Revenue Capacity and Service Costs of Indiana Rural and Urban Local Governments

Larry DeBoer
Department of Agricultural Economics
Purdue University
December 2016
Introduction

Indiana has seen much change in the finances of its local governments in the past 20 years. The Indiana Supreme Court threw out the old property assessment system in 1998, which caused years of reforms culminating in the Constitutional property tax caps in 2010. Many counties adopted the new local income taxes which were made available in 2007, and all the local income taxes were scheduled for major reform in 2017. Recession and recovery affected property and income tax revenues. The school funding formula was revised with every new state budget. Road funding has seen reforms, and may see more in the near future. An analysis of the effects of these changes requires a method of measuring local government fiscal conditions.

The fiscal conditions of Indiana local governments depend on the availability of taxable property and income, on state aid formulas, and on the costs of providing services. Revenue capacity and service costs can be measured independently of any budget or tax decisions made by local officials. The difference between the two—a “capacity-cost index” —can show the conditions under which local tax and service decisions are made.

Revenue Capacity

Indiana local governments derive 87% of their revenues from four sources: property taxes, local income taxes, state aid to schools, and state aid for roads. The remaining revenue comes from smaller taxes, smaller state and Federal aid programs, charges and fees, interest earnings, sale of property, and many other sources. Our index of countywide revenue capacity represents the sum of all the major and minor revenue sources.

The tax base of the property tax is the net assessed value of property, which is the value placed on land, buildings and business equipment by the county or township assessor, less deductions. The tax base of the local income tax is the taxable income received by residents of the county, plus a fraction of the income earned by non-residents who work in the county. These two tax sources can be summed by multiplying the tax bases by a typical tax rate used by local governments in Indiana. The average net property tax rate after credits are subtracted is slightly less than $2.00 per $100 assessed value, or 2%. The average local income tax rate is 1.36%.

This study excludes Marion County from the calculation of these average rates, and from this analysis generally. This is not because Marion is unimportant—in fact, it is because Marion is too important. Marion is by far Indiana's largest county, with 14% of Indiana's population, 14% of its net assessed value and 14% of its taxable income. Including this big urban county in the average rates moves them higher than is typical in the rest of Indiana. In addition, the local governments of Marion County and Indianapolis are partially combined through UniGov. The analysis of service costs in particular requires separation of appropriations by county and city. Doing this for Marion would be guesswork.
Actual state school aid and state road aid is included as part of revenue capacity. This aid is distributed by formula from state revenue sources. The formulas are fixed by the state, based on characteristics of the school corporations, counties, cities and towns. For school aid, the formula is based on total enrollment, categorical enrollment (for example, special needs or honors students), and on a complexity index that reflects the level of poverty in the school corporation. For road aid, the formulas are based on population, road miles to maintain, and vehicle registrations. The formula parameters are fixed by the state, so the amount each county actually receives depends on the population, enrollment, poverty, registration and road mileage characteristics of each county.

The tax base of all other revenue is assumed to be population, since the county's people pay the motor vehicle excise taxes and surtaxes, charges and fees and many other revenues. The average payment is $334 per person.

Revenue capacity is the sum of the state average tax rates times each county's net assessed value and taxable income, plus state school aid and state road aid, plus average other revenues per person times county population. Results are presented on a per capita basis to make comparisons more meaningful. Appendix 1 provides a detailed description of the calculation of revenue capacity.

Figure 1 shows the components of revenues by type for 2015. State school aid and property taxes together comprise 72% of all local government revenue. Schools dominate appropriations (see Service Costs below).

Two examples are shown in Table 1, for local governments in Greene and Jasper counties. The counties are both classified as rural and have similar populations. Jasper County's property tax revenue capacity is more than double Greene's. The net assessed value per person in Jasper is $72,742. It's only $30,994 in Greene. If each county taxed at the state average net tax rate of $1.9964 per $100 assessed value, Green would raise $619, but Jasper would raise $1,452. Similarly, Jasper has higher taxable income per person than Greene, $20,788 compared to $16,817. If each county imposed the state average local income tax rate of 1.36%, Jasper would raise $283 compared to Greene's $229.
Jasper also receives more from the state school aid formula. One reason is simply that school enrollment is a greater share of population in Jasper than it is in Greene. Jasper has 166 public school pupils per 1,000 population, while Greene has 148. The counties receive similar amounts from the state road formulas, and all other revenues are set at the state average of $334 per person.

