Indiana's Local Income Tax:

Distributions and Balances in Recession and Expansion

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Prepared for the Indiana Fiscal Policy Institute

September 2021

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SINCE 1987

Publication Note:
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How does Indiana pay for local government – police and fire protection, street repairs and stormwater systems, the essential services and added amenities closest to the daily lives of Hoosiers, delivered from counties, municipalities and other local taxing units like townships and library districts?

For nearly fifty years – since the "Bowen tax package" of 1973 – the answer has evolved along three recurring themes: Controlling the growth of property taxes (especially in reaction to the court-ordered shift to market-based tax assessments in 2001), expanding local income tax capacity, and meeting other obligations (e.g. K-12 operations) with state aid through sales taxes.

The Indiana Fiscal Policy Institute (IFPI) has studied critical developments in local revenues – including constitutional caps on property taxes implemented just over a decade ago – and their effects on communities across Indiana. Among these analyses (all available at www.IndianaFiscal.org):

- **The Personal Property Tax in Indiana** (2014) – Larry DeBoer, John Stafford
- **What Do We Know About Indiana's Property Tax Caps?** (2015) – Larry DeBoer
- **The Fiscal Health of Indiana's Larger Municipalities** (2016) – John Stafford
- **A Fiscal History of Indiana Local Government** (2018) – Craig Johnson, Justin Ross
- **Capacity & Cost Indexes of Indiana Local Government, 2002 & 2018** (2020) – Larry DeBoer

One element that's overdue for closer examination is the local income tax (LIT). We are proud to again offer the unique insight of Dr. Larry DeBoer, Professor Emeritus of Agricultural Economics at Purdue University and our foremost expert on Indiana's state and local tax structure.

Within that structure, LIT plays an increasingly important role for counties and municipalities in particular. In 2000, non-school local units raised less than $2 of income tax revenue for every $10 of property taxes; by 2020, that ratio had grown to nearly $8 in LIT per $10 in property tax supporting local government (again, excluding school corporations), with all 92 counties collecting LIT.

The LIT share of local revenue is likely to continue growing. While nearly all units operate at or near their maximum property tax levy, the average county LIT rate is 1.6%, well under the general expenditure limit of 2.5%. The topic of "unused LIT capacity" has been raised repeatedly in the General Assembly during discussions of local revenue capacity and budget climate.

Reliance on LIT adds volatility, tying more of the local tax base to personal income versus property values. This may be unavoidable, but state-level administration of LIT adds another layer of complexity: Annual distributions are based on past collections, delayed two years from taxable earnings. In 2020, total balances in the county accounts created to collect and distribute revenues were approaching a billion dollars, double the statutory limits set to protect against negative balances when collections dip below distributions.

Dr. DeBoer recognized the opportunity to "stress test" the system for the COVID recession (and more severe downturns), balancing the solvency of county accounts with the stability of LIT as a source of funding for local services. IFPI is pleased to provide a platform for his findings.

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September 2021

Summary:

Background and Basics of Indiana's Local Income Tax (LIT):

- Indiana established local income taxes in 1973. All Indiana 92 counties have adopted LITs. The taxes raised $3.2 billion for all local governments in calendar year 2021, with an average tax rate of 1.6%.
- Taxpayers pay the local income tax along with their state income taxes. The state administers the tax, collects the revenue and distributes it back to counties each year – though the timing between collections and distributions has evolved over time.
- Since the beginning, the State Department of Revenue or the State Budget Agency has notified counties of the amount to be distributed in advance of the calendar year. Counties were notified of their 2022 certified distributions in August 2021.

Certified distributions are based on tax collections from the previous state fiscal year. For 2022 they were based on collections in fiscal 2021, which ran from July 2020 to June 2021. Tax collections in that fiscal year were based mostly on incomes earned in 2020, the year of the pandemic recession.

