	68.30	42.33	78.74			

Panel B. Bottom 5 Counties in HDI Living Indiana Education HDI 🔺 **Health Index** Standards Counties Index Index LaGrange Co.* 0.00 46.53 0.00 0.00 Scott Co. 0.00 0.00 24.20 33.69 23.96 0.00 Switzerland Co. 0.00 24.56 Starke Co. 8.18 0.80 26.37 11.97 Crawford Co. 31.98 23.44 30.07 21.27

Counties clearly benefit from the presence of a university when examining factors related to health, education, and income.

Performance by Region

We now combine the counties based on eight multi-county regions in Indiana, using the Indiana Office of Community and Rural Affairs (OCRA) service regions. We use the average HDI across those regions. *Figure 2* shows the HDI and its dimensions by OCRA regions. *Table 3* defines the OCRA regions. We find that the southwest region has higher average HDI relative to other regions, followed by the north central and east central Indiana regions. Counties in the southeast region had lower HDI on average. The northeast region has a higher health index relative to the other regions and the northwest region has a higher education index. The regional clustering of living standards and health plays a bigger role in clustering than does education, which is again more closely linked to some educational institutions. Because of this, urban location plays a smaller role in regional differences in the aggregate HDI than it does in individual counties.

Figure 2: Average HDI Score by OCRA Region, 2014

Source: Deveraj et al., 2014 Note: A spreadsheet of scores can be found in the Appendix.



Table 3: Counties in OCRA Regions

Source: Devaraj et al. (2014)

OCRA Region	Included Counties
Northwest	Benton, Carroll, Clinton, Jasper, Lake, LaPorte, Newton, Porter, Pulaski, Starke, Tippecanoe, Warren, White
North Central	Cass, Elkhart, Fulton, Grant, Howard, Kosciusko, Marshall, Miami, St. Joseph, Tipton, Wabash
Northeast	Adams, Allen, Blackford, DeKalb, Huntington, Jay, LaGrange, Noble, Steuben, Wells, Whitley,
West Central	Boone, Clay, Fountain, Hendricks, Johnson, Madison, Montgomery, Morgan, Owen, Parke, Putnam, Sullivan, Vermillion, Vigo
East Central	Delaware, Fayette, Hamilton, Hancock, Henry, Madison, Randolph, Rush, Shelby, Union,Wayne
Southwest	Daviess, Dubois, Gibson, Knox, Perry, Pike, Posey, Spencer, Vanderburgh, Warrick
South Central	Bartholomew, Brown, Crawford, Greene, Harrison, Jackson, Lawrence, Martin, Monroe, Orange, Washington
Southeast	Clark, Dearborn, Decatur, Floyd, Franklin, Jefferson, Jennings, Ohio, Ripley, Scott, Switzerland

Performance by Metropolitan Status

We further categorize based whether or not the county is in an metropolitan area and then compare the average HDI. *Figure 3* shows the HDI analysis by metropolitan counties. We find that overall metropolitan counties have higher HDI than non-metropolitan counties (14.49 average point differences). The results were consistent across all eight OCRA regions.

The urban/rural differences in standard of living, health, and education are all obvious in these rankings. The very stark differences likely are common across the United States; broad measures of economic health tend to cluster in growing urban areas, while poorer outcomes cluster in rural areas.

Performance by MSA

We now analyze the HDI within Indiana's 16 metropolitan statistical areas (MSA). We average the indexes across counties in each MSA. *Table 4* shows the HDI by MSAs. We find that South Bend received the highest HDI, closely followed by Evansville. Anderson and Terre Haute were the MSAs with the the lowest HDI performance.

As with the regional measures, the HDI in these urban areas reflect differences attributable to a number of factors. The Indiana counties in multi-state urban areas fared poorly, suggesting that these areas are underperforming relative to the core metropolitan areas in Indiana.

When compared with purely rural areas, urban areas and MSAs enjoy higher population growth and higher scores in every dimension of the HDI.

Figure 3: Average County Score by OCRA Region, 2014

Source: Devaraj et al. (2014) Note: A spreadsheet of scores can be found in the Appendix.