<table>
<thead>
<tr>
<th>County Population</th>
<th>Greene County</th>
<th>Jasper County</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net Assessed Value</td>
<td>32,441</td>
<td>33,470</td>
</tr>
<tr>
<td>Tax Rate or Factor</td>
<td>1.9964</td>
<td>1.360%</td>
</tr>
<tr>
<td>Tax Base</td>
<td>30,994</td>
<td>16,817</td>
</tr>
<tr>
<td>Revenue Capacity</td>
<td>619</td>
<td>229</td>
</tr>
<tr>
<td></td>
<td>72,742</td>
<td>20,788</td>
</tr>
<tr>
<td></td>
<td>1,452</td>
<td>283</td>
</tr>
<tr>
<td>Taxable Income</td>
<td>Actual</td>
<td>Actual</td>
</tr>
<tr>
<td></td>
<td>928</td>
<td>1,006</td>
</tr>
<tr>
<td></td>
<td>20,788</td>
<td>283</td>
</tr>
<tr>
<td></td>
<td>1,452</td>
<td>283</td>
</tr>
<tr>
<td>State School Aid</td>
<td>Actual</td>
<td>Actual</td>
</tr>
<tr>
<td></td>
<td>119</td>
<td>123</td>
</tr>
<tr>
<td></td>
<td>334</td>
<td>334</td>
</tr>
<tr>
<td>State Road Aid</td>
<td>Actual</td>
<td>Actual</td>
</tr>
<tr>
<td></td>
<td>334</td>
<td>334</td>
</tr>
<tr>
<td>Other Revenue</td>
<td>Actual</td>
<td>Actual</td>
</tr>
<tr>
<td></td>
<td>334</td>
<td>334</td>
</tr>
<tr>
<td>Revenue Capacity</td>
<td>2,228</td>
<td>3,197</td>
</tr>
</tbody>
</table>

Greene and Jasper are two rural counties with similar populations, but Jasper has a higher property tax base, higher taxable income and more favorable treatment by the school aid formula. Jasper has a greater capacity to provide local government services, by $969 per person more than Greene.

**Service Costs**

The purpose of raising revenues from property taxes, income taxes, the receipt of state aid and all other sources is to provide local government services. The capacity to raise revenue varies by county, but so does the cost of providing services. Services are provided to people, so population size will determine service costs. If population was the only determinant of costs, revenue capacity per person would be a good capacity-cost index. But service costs depend on more than simple population. The population in cities and towns, the number of public school students, and miles of road also determine costs. Figure 1 shows that appropriations by cities and towns for general purposes, by school corporations for K-12 education, and by counties, cities and towns for roads, comprise 85% of total local government appropriations.

Providing services in cities and towns is more costly than in rural areas. Traffic control requires stoplights instead of stop signs. Fire protection requires faster response times to prevent the spread of fire to closely packed buildings. Firefighters need more elaborate equipment to handle multi-story buildings. Criminals are attracted to the concentration of wealth in urban areas, so more police protection is required. For these and other reasons Indiana allows densely populated areas to incorporate, charging themselves an extra city or town property tax rate to provide enhanced services, beyond what the county government can provide. This means that counties with a higher share of their populations in cities and towns will have higher service costs.

Children are expensive to educate. Teachers and staff, buildings and buses are required to deliver education to children aged 5 to 18. Counties with higher public school enrollment as a share of population will have higher service costs.

Roads must be maintained. Counties, cities and towns with more road miles to maintain will face higher costs. More road miles per person in counties and in cities and towns means greater service costs.
We calculate our index of countywide service costs based on a county's total population, city and town population, school enrollment, and road miles in counties and in cities and towns, using average appropriations for Indiana counties, townships, cities and towns, school corporations, library districts and special districts. Local government appropriations are the best available measure of spending. City and town non-road appropriations average $783 per resident of cities and towns. Special district appropriations are included with cities and towns. Average public school appropriations are $9,875 per pupil. Counties appropriate $6,348 on average per county road mile. Cities and towns appropriate $16,762 on average per city and town road mile. And counties, townships and library districts appropriate $391 per person (not including county road appropriations). As with revenue capacity, our calculation of service cost averages excludes Marion County. Appendix 1 provides a detailed description of the calculation of service costs.

Table 2 shows two examples of service cost calculations, again for local governments in Greene and Jasper counties. As noted earlier, Green and Jasper are rural counties with similar populations. The statewide average appropriations by service cost category are in the left column. County cost factor per 1,000 population shows the cost category factors relative to county population. The service cost column multiplies the average appropriation by the county cost factor (divided by 1,000), and the sum of this column is the county's service cost.