The LIT system in economic expansion and recession:

- During economic expansions taxable income grows. Since certified distributions are based on previous fiscal year tax collections, they are therefore usually less than budget year collections. The excess revenue becomes balances in county accounts. In expansions distributions are less than collections year after year, so balances accumulate. When balances get too large, the revenue is returned to counties as special or supplemental distributions.
- Taxable income falls during recessions, so certified and special distributions usually exceed collections. Distributions exceeded collections during the last two recessions and balances were insufficient to cover distributions in many counties. In 2010, after the Great Recession, 59 counties had negative balances. Distributions were limited in subsequent years to restore county balances.

Since it is state policy to notify counties of their certified distributions in advance, county LIT balances should be large enough to cover shortfalls of collections during recessions. But balances are tax revenue meant to support local government services, so they should not be too large. Indiana has struggled with this trade-off throughout the history of local income taxes.

Analysis of County LIT data since 2020:

- The State Budget Agency publishes two reports each February, one showing the calculation of certified distributions and supplemental distributions for the current year, and another showing the history of tax collections, distributions, interest earnings and balances since 2000. These data provide the basis for the analysis in this study.

- Taxable income for each county can be estimated from collections and average county tax rates. The sum of estimated county taxable incomes is similar to Department of Revenue tabulations of state taxable income from state tax returns. The two series' growth rates over 2000-2019 are highly correlated.
- The interest rate earned on county balances is estimated by dividing county interest earnings by average balances. The estimated interest rate is closely correlated with the 2-year Treasury security interest rate over the 2000-2019 period.
- Actual balances for end-of-year 2019 are 34% of certified distributions, which is more than double the statutory 15% minimum. Supplemental distributions are calculated based on end-of-year balances from two years before, adjusted for supplemental distributions from one year before. Recent collections or interest earnings are not included in this adjusted balance calculation, because the data are not available when distributions are calculated.
- In years of expansion, collections continue to grow (and interest continues to accrue), so adjusted balances also fall below actual balances and the excess above 15% of certified distributions is understated. As long as taxable income is growing, supplemental distributions based on adjusted balances usually are too small to bring actual balances down to the 15% minimum.
- A statistical analysis of certified distributions over 2000-2019 shows how the adjustments to fiscal year collections have been made. The tax rate adjustment has been made by raising or lowering fiscal year collections by the proportional change in the tax rate. Certified distributions are reduced when a county's balance is negative. The adjustment for negative balances spreads the reduction of certified distributions over two to three years.

Testing the current distribution system with the COVID recession:

- Indiana's current distribution system sets calendar year certified distributions based on previous fiscal year tax collections, adjusted for tax rate changes and negative balances. Supplemental distributions are based on excess balances above 15% of certified distributions.
- The data from the two Budget Agency reports is used to model the past and future of LIT collections, distributions and balances. Distributions for 2021 were set by late 2020, but balances and collections are known only through the end of 2019. Taxable income growth in 2020 and 2021 are modeled to simulate balances by the end of 2021 for each county. Current rules for determining special distributions are applied to data from the Great Recession.
- Balances in 2007 were sufficient to cover shortfalls in tax collections due to the Great Recession. However, supplemental distributions continued in 2008 through 2010, so that 59 counties had negative balances by the end of 2010. Had the present system of determining supplemental distributions been in place, with the 15% minimum balance, only 25 counties would have had negative balances in 2010. The number would have dropped to one by 2012. The present system would have performed better than the system used at the time.
- Tax collections in fiscal year 2021 were based on 2020 incomes. The 2020 recession was very sharp but very short. The State Budget Agency announced certified distributions for 2022 in August 2021, which were based on tax collections for state fiscal year 2021. The percentage change in these distributions approximate tax collections for 2021. Statewide, they declined by 2.2%. Estimates of end-of-year balances in 2021 find no counties with negative balances.