Table 4: Average County Score by MSA, 2014

Source: Authors calculations from Devaraj et al. (2014) * This MSA includes the Indiana counties of Jasper, Lake, Newton, and Porter. ** This MSA includes the Indiana counties of Dearborn, Ohio, and Union.

*** This MSA includes the Indiana counties of Clark, Floyd, Harrison, Scott, and Washington.

MSA (Indiana Counties Only)	HDI 🔻	Health Index	Education Index	Living Standards Index
South Bend- Mishawaka	70.87	45.49	55.72	64.36
Evansville	70.64	50.01	43.12	77.37
Columbus	68.78	46.58	41.35	77.41
Lafayette	67.36	49.52	55.06	53.13
Fort Wayne	66.68	56.48	42.62	57.48
Indianapolis	65.29	54.28	41.35	62.65
Bloomington	60.61	41.97	55.64	45.74
Chicago- Naperville- Joliet*	59.32	36.03	44.07	63.70
Elkhart-Goshen	59.22	53.18	32.20	55.57
Kokomo	58.50	37.81	38.90	63.61
Muncie	54.72	25.32	66.30	44.72
Cincinnati- Middletown**	52.92	49.36	32.05	45.20
Louisville***	50.99	35.56	36.48	48.78
Michigan City- La Porte	50.40	29.50	38.37	51.82
Terre Haute	48.33	25.39	41.33	54.04
Anderson	47.75	29.62	38.99	43.20



Comparison: HDI and Other Metrics

The Human Development Index offers a straightforward measure of economic performance across regions. Because we examine only Indiana counties in this study, the HDI offers a clear county-tocounty comparison and an index score that reports a value that can be interpreted as a percentage rank for each county (higher scores are ideal). A county with an HDI score of 50 is in the 50th percentile of all counties, while a 25 is in the 25th percentile.

As mentioned, the HDI is not the only score of economic wellbeing in Indiana counties. The Community Asset Inventory and Rankings (CAIR) also offers a score for categories of people, health of human capital, education of human capital, government impact & economy, fixed & static amenities, and recreational opportunities (see Hicks, Devaraj, and Heupel, 2012). The CAIR provides a composite score on several dozen metrics in these areas, from which letter grades are derived.

A 2014 study compared the CAIR and HDI for Indiana (see Devaraj, Sharma, Hicks, and Faulk, 2014b). This study analyzed the correlation between the HDI and individual CAIR elements to relative levels of per capita income in Indiana counties. The study reported that the HDI offered a clear, low-cost measure of economic conditions within counties. To compare the CAIR and HDI, which are two alternative measures of local economic conditions, we constructed a composite CAIR of the metrics for human capital education, human capital health, and people. The geometric mean of each was calculated, and then these were rank ordered from 1 to 92. This allows us to compare the CAIR relative ranking on the three metrics the HDI attempts to measure. We found very strong correlation between the two measures, suggesting the HDI may be a

Figure 4: HDI vs CAIR Scores for Indiana Counties Source: Devaraj et al. (2014)



Note: A spreadsheet of scores can be found in the Appendix.

low-cost alternative to the more data-intensive analysis in the CAIR. That strong correlation is apparent in *Figure 4*.

The most obvious difference between the HDI and CAIR is that the education category in HDI includes enrollment data, resulting in much higher scores for counties with a large university presence such as Tippecanoe (Purdue), Monroe (IU), Saint Joseph (Notre Dame), Delaware (Ball State), and Vigo (Indiana State) counties.

Conclusion and Recommendations

This policy brief describes the Human Development Index (HDI), a tool used by the United Nations to measure the human development across countries. In Devaraj et al. (2014) we applied this tool to estimate the Human Development Index of all counties in the state of Indiana. This index is comprised of three basic dimensions: health, education, and living standards.

We find that there is disparity in HDI across counties. The average HDI of the southwest region is higher than other regions, whereas the southeast region has a lower HDI on average than the other regions. We also find evidence of higher HDI for urban counties relative to rural counties. Cities such as South Bend and Evansville received the highest HDI, whereas Anderson and Terre Haute received the lowest HDI.