<table>
<thead>
<tr>
<th>County</th>
<th>Greene County</th>
<th>Jasper County</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>32,441</td>
<td>33,470</td>
</tr>
<tr>
<td>Service Cost Category</td>
<td>Average Appropriation</td>
<td>County Cost Factor/1000 Pop</td>
</tr>
<tr>
<td>Population</td>
<td>390.9</td>
<td>382.8</td>
</tr>
<tr>
<td>City/Town Population</td>
<td>783.1</td>
<td>300</td>
</tr>
<tr>
<td>Enrollment</td>
<td>9,875.1</td>
<td>148.1</td>
</tr>
<tr>
<td>County Road Miles</td>
<td>6,347.5</td>
<td>268</td>
</tr>
<tr>
<td>City/Town Road Miles</td>
<td>16,762.2</td>
<td>3.2</td>
</tr>
<tr>
<td>Service Cost</td>
<td>2,377</td>
<td>2,526</td>
</tr>
</tbody>
</table>

Table 2 shows that Jasper has a higher service cost than Greene. This is mostly because of the larger number of public school pupils relative to population. A larger share of Jasper's population are high-cost school children. The counties have similar shares of population in cities and towns, with Greene at 38% and Jasper at 36% living within municipal boundaries. Road miles per person are similar too. At average appropriations levels, Jasper's local governments would appropriate $149 more than Greene's local governments.

**Capacity-Cost Index**

The indexes of revenue capacity and service cost can be combined into a capacity-cost index, which is simply revenue capacity minus service cost. In our examples, Greene County has revenue capacity of $2,228. This is the amount Greene could raise at average tax rates, with existing state aid. Greene's service cost is $2,377, the amount that Greene would appropriate to provide an average level of services for its residents. Its capacity-cost index is the difference, -$149. This means that Greene does not have the revenue capacity to provide an average level of services at average tax rates. Jasper County's revenue capacity is $3,197, and its service costs are $2,526. Its capacity cost index is $671. This means that Jasper does have the capacity to provide an average service level at average tax rates, and then some.
If the capacity-cost index is positive, the local governments in a county can support an average level of appropriations with average tax rates and existing state aid. The county would have the option of providing an average service level with lower tax rates, or to appropriate more than average for services at average tax rates. If the capacity-cost index is negative, however, local governments in a county cannot support an average level of appropriations with average tax rates and existing state aid. The local governments would have to charge higher than average tax rates to provide average service levels, or use average tax rates to provide lower than average service levels.

But is this true? Do counties with more positive, less negative capacity-cost indexes have lower property tax rates? Figure 2 provides evidence in support. The scatter diagram plots the average county property tax rate with the county capacity-cost index. The property tax rates are gross rates, calculated as the total property tax levy for all units divided by the county net assessed value, and expressed as dollars per $100 assessed value. The points in Figure 2 have a clear downward tilt, and the correlation is -0.73. This means that counties with greater capacity and lower costs tend to charge lower property tax rates. Counties with lesser capacity and higher costs tend to charge higher property tax rates.

There is also evidence that counties with more positive capacity cost indexes appropriate more for services. Figure 3 plots actual appropriations per person for all local governments in each county on the capacity-cost index. The points slope upward and the correlation is +0.47, implying that counties with greater capacity and lesser costs appropriate more
for local government services. The relationship is stronger for tax rates than for appropriations (compare Figures 2 and 3). This may mean that local governments adjust their tax rates to capacity and costs more readily than they adjust their service provision.

Figure 4 maps the capacity-cost index for Indiana's counties (aside from Marion). Counties shaded green have capacity-cost indexes of $200 or more, while those shaded red have indexes of -$200 or less. Yellow-shaded counties have indexes nearer to zero. More detailed results and data are provided in Appendix 2.

Classification of Rural, Mixed and Urban Counties

Capacity-cost indexes may differ across different types of counties. In particular, the indexes may vary based on the rural or urban characteristics of counties. This implies that counties must be classified as rural or urban. Of course, any classification will be problematic. Even the most rural counties have incorporated towns, and even highly urban counties have rural areas. Nonetheless, an analysis of how Indiana's local government system treats rural and urban communities requires a classification—which counties count as rural and which count as urban?
We use the typology developed by Ayres, Waldorf, McKendree and Holscher (2013), which offers a useful division of counties into three classifications: rural, rural/mixed and urban. The classifications are based on total population, population density (people per square mile), and the population of the county’s largest city. The authors also include “county identity”, which is a subjective measure of how most people view the county. In the Ayres-Waldorf classification, rural counties have populations less than 40,000, population densities less than 100 people per square mile, and a largest city or town of less than 10,000, and are generally viewed as rural. Indiana has 42 counties that meet all four criteria, and these are classified as rural.

Urban counties in the Ayres-Waldorf scheme have total populations greater than 100,000, population densities over 200, and a largest city with a population of more than 30,000. There are 17 counties classified as urban. The remaining 33
counties do not fall fully into either classification, and they are labeled “rural/mixed.” “Rural/mixed” is labeled as “mixed” in this report. Figure 5 shows a map of rural, mixed and urban counties under the Ayres-Waldorf classification. The classifications are shown in the table in Appendix 2.