What the analysis finds:

- An analysis based on the data in the Budget Agency documents shows that the 2020 recession will not cause any negative county balances by the end of 2021. Recessions more severe than the Great Recession of 2007-09 would still leave almost all counties with positive balances. The present system of setting certified and supplemental distributions appears to have solved the problem of negative balances during recessions.
- Balances in almost all counties would be positive even in recessions more severe than any Indiana has experienced. A minimum balance less than 15% would still prevent most negative balances, while releasing tax revenue for local government services. Each one percentage point reduction in the 15% minimum balance would release $50 to $60 million to local governments.
- If the minimum balance percentage of certified distributions was reduced from 15% to 12%, a recession as severe as the two-year decline in taxable income over 2007-09 would cause only 4 counties to have negative balances. Had a 12% minimum been used in 2020 and 2021, supplemental distributions would have been $160 million higher in those two years.
- The present system of LIT distributions works better than any previous system in keeping county account balances positive. **But it may work too well.** A lower minimum balance percentage of 11% or 12% would protect against negative balances, even in severe recessions, while releasing revenue to local governments.

Introduction

Indiana first established local income taxes with the County Adjusted Gross Income Tax in 1973. The state administered the tax, collecting local income taxes with state income taxes, and distributing the revenue back to the counties. The revenue then would be divided among local governments within each county. From the beginning, the state would notify counties of their local income tax distributions in advance of the budget year. This required the state to set distributions before tax collections were known.

At first the state projected future revenues, much as state income tax revenues are forecast. The shortfall of collections during the 2001 recession caused negative balances in about half of the county accounts. More money was distributed than collected. The state abandoned revenue projections, and based distributions on past collections.

But during expansions, as tax collections increased, distributions would always be less than collections, and balances would build. This was tax money paid to support local government services, so balances needed to be held down. A system for supplemental distributions was established. This system failed during the Great Recession. In 2010, 59 counties had negative balances.

The state reformed its system for setting certified and supplemental distributions during the long expansion of the 20-teens that ended abruptly with the pandemic recession in 2020. Distributions in 2022 are based on tax collections in 2021, which were based on income earned in 2020. The State Budget Agency has now released the 2022 LIT distributions. The sharp but short pandemic recession did not reduce tax collections substantially. But these data offer an opportunity to stress-test the LIT distribution system: How would the system perform in more severe recessions? Are balances sufficient to cover shortfalls in collections? Or, are balances larger than they need to be, tying up funds that could be used for public services? This study will attempt to answer these questions.

History of Indiana Local Income Tax Distributions

In 1973 the Indiana General Assembly passed the first Indiana local income tax, called the County Adjusted Gross Income Tax, as part of Governor Bowen's property tax relief package. County councils had the option to adopt CAGIT for their counties. Taxpayers would pay CAGIT along with their state income taxes, and the Indiana Department of Revenue would distribute the revenue back to the counties as "certified distributions." The revenue would then be allocated to local units within the county based on shares in the property tax levy. CAGIT revenue was used primarily for property tax relief.

CAGIT set the pattern for all the local income taxes to follow. Taxpayers filed a single income tax return for both the state and local income taxes. There was no additional filing burden. The state would administer the tax, so there was little added burden on county administration. The revenue would be treated like property taxes in local budgets.

Property tax levies are set in advance of the budget year. Tax rates are adjusted to deliver the levy from taxable assessed value. If local income taxes were to be treated like property taxes, local units also would need to know the how much local income tax revenue they would receive in the coming budget year. The Department of Revenue, and later the State Budget Agency, was tasked with projecting local income tax collections for each adopting county for the coming state fiscal year, as a basis for setting certified distributions for the following calendar year. The certified distribution would be delivered to the counties without regard for what was actually collected during the budget year.

Counties were required to adopt by March 31 for tax collections to begin on July 1 of that same year. Taxes would be collected for six months before the beginning of the budget year. This meant that a six-month balance accumulated in the county's fund, which could cover shortfalls of collections below distributions. A six-month balance implies balances of about 50% of the certified distribution.

Revenue Commissioner Donald H. Clark explained the process to the *Mitchell Tribune* in July 1975.