Regional variation in economic conditions, especially differences between urban and rural areas continue to form household expectations about future economic opportunities in the state. This, in turn, fuels population changes in Indiana counties. As was demonstrated in the 2012 CAIR, all net population increases in the state was isolated to the dozen counties with an A grade. The net population growth between 2000 and 2010 in the remaining counties was negative. Economic conditions fuel population change, as is apparent in *Figures 5* and *6*.

This Human Development Index offers yet another call for adjustment to state economic development policies. Policies that address key factors of the HDI are described in Heupel and Hicks (2013) in their description of 21st Century economic development policies. These authors make the following argument, which focuses on making communities attractive. These factors include:

- Improved school quality in K-12, with a particular focus on improving schools in the bottom quartile of educational performance.
- Focused development efforts on quality of place as a mechanism for attracting human capital, which would boost the productivity, health, and economic conditions within a region.
- Improve the responsiveness of local government, to include adoption of cost savings measures outlined in the Kernan-Shepard Report.
- Develop local infrastructure to support healthy lifestyles. These improvements range of physical assets and community support services, both public and private.
- Focus on regional development. Business attraction efforts at the county level, even when effective, rarely induce new households to locate within a county, but instead offer employment options across a region. Individual counties are a small part of regional labor markets, so traditional economic development should occur at the regional and state level.

Figure 5: County HDI Scores and Population Growth, 2000-2010

Source: Devaraj et al. (2014)

Note: A spreadsheet of scores can be found in the Appendix.



Figure 6: County Living Standards Scores and Population Growth, 2000-2010

Source: Devaraj et al. (2014)

Note: A spreadsheet of scores can be found in the Appendix.



Finally, this Human Development Index should serve as a clarion call to policy adjustments for most Hoosier communities. From 2000 to the present, only a dozen or so Indiana counties have seen population growth faster than the nation as a whole. Roughly 50 are in relative decline; they are growing at a pace slower than the US as a whole. The remaining 30 Indiana counties are in longterm population decline. Current economic development policies, many of which date from the 1960s, have failed to generate significant population and income growth in most Indiana counties. A focus on human capital and quality of place should replace existing economic development efforts at the county and municipal levels.

Credits

References

- Anand, S., and A. Sen. 1993. Human development index: Methodology and measurement. United Nations Development Programme, Paper No. 8, http://hdr.undp.org/sites/default/ files/oc12.pdf
- Devaraj, S., S.K. Sharma, M.J. Hicks, and D.G. Faulk. 2014. The Human Development Index of Indiana Counties – An Exploratory Study. *International Journal of Business and Economic Development* 2(1): 1-15. http://www.ijbed.org/admin/content/ pdf/i-4_c-34.pdf
- Devaraj, S., S.K. Sharma, M.J. Hicks, and D.G. Faulk. 2014. "Comparing Human Development Index with community asset inventory rankings and its impact on income, poverty and employment in Indiana." *The Business & Management Review* 4(4): 297.
- Hicks, M.J., S. Devaraj, and R. Heupel. 2012. Community Asset Inventory and Rankings. Center for Business and Economic Research, Ball State University. Muncie: CBER Data Center.
- Hicks, M.J., and R. Heupel. 2013. The Future of State and Local Economic Development Policy. Center for Business and Economic Research, Ball State University.
- Heupel, R., S. Canady, M.J. Hicks, B. Neu, and E. Walsh. 2015. The Amish: Economic Considerations for Communities. Center for Business and Economic Research, Ball State University. Forthcoming.
- Kulkarni, S.C., A. Levin-Rector, M. Ezzati, & C.J.L. Murray. 2011. Falling behind: Life expectancy in US counties from 2000 to 2007 in an international context. *Population Health Metrics* 9(16). Accessed May 2013. http://www.pophealthmetrics.com/ content/9/1/16
- Measure of America. 2010. Methodological notes. The Measure of America 2010–2011. 272-281.

Measure of America. 2014. Mapping the Measure of America 2013-2014. Accessed June 2015. http://www.measureofamerica.org/ maps

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Authors

- Srikant Devaraj, PhD candidate, research assistant professor, Center for Business and Economic Research, Ball State University.
- Sushil K. Sharma, PhD, associate dean, Miller College of Business, Ball State University. Professor of information systems, Miller College of Business, Ball State University.
- Michael J. Hicks, PhD, director, Center for Business and Economic Research, Ball State University. George & Frances Ball distinguished professor of economics, Miller College of Business, Ball State University.
- Dagney Faulk, PhD, director of research, Center for Business and Economic Research, Ball State University.