![Figure 5. Rural, Mixed and Urban Counties](image)

**Urban, Mixed and Rural Classification, Indiana Counties (Ayres-Waldorf)**

### Classification
- **Urban**
- **Mixed**
- **Rural**

**Capacity and Costs for Rural, Mixed and Urban Counties**

Tables 3, 4 and 5 present summary measures of fiscal indicators by rural, mixed and urban counties. For each county type, and for all counties, the tables show the minimum and maximum values, and the 25th, 50th and 75th percentiles. The 50th percentile is the median value, which is highlighted in each table. Half of all counties in each category are between the 25th and 75th percentile. One-quarter are above the 75th, and one-quarter are below the 25th percentiles.

What is perhaps surprising is that rural counties have greater revenue capacity than urban counties (Table 3). Mixed counties are in between. The median rural county could raise $2,553 per person with average property and income tax rates and the school and road formula distributions. The median urban county could raise only $2,276. The 25th and 75th percentile values follow the same pattern. Rural counties have the highest revenue capacity across the board.
The median rural county has $48,480 in net assessed value per person, while the median urban county has $37,903. Urban counties have higher median taxable incomes per person than rural or mixed counties. Mixed counties have the highest median school aid per person, but rural counties have more than urban counties. Rural counties have the highest median road aid per person.

The most important reason why rural counties have greater revenue capacity than urban counties is greater taxable (net) assessed value. If all counties had the same taxable assessed value per person, the difference between the median rural and urban revenue capacity would be only $137 per person. The difference in Table 3 is $430. Two-thirds of the rural revenue capacity advantage is due to higher taxable assessed value per person.

The rural county advantage in taxable assessed value per person may be counter-intuitive. After all, urban counties have much of the high-valued industrial and commercial property. Urban and mixed counties have the higher-valued homes. What rural counties have is farmland.

Figure 6 shows the median net assessed values per person for the rural, mixed and urban counties. Urban counties have the most homestead assessed value per person, reflecting the higher population density that helps produce greater...
housing demand and higher home values. Urban counties have the most “other residential” property, because rentals make up a large share of urban housing. And of course, urban counties have most business real and personal property, because so much industrial and commercial property clusters around population centers.

But the rural advantage in farmland swamps all other property types. Rural counties have so much more farmland net assessed value per person that total net assessed value is greatest for rural counties, despite urban advantages in homesteads, other residential and business property. This is still surprising, though, given that agricultural land is assessed at its use value, well below its market value. One average-valued Indiana home has as much net assessed value as 27 acres of average farmland. A thousand farmland acres is matched by a neighborhood of just 37 homes.

The answer to this paradox is this: no matter how small a county’s population, the farmland remains. Lower population counties will have lower home values, less rental housing, fewer businesses, but the same farm acreage. The assessed value of an acre of farmland remains the same no matter what the population of a county. The market value of farmland may be higher in urban areas, because of potential development for residential, commercial or industrial uses, but the assessed value of farmland is the same everywhere based on its use in agriculture.

Service costs per capita vary much less than revenue capacity by county type (Table 4). The state median service cost is $2,508 per person, which is also the mixed county median. The rural county median is just $10 higher than the state median, and the urban county median is just $52 lower.
The relatively small variation in service costs is not because costs are the same among county types, however. Of course, a much larger share of the population in urban counties lives in cities and towns, 66% compared to 37.6% in rural counties. Service costs in cities and towns are higher, so this adds to urban county costs. But these costs are offset by the relatively small share of urban county populations enrolled in public schools. Urban counties attract more young people who have not yet formed families with children, so enrollment makes up only 14.5% of urban county populations. The enrollment share of population is 15.5% in rural counties, and 16.2% in mixed counties. These percentage differences are small, but the added cost per pupil is large (see Table 2), so enrollment has a significant effect on rural and mixed county costs relative to urban counties.

Rural counties have more road miles per 1,000 people than urban counties. No matter how small a county's population, the county's local governments must provide and maintain roads. The inverse of miles per population is population per mile, which is probably a rough measure of traffic. There are fewer vehicles on rural roads—and fewer people to pay for them.
Finally, Table 5 brings revenue capacity and service costs together to show the capacity-cost indexes by county classification. Figure 7 summarizes the results. The median rural county has a higher capacity cost index than the median urban county. The mixed county median is in between. Since the median service costs indexes do not vary much among county classifications—and the urban county median is lowest—clearly it is revenue capacity that creates the rural advantage. This advantage is due to farmland assessments relative to small rural populations.