> *The law requires that the Revenue Department predict local option collections for each adopting county in the next 12-month period. The law then gives the department the authority to actually certify a greater or lesser amount than the estimated collections based upon what's available in the fund.*

The certified distribution for calendar 1976 was set based on the predicted collections during the state fiscal year, July 1 1975 to June 30 1976. If the distribution was greater than collections in the previous year, the county's fund would diminish, and the Department could certify a lesser amount. If collections were greater and the fund became large, the distribution could be raised.

Accurate prediction is difficult, of course. In a May 1985 audit of the Department of Revenue, the Legislative Services Agency called the Department's forecasting methods "intuitive." By the early 1990s the State Budget Agency was made responsible for the forecasts.

Beginning in 1994 counties were allowed to petition the state to reduce the six-month balance to three-months. By 2000 average end-of-year balances were 59% of certified distributions, and 71 of 85 adopting counties had balances greater than 50%. 36 had balances greater than 75%. Six-months of tax receipts should be about 50% of the certified distribution, and three-months should be about 25%. Apparently few counties had taken advantage of the three-month option by 2000.

Large balances in county local income tax accounts became a bone of contention for counties. Counties claimed that balances were allowed to grow well beyond what was needed to protect against shortfalls in collections. Revenue meant to pay for local public services were instead being held by the state. There were suspicions that counties were not receiving all the money that was due to them.

In 2001 and 2002 the state responded by making supplemental distributions to all adopting counties. Supplemental distributions totaled $283 million in those two years, which was a 15% addition to certified distributions. Balances for the 85 counties with local income taxes were $476 million at the start of 2001 and $6 million at the end of 2002.

Unfortunately, this effort to clear balances corresponded to the 2001 recession. Taxable income dropped 1.2% in 2001 and another 1% in 2002. Distributions exceeded collections by $211 million in 2001 and 2002. By the end of 2003, 44 of 85 adopting counties had negative balances in their state accounts. Certified distributions were covered from state funds.

Data lags were part of the problem. The Budget Agency set certified distributions for calendar 2001 in July 2000, in time for local budget deliberations. The distributions were based on a forecast of tax collections for July 1 2000 to June 30 2001. At that point, the most recent county income tax collection data were from calendar 1999. Tax payments in 1999 were based on income earned in 1998. Nothing in that data indicated a coming recession. Certified distributions were predicted to grow, and it seemed appropriate to reduce balances with supplemental distributions.

The General Assembly attempted to improve the distribution process with legislation in 2002. HEA 1196 required that certified distributions be based on past collections, not forecasts of future collections. Certified distributions for 2003 would be set in July 2002, based on collections from July 1 2001 through June 30 2002. The state would only distribute revenue that had already been collected. "That will solve the problem in future recessions," I wrote in May 2003. I was wrong.

The 2002 legislation maintained the six- and optional three-month balance requirements. The Budget Agency could recommend supplemental distributions when balances were above those levels. This was revised in SEA 166 in 2003. The Budget Agency would now recommend supplemental distributions when it determined "that a sufficient balance exists in a county account in excess of the amount necessary." The new law let the Budget Agency decide whether balances were in more than sufficient, and should be distributed to counties.

After the 2001 recession taxable income grew each year from 2003 to 2007. Each year certified distributions were set based on collections in the previous state fiscal year. In a growing economy, this meant that distributions were always less than collections. Balances grew. Balances as a percent of certified distributions were almost zero statewide in 2004, and grew to 33% by 2007. Supplemental distributions became a regular feature of the local income taxes. 70 counties received supplemental distributions in 2004, and 70 more in 2007.

The Great Recession began in December 2007. The state's new system for setting distributions failed to meet the challenge. Data lags were a problem again. The certified distributions in 2009 were based on collections through mid-2008, which were based on incomes earned in 2007. Certified distributions were set based on collections during the expansion. In 2009 and 2010 distributions exceeded collections by $190 million.