Editing and Design

Victoria Meldrum, manager of publications and web services, Center for Business and Economic Research, Ball State University.

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BALL STATE UNIVERSITY CENTER FOR BUSINESS AND ECONOMIC RESEARCH

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Table A1. Performance of Indiana Counties in Dimensions of the Human Development Index Source: Devaraj et al. (2014)

Note: Higher scores signify more desireable performance. For a full explaination of score calculation, refer to the Data and Methods section in this report.

Indiana Counties 🛦	Human Development Index	Health Dimension	Education Dimension	Living Standards Dimension	Indiana Counties 🛦	Human Development Index	Health Dimension	Education Dimension	Living Standards Dimension
Adams Co.	55.36	57.71	34.31	39.27	Lawrence Co.	42.87	29.11	28.43	43.60
Allen Co.	71.58	51.16	48.49	67.76	Madison Co.	47.75	29.62	38.99	43.20
Bartholomew Co.	68.78	46.58	41.35	77.41	Marion Co.	52.87	17.62	42.77	89.86
Benton Co.	57.94	46.52	40.55	47.26	Marshall Co.	54.24	50.97	33.40	42.95
Blackford Co.	43.98	32.69	34.44	34.63	Martin Co.	47.14	28.21	30.10	56.51
Boone Co.	79.20	68.30	42.33	78.74	Miami Co.	50.55	34.15	42.64	40.64
Brown Co.	48.34	56.49	31.73	28.88	Monroe Co.	92.09	65.36	100.00	54.75
Carroll Co.	55.28	46.44	35.01	47.61	Montgomery Co.	60.46	40.30	42.11	59.69
Cass Co.	48.43	35.97	34.02	42.54	Morgan Co.	55.44	39.13	37.06	53.84
Clark Co.	48.06	27.55	34.06	54.20	Newton Co.	49.34	29.18	38.07	49.54
Clay Co.	41.21	25.15	42.21	30.21	Noble Co.	50.08	42.14	31.40	43.50
Clinton Co.	51.72	41.45	29.97	51.02	Ohio Co.	44.57	44.75	19.67	46.10
Crawford Co.	31.98	23.44	30.07	21.27	Orange Co.	38.94	29.57	25.70	35.61
Daviess Co.	40.79	38.95	20.19	39.53	Owen Co.	47.36	30.92	32.87	47.89
Dearborn Co.	67.28	54.65	41.24	61.92	Parke Co.	34.20	31.03	25.70	22.98
Decatur Co.	58.03	42.05	36.86	57.77	Perry Co.	43.56	31.61	23.99	49.94
DeKalb Co.	66.26	56.00	41.84	56.89	Pike Co.	46.88	25.41	24.67	75.34
Delaware Co.	54.72	25.32	66.30	44.72	Porter Co.	80.05	57.33	51.33	79.88
Dubois Co.	59.28	55.03	30.68	56.55	Posey Co.	79.05	54.85	45.04	91.62
Elkhart Co.	59.22	53.18	32.20	55.57	Pulaski Co.	45.12	19.59	41.64	51.61
Fayette Co.	35.61	18.79	33.27	33.10	Putnam Co.	60.57	52.99	51.59	37.24
Floyd Co.	64.71	39.61	43.11	72.71	Randolph Co.	52.10	40.04	35.43	45.67
Fountain Co.	46.93	35.28	32.18	41.73	Ripley Co.	59.80	40.53	38.18	63.35
Franklin Co.	46.92	48.68	35.25	27.59	Rush Co.	54.04	41.52	34.92	49.88
Fulton Co.	45.59	26.24	31.04	53.30	Saint Joseph Co.	70.87	45.49	55.72	64.36
Gibson Co.	70.35	54.79	38.51	75.61	Scott Co.	0.00	0.00	24.20	33.69
Grant Co.	49.97	25.22	50.33	45.06	Shelby Co.	52.68	29.69	38.06	59.28
Greene Co.	42.38	29.64	34.04	34.58	Spencer Co.	56.42	46.33	36.15	49.15
Hamilton Co.	100.00	100.00	45.82	100.00	Starke Co.	8.18	0.80	26.37	11.97
Hancock Co.	69.02	53.74	37.52	74.73	Steuben Co.	56.37	48.98	45.80	36.59
Harrison Co.	54.25	49.47	39.55	37.41	Sullivan Co.	39.46	14.27	36.40	54.18
Hendricks Co.	70.82	67.98	44.16	54.22	Switzerland Co.	0.00	24.56	23.96	0.00
Henry Co.	39.61	21.99	38.75	33.41	Tippecanoe Co.	88.86	55.60	89.61	64.52
Howard Co.	55.64	30.00	40.79	64.50	Tipton Co.	61.37	45.63	37.00	62.73
Huntington Co.	64.10	61.78	47.85	40.82	Union Co.	52.56	46.28	47.05	30.54
Jackson Co.	47.07	32.11	28.54	52.14	Vanderburgh Co.	61.72	30.57	49.93	70.57
Jasper Co.	58.70	40.41	42.64	53.80	Vermillion Co.	55.28	32.53	29.48	80.71
Jay Co.	45.30	33.63	35.09	36.09	Vigo Co.	57.37	29.62	57.21	51.07
Jefferson Co.	58.34	42.42	46.28	46.36	Wabash Co.	54.82	38.79	42.47	45.82
Jennings Co.	39.99	19.42	34.04	44.34	Warren Co.	54.70	49.16	33.98	44.90
Johnson Co.	63.98	56.88	42.45	49.70	Warrick Co.	71.47	59.82	39.01	71.68
Knox Co.	55.78	25.89	51.15	60.08	Washington Co.	36.92	25.63	29.20	30.82
Kosciusko Co.	66.90	52.83	34.83	74.56	Wayne Co.	46.92	27.55	39.49	43.50
LaGrange Co.	0.00	46.53	0.00	0.00	Wells Co.	64.44	64.99	40.53	46.56
Lake Co.	49.19	17.22	44.24	71.60	White Co.	53.92	42.44	35.13	48.20
LaPorte Co.	50.40	29.50	38.37	51.82	Whitley Co.	64.02	53.29	38.82	58.11