Small populations produce higher net assessed value per person, but this result is not simply a trick of the numbers. Higher net assessed value per person results in higher revenue capacity, which produces a higher capacity-cost index. Higher capacity cost indexes are associated with lower average property tax rates, among urban, mixed and rural counties. Figure 8 shows the same scatter diagram as Figure 2, but with the rural, mixed and urban counties identified. All three county types show a downward slope. A higher capacity-cost index is associated with lower property tax rates.
Figure 7 shows, however, that there are advantaged and disadvantaged counties of each type. The middle 50% of rural counties—between the 25th and 75th percentiles—overlaps the middle 50% of urban counties. Urban Porter County has a higher capacity cost index than 23 rural counties. Rural Blackford County has a lower capacity cost index than all but three urban counties. Data for individual counties are available in Appendix 2.

The East-North-Central Corridor

A glance at the map of capacity-cost indexes in Figure 4 shows that most of the highly negative indexes are in a corridor stretching from Cass County in the north central part of Indiana, to Fayette County in the eastern part of the state. Eight of the 11 most fiscally disadvantaged counties in the state are in this corridor, as measured by the capacity-cost index. In addition, Wayne and Miami Counties have capacity-cost indexes between -$150 and -$200, which makes 10 contiguous disadvantaged counties.
A comparison of the capacity-cost index and rural-mixed-urban classification maps (Figures 4 and 5) shows that these 10 counties are of each type: two are urban, seven are mixed and one (Blackford) is rural. It is geography, not the county classification that corresponds with fiscal disadvantage.

Table 6 shows the composition of the capacity-cost indexes for these 10 counties, compared to the state median county values. All have large negative capacity-cost indexes. Revenue capacity, calculated at average tax rates, is not enough to support service costs, calculated at average appropriations per cost indicator. Revenue capacity is below the state median for all 10 counties. Delaware falls short by the largest percentage, with a revenue capacity of 20.9% below the state median. Howard has the highest revenue capacity of the 10, but it is still 2.7% below the state median. Service costs are more varied, with five counties above the median and five below. Each county has unique characteristics, but it is clear that the region's disadvantage lies in its lower-than-median revenue capacity.
Table 7 shows revenue capacity and two of its components, taxable assessed value and taxable income. All ten counties are below the state median for both components. Each of these counties has a smaller property and income tax base per person than the typical county. The shortfall of taxable assessed value is larger than the shortfall of taxable income for all ten counties. Since property taxes are the largest component of revenue capacity, the shortfall of taxable assessed value per capita is the main reason that counties in the east-north-central corridor have a fiscal disadvantage.

Why is this region in particular disadvantaged? It may be the region’s dependence on manufacturing. Manufacturing employment in Indiana was counted at almost 720,000 in 1977, which was 27.9% of all Indiana jobs. The median county had 24% of its employment in manufacturing. By 2014 (the most recent data available), there were a bit more than 520,000 manufacturing jobs, only 14% of Indiana total employment. The median county had 15% of its employment in manufacturing. The state lost 200,000 manufacturing jobs in 37 years, and the share of manufacturing in the total was almost halved.

Figure 9 shows the relationship between the county manufacturing employment share and the average annual growth in taxable assessed value from 1977 to 2015. There is a downward sloping pattern; the correlation is -0.53. Counties that had more manufacturing in 1977 tended to experience slower taxable assessed value growth over the next 38 years. Most manufacturing is capital intensive, meaning that it adds disproportionately to taxable assessed value. If manufacturing does not grow, or if it declines, counties with large amounts of manufacturing property will see slower taxable assessed value growth.

The ten east-north-central counties are marked with larger diamonds in Figure 9. The dotted lines mark the state median growth rates and manufacturing shares. Nine of the ten counties had above-median shares of employment in manufacturing in 1977 (all but Miami). All ten saw slower than median growth in taxable assessed value from 1977 to 2015. Miami had the highest average annual growth, 4.46%, but the state median was 4.79%. Five of the 10 grew less than 4% per year.
**Figure 9**


![Graph showing correlation between net assessed value growth and manufacturing employment share. The correlation coefficient is -0.53.](image)