Balances at the start of 2009 totaled $326 million, which would have been enough to cover the collections shortfall. But supplemental distributions continued. Data lags may have been the reason. Perhaps the Budget Agency underestimated the severity of the recession. Perhaps it was unwilling to tighten LIT distributions just as property tax caps were imposed. In 2010, 90 counties received supplemental distributions totaling $182 million. By the end of the year balances were negative in 59 counties. Balances had appeared to be more than sufficient based on data from expansion years. Supplemental distributions were made even as collections were falling, and this helped drive balances below zero during the recession.

Certified distributions were limited in 2011 and after to replenish balances. Statewide collections grew 4% in 2011, but certified distributions dropped 15% statewide. Total distributions including supplemental distributions dropped 23%. The recession had created instability in collections. The distribution system added more instability to the amounts that local units actually received.

The General Assembly changed the requirements for supplemental distributions again in the budget bill in 2011. Now counties had to have balances equal to 150% of certified distributions before supplemental distributions could be made. The average balance percentage was negative at the end of 2010, so under this rule it would have been a long time before there would be any new supplemental distributions. Perhaps this was the intent of the very high balance limit.

SEA 544 in 2013 changed the required percentage to 50%, essentially a return to the original 6-month balance requirement. Between 2013 and 2015 only 14 or 15 counties received supplemental

distributions. Balances statewide grew to 34% of certified distributions by the end of 2015, and all counties had positive balances. In 2016, 91 counties received supplemental distributions.

Even in counties with the most volatile economies, taxable income and tax collections rarely fall by more than 10% from one year to the next. SEA 67 in 2016 recognized this fact, and set the minimum balance percentage at 15% of certified distributions before supplemental distributions could be made. That percentage remained the requirement as the state faced the pandemic recession of 2020.

Three Principles for Distributing Local Income Tax Revenues

The state administers the local income taxes. State administration removes the burden of income tax administration from local governments. It is convenient for taxpayers to pay their local taxes using the same form as their state taxes. This requires the state to distribute LIT revenue back to the counties.

This leads to the first principle for distributing local income tax revenues: ***Certified distributions should be set in advance of the budget year.*** Local governments set their budgets knowing how much LIT revenue they will receive, and that amount is delivered without regard for actual budget year tax collections.

Distributions are set in advance. Since 2003 certified distributions have been based on past tax collections. In most years the economy expands and tax collections increase. As a result, each year collections exceed distributions. The remainder adds to the balance in each county's LIT account. If the expansion continues for many years, balances will grow large. Balances represent taxes paid to support local services, but are instead unused, though they earn interest. This is a second principle for LIT distribution: ***Balances should not be larger than necessary*.**

Expansions end in recessions, and tax collections fall. Distributions are set based on past collections, so in recession years collections fall short of distributions. The shortfall is covered by balances in each county's account. The certified distribution is made even if balances are not sufficient to cover the shortfall. When that happens, balances become negative, and the state covers the distribution with its own funds. This is a burden on state resources during recessions. Future certified distributions are reduced to restore balances, which means that the effect of a recession on local revenues can extend for years. LIT distributions become less stable than LIT collections. This is the third principle for LIT distribution: ***LIT account balances should be enough to cover shortfalls in tax collections.*** End-of-year balances should not be negative.

Indiana has struggled to meet these principles over the years. Various methods have been used to set certified distributions. At first the Department of Revenue and then the Budget Agency set distributions based on predicted future collections. When this system failed after the 2001 recession, the General Assembly required that distributions be based on past collections, with supplemental distributions to keep balances from growing too large. The Budget Agency was given discretion to set the timing and amount of supplemental distributions.

When this system failed after the 2007-09 recession, the General Assembly mandated that a minimum balance be maintained in each county's account, before supplemental distributions were made. This balance eventually settled at 15% of certified distributions, which is the system used today.

The pandemic recession was sharp but short, so it had only a small effect on LIT collections. Should there be a more severe recession, how will the new system respond?