Table A2. Average County Score by OCRA Region, 2014

Source: Devaraj et al. (2014)

Panel A. Regions Ordered West-East & North-South							
OCRA Region	N	HDI	Health Index	Education Index	Living Standards Index		
All Regions	92	53.22	39.81	38.57	50.62		
Northwest	13	54.11	36.59	42.07	51.82		
North Central	11	56.14	39.86	39.49	53.82		
Northeast	11	52.86	49.90	36.23	41.84		
West Central	14	54.65	38.71	39.89	53.72		
East Central	11	55.00	39.50	41.42	50.73		
Southwest	10	58.53	42.32	35.93	64.01		
South Central	11	50.07	37.78	38.06	43.00		
Southeast	11	44.34	34.93	34.26	46.18		

Panel B. Regions Ranked by Overall HDI Performance

OCRA Region	N	HDI 🔻	Health Index	Education Index	Living Standards Index
All Regions	92	53.22	39.81	38.57	50.62
Southwest	10	58.53	42.32	35.93	64.01
North Central	11	56.14	39.86	39.49	53.82
East Central	11	55.00	39.50	41.42	50.73
West Central	14	54.65	38.71	39.89	53.72
Northwest	13	54.11	36.59	42.07	51.82
Northeast	11	52.86	49.90	36.23	41.84
South Central	11	50.07	37.78	38.06	43.00
Southeast	11	44.34	34.93	34.26	46.18

Table A3. Average Score Based on Metropolitan Status, 2014

Source: Devaraj et al. (2014)

OCRA Region	HDI of All Counties in Region	HDI of Only Metro Counties	HDI of Only Non-Metro Counties
All Regions	53.22	60.47	45.98
Northwest	54.11	60.50	36.98
North Central	56.14	59.07	50.00
Northeast	52.86	64.31	43.39
West Central	54.65	55.36	44.85
East Central	55.00	63.73	41.38
Southwest	58.53	68.79	50.86
South Central	50.07	55.59	36.07
Southeast	44.34	52.25	35.30