*Correlation: -0.53*

---

**Table 7. Revenue Capacity for Ten East-North-Central Counties**

<table>
<thead>
<tr>
<th>County</th>
<th>Revenue Capacity</th>
<th>Taxable Assessed Value</th>
<th>AV Pct. from State Median</th>
<th>Taxable Income</th>
<th>Inc Pct. From State Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blackford</td>
<td>2,322</td>
<td>35,203</td>
<td>-19.4%</td>
<td>16,885</td>
<td>-11.1%</td>
</tr>
<tr>
<td>Cass</td>
<td>2,457</td>
<td>34,892</td>
<td>-20.1%</td>
<td>16,283</td>
<td>-14.3%</td>
</tr>
<tr>
<td>Delaware</td>
<td>2,019</td>
<td>29,181</td>
<td>-33.2%</td>
<td>15,761</td>
<td>-17.0%</td>
</tr>
<tr>
<td>Fayette</td>
<td>2,258</td>
<td>30,399</td>
<td>-30.4%</td>
<td>13,926</td>
<td>-26.7%</td>
</tr>
<tr>
<td>Grant</td>
<td>2,193</td>
<td>30,682</td>
<td>-29.8%</td>
<td>15,474</td>
<td>-18.5%</td>
</tr>
<tr>
<td>Henry</td>
<td>2,353</td>
<td>31,598</td>
<td>-27.7%</td>
<td>16,094</td>
<td>-15.3%</td>
</tr>
<tr>
<td>Howard</td>
<td>2,484</td>
<td>41,045</td>
<td>-6.1%</td>
<td>18,115</td>
<td>-4.6%</td>
</tr>
<tr>
<td>Madison</td>
<td>2,106</td>
<td>28,142</td>
<td>-35.6%</td>
<td>16,536</td>
<td>-12.9%</td>
</tr>
<tr>
<td>Miami</td>
<td>2,302</td>
<td>30,627</td>
<td>-29.9%</td>
<td>15,141</td>
<td>-20.3%</td>
</tr>
<tr>
<td>Wayne</td>
<td>2,247</td>
<td>35,649</td>
<td>-18.4%</td>
<td>16,297</td>
<td>-14.2%</td>
</tr>
</tbody>
</table>

State Median | 2,553 | 43,694 | 18,992
There are exceptions in other parts of the state. Three counties with manufacturing shares above 35% in 1977 had above-median growth through 2015 (DeKalb, Dubois and Kosciusko). All three had positive capacity-cost indexes.

More research would be needed to fully test the relationship between manufacturing dependence and fiscal disadvantage. But a tentative story is this. The counties in east-north-central Indiana, stretching from Cass to Fayette, were highly dependent on manufacturing in the late 1970’s. Property taxes on manufacturing plant and equipment and income taxes on manufacturing incomes provided a large part of these counties’ revenue capacity.

Manufacturing employment in Indiana began to fall with the Great Recession of 1980-82, and fell again after the recessions of 2001 and 2007-09, so that by 2014 employment was down by almost 200,000. By 2015, the manufacturing share in total employment had been cut in half. Taxable assessed value grew slowly in the corridor as the manufacturing tax base eroded.

The loss of manufacturing cost these counties substantial revenue capacity, but service costs varied among the counties both above and below the state median. In every county, however, revenue capacity was less than service costs. The east north central corridor is the most fiscally disadvantaged in Indiana.

Summary and Conclusions

This report compares the ability of Indiana local governments to raise revenue to the costs of providing local government services. Revenue capacity is measured as the amount that could be raised with state average property tax and local income tax rates, plus actual revenues from the state school and road formulas. Service cost is measured as the amount that would be spent if local governments appropriated state average amounts per person living in cities and towns, per public school student and per county, city or town road mile.

The difference between the two is our capacity-cost index, which measures the ability of all the local governments in a county to provide an average service level at average tax rates. A positive index indicates that governments can provide average services at lower than average tax rates, or can provide above average services at average tax rates. A negative index indicates that governments must charge higher rates to provide average services, or must provide a lower service level at average tax rates. Analyses of Indiana countywide data show support for the capacity-cost index. More positive capacity-cost indexes correspond to lower tax rates and higher appropriations per person.

Perhaps surprisingly, rural counties tend to have higher capacity-cost indexes than urban counties. The main reason is the assessed value of farmland for property taxes. Counties with smaller populations tend to have lower home values, less rental property and fewer commercial or industrial businesses. But farmland remains no matter how small a county’s population. Further, because farmland is assessed based on its use in agriculture, the demand for land for development has no effect on the farmland assessments.

Most of the counties with the largest negative capacity-cost indexes are in the east north central corridor stretching from Cass to Fayette Counties. These counties main disadvantage is their low assessed values and taxable incomes per person. Most of these counties had a large share of manufacturing employment in 1977. The decline in manufacturing in Indiana since then may have had a particularly negative effect on revenue capacity for these counties.

The capacity-cost index is the foundation for an analysis of Indiana’s state and local fiscal system. What effect did the property tax reforms of 2008 have on rural, mixed and urban local governments in Indiana? For example, did the
Constitutional property tax caps make urban county capacity-cost indexes more negative, because these counties had higher property tax rates? Did the supplemental homestead deduction that reduced homestead assessed values by more than one-third make suburban (mixed) capacity-cost indexes more negative? Did the run-up of farmland assessed values from 2007 to 2015 add to rural county revenue capacity, and will the coming drop in these values reduce rural revenue capacity? These are questions that will be answered in a future report, based on the capacity-cost indexes described here.

Appendix 1. Data and Methods.

Data on unit appropriations, levies and tax rates were acquired from a Department of Local Government Finance (DLGF) spreadsheet from their website, which shows data derived from budget form 4-B. Data on tax district property tax assessments, levies, rates and credits were from county abstracts, in spreadsheets provided by the DLGF by request. Data on the components of gross and net assessed value were hand-entered from the Legislative Services Agency's county property tax reports.

Revenue capacity

Property Tax Capacity. Property tax revenue is calculated as the tax rate times the net assessed value, less credits. The tax rate is measured in dollars per $100 of assessed value, which is equivalent to a percentage. Net assessed value is the gross assessed value set by the county or township assessor, less deductions. Deductions are primarily the homestead standard and supplemental deductions, but also include the mortgage deduction, veterans’ deductions, energy deductions, business abatements and others. Net assessed value statewide, not including Marion County, is $247 billion.

Credits are subtracted from tax bills after the rate times assessment calculation. Local credits are percentage reductions in tax bills, funded by local income tax revenue. Tax cap or circuit breaker credits are subtracted to bring a tax bill under its constitutional tax cap, if necessary. Local income tax credits are $338 million, and tax cap credits are $583 million, not including Marion County.

An average property tax rate is calculated by summing the property tax levies for all units in all counties except Marion, then subtracting the local income tax and tax cap credits. The result is $4.9 billion. This figure is divided by county net assessed value (again excluding Marion), to yield an average post-credit tax rate of $1.9964 per $100 assessed value. This rate is multiplied by each county's net assessed value to yield property tax capacity, the amount that the local government units in each county could raise by taxing their net assessed value at the statewide post-credit property tax rate.

Local Income Tax Capacity. Local income tax revenue is calculated as the local income tax rate times taxable income. Until 2017 a county's local income tax rate was the sum of several different income taxes, known as the County Adjusted Gross Income Tax (CAGIT), the County Option Income Tax (COIT), the County Economic Development Income Tax (CEDIT), and various Local Option Income Taxes (LOIT) for property tax relief and public safety. In 2017 these separate rates will be folded into one single local income tax rate (LIT).

County taxable income is calculated by dividing total local income tax revenue by the total tax rate. Statewide without Marion the total is $122 billion. Total local income tax revenue without Marion is $1.66 billion, so the average local income tax rate is 1.36%. This average rate is multiplied by each county's taxable income to yield local income tax capacity, the
amount that the local government units in each county could raise by taxing their local taxable income at the statewide local income tax rate.

Note that county income tax capacity includes income tax revenue for property tax relief. The local income tax credits are subtracted from property tax capacity when the net property tax rate is calculated, so that this revenue is not double-counted.

**State School Aid.** State aid to public school corporations is calculated by formula. The school aid formula is usually revised every two years as part of the state budget. Total state aid to schools is comprised of several grant programs, but 87% of the total are basic tuition support and the complexity grant. Total state funding for public schools is $6.3 billion, tuition support is $4.4 billion, and the complexity grant is $1.1 billion. Smaller categorical grants make up the remaining $0.8 billion.

Basic tuition support is distributed on a per pupil basis and averaged about $4,600 per pupil in 2015. The complexity grant is distributed based on an index that measures the educational environment, delivering more funding to school corporations with higher poverty rates. In 2015 the complexity index was based on the share of students eligible to receive free textbooks. The complexity grant averaged $1,153 per pupil, but ranged from $123 to $2,740 per pupil, depending on the number who received free textbooks. Remaining categorical grants are distributed per pupil based on the number in honors programs, special education, career and technical education, or full-day kindergarten.

A significant problem with summing school aid by county are the cross-county school corporations. There are 42 school corporations in more than one county. Culver Community School Corporation is in four counties. State aid and enrollment are available only by school corporation. For this study, aid and enrollment are divided among counties based on shares of school corporation gross assessed value.

State school aid capacity uses actual state school aid, not the average statewide value per pupil times county enrollment. The school aid formula—tuition support, complexity grant and categorical grants—are fixed by the General Assembly based on total enrollment, the free textbook share, and the number of pupils in each category. These are the county characteristics that produce the school aid amount, so actual school aid is an index of those characteristics. State school aid averages $6,202 per pupil and $954 per person, not including Marion County schools.

**State Highway, Road and Street Aid.** State revenue for road construction and maintenance is collected from motor fuel taxes and some vehicle registration fees, and distributed by formula to the Indiana Department of Transportation and to counties, cities and towns. Unlike the school aid formula, the road distribution formulas have been nearly the same for decades, depending on the same variables.

There are two main formulas for distributing state aid for roads, called the Motor Vehicle Highway (MVH) and the Local Road and Street (LRS) formulas. The MVH formula distributes 53% of its funds to the state, 32% to counties and 15% to cities and towns. Of the county funds, 5% are distributed equally (each county gets 1/92nd of 5% of the county distribution), 65% is distributed based on miles of road that the county must maintain, and 30% are distributed based on total vehicle registrations. The city and town funds are distributed based on the share of each unit’s population in the state city/town total.

The LRS formula allocates revenue to counties based on the share of each county in total passenger car registrations (not total vehicle registrations). Funds are divided among the county government and cities and towns within a county based on population and road miles.
Data on total calendar year 2015 road funding distributions to counties, cities and towns were acquired from the State Auditor's Office. Total road aid to cities and towns was $156 million, total aid to counties was $324 million, and the grand total was $480 million. As with schools, cross-county cities and towns present a problem. There are 20 cities or towns in more than one county. Edinburgh Town is in three counties; the others are in two. Again, road aid to cross-county cities or towns is divided among the counties based on shares in gross assessed value.

Again as with schools, state road aid capacity uses actual state road aid. The road aid formulas are fixed based on population, road miles, total vehicle registrations and automobile registrations. These are the county characteristics that produce the road aid amounts, so actual road aid is an index of these characteristics. State road aid averages $80 per person, not including Marion County.

All Other Revenue. Property taxes, local income taxes, state school aid and state road aid fund 87% of local appropriations. The remaining 13% come from a variety of sources, including motor vehicle excise taxes, several small local option taxes, charges and fees, federal and state aid, sale of property, interest earnings, and many more. These sum to $1.9 billion, or $334 per person. All other revenue capacity is calculated on a per person basis, multiplying county population by the state average of $334 per person.

Service Costs

Counties, Townships and Library Districts. County, Township and Library District appropriations for all funds except county roads are summed. The county general fund is by far the largest of these funds. County road funds are treated separately. Total appropriations are $2.2 million, of which $1.9 million are county appropriations. The total is divided by total Indiana population, 5.7 million, to yield $391 per person. All data exclude Marion County.

County Service Costs are calculated by multiplying the statewide average county, township and library per person appropriations by the population of each county. This gives the cost of providing services at the statewide. average cost to the people of each county.

Cities, Towns and Special Districts. City and town appropriations in all funds other than road funds are dominated by the general fund, which pays for employee pay and benefits and other operating costs. There are dozens of other smaller funds included, however. Road funds are treated separately. In addition, special district appropriations are included with cities and towns, since most special districts are associated with cities and towns.

Total city, town and special district non-road appropriations are divided by city and town population. Total city, town and special district appropriations are $2.7 billion statewide, and city and town population is $3.5 million. State average city, town and special district non-road appropriations per person are $783.

City, town and special district service costs are calculated by multiplying the state average appropriation by city and town population in each county. Cross county unit populations are allocated among counties based on shares in gross assessed value.

School Corporations. Total school appropriations are summed for all public school corporations in Indiana. Appropriations are $8.6 billion statewide, excluding Marion County schools. This figure is divided by public school enrollment excluding Marion schools, of 873,927. The result is $9,875 per pupil.
School Service Costs are calculated per county by multiplying the statewide average per pupil by county public school enrollment. Cross-county school corporation enrollment is divided among counties using shares in gross assessed value.

**Roads.** Most county, city and town appropriations for roads are included in the motor vehicle highway and local road and street funds. These funds receive the state formula aid, but may also include property tax and other revenues. In addition, units may use property tax cumulative funds for bridges. Some units have additional road related funds, for thoroughfares or toll road receipts. These appropriations are summed separately for counties and cities and towns. County road appropriations totaled $402 million and city/town road appropriations totaled $295 million.

County and city/town appropriations are divided by county and city/town road mileage, respectively. There are 63,373 county road miles and 17,609 city/town miles. Cross county city/town appropriations and road miles are divided among counties based on shares in gross assessed value, as was done for state school and road aid. State average county road appropriations per road mile is $6,348. State average city/town road appropriations per road mile is $16,762. Marion County is excluded from the state averages.

Road Service Costs for each county are calculated by multiplying average county road appropriations per mile by each county's road miles, plus average city/town road appropriations per mile by the city/town road miles in each county. The sum is the service cost of a county's road miles, at state average appropriations.

**Appendix 2. Revenue Capacity, Service Costs and Capacity-Cost Indexes**

Data for Appendix 2 can be found online at [www.pcrd.purdue.edu/ruralindianastats/about.php](http://www.pcrd.purdue.edu/ruralindianastats/about.php) under ‘reports.’

**Sources**