The Budget Agency's LIT Reports

Several of the LIT reform bills over the years added reporting requirements for the State Budget Agency. The report of most interest to local governments is the Certification Calculation, which shows the certified distributions for each county for the coming budget year. The report is released in the second half of each year. The release was delayed in 2020 because of the delayed due date for income tax payments. The report for 2022 certified distributions was released in August 2021, and due to be finalized for new rate adoptions by November. These Certification Calculation reports are available on the Agency's website for 2006 through 2022.

The Agency provides details about the certified distribution calculations, and sets supplemental distributions, in the County Information Report released each February. These reports are available on the Budget Agency's website for calendar years 2006 through 2021. The reports in 2019 and since are particularly informative. We can also see the history of collections, distributions and balances for each county since the year 2000 in the Local Income Tax Balance Reports. This document is updated in February as well.

This study will project end-of-2021 balances for local income tax accounts using data in the County Information Reports and the Local Income Tax Balance Reports. These documents are in PDF form, so the data were converted to spreadsheet format for analysis. The spreadsheet data are available on the Indiana Fiscal Policy Institute website (www.IndianaFiscal.org) accompanying this report.

County Informational Reports.

The County Informational Reports show the determination of certified distributions and supplemental distributions for the current calendar year. These documents provide data on collections, distributions and balances, and they also reveal how the Budget Agency determines the certified and supplemental distributions.

Table 1 shows selected figures from the 2021 County Information Reports, released in February 2021, for Cass, Elkhart and Pulaski Counties. This table illustrates the data available in the reports, gives the Indiana Code citations for each entry, and shows how certified distributions and supplemental distributions were calculated for CY 2021—which is the purpose of the document.

Certified distributions for 2021 were based on LIT collections for state fiscal year 2020. The distributions look back to taxes that have already been collected, rather than projecting collections to come. The document shows collections for July through December, the first half of the fiscal year. The second half is usually January through June, but in 2020 the tax filing deadline was postponed from April 15 to July 15 for federal taxes. The state followed suit for state and local income taxes, and postponed the processing deadline for LIT collections to August 31, 2020 to avoid basing 2021 distributions on partial returns.

Most collections are processed in the January through June (August) period, which includes the tax filing deadline. In FY 2020 90.1% of collections were from January through August. In FY 2019 90.5% were from January through June.

The certified distribution exactly equaled collections in the previous fiscal year for 54 counties in CY 2021. There were adjustments in the other 38 counties. The Budget Agency is required to make four types of adjustments in calculating certified distributions. The certified distribution can be reduced if a county's collections have fallen short of the certified distribution in a past year, resulting in a negative balance or the threat of a negative balance. Four counties had such adjustments for 2021, including Pulaski shown in

Table 1. Pulaski had a negative balance at the beginning of CY 2020, so its certified distribution was reduced in 2021. The Budget Agency can spread this adjustment over several years.

Table 1

Selected Entries from CY 2021 County Informational Reports

	Cass	Elkhart	Pulaski
CY 2021 Certified Distributions			
Processed Collections from July 1, 2019 to August 31, 2020 under 6-3.6-9-4			
Amounts reported on tax returns, July 1,2019 - December 31,2019	2,175,852	11,750,943	466,713
Amounts reported on tax returns, January 1,2020 - August 31,2020	18,738,810	102,576,613	8,522,169
Total FY 2020 Processed Collections	20,914,662	114,327,556	8,988,882
Adjustments allowed under IC 6-3.6-9			
IC 6-3.6-9-6 Statutory adjustments for a negative balance	-	-	(952,459)
IC 6-3.6-9-7 Adjustment of clerical or mathematical errors in any prior year	-	-	-
IC 6-3.6-9-8 Adjustment for initial imposition, rate increase, or rate decrease	894,792	-	(1,409,499)
IC 6-3.5-6-17(f) Adjustment for increase in rate locally provided homestead credits	-	-	-
Total Adjustments	894,792	-	(2,361,958)
Total CY 2021 certified distributions after adjustments	21,809,454	114,327,556	6,626,924
Calculation of excess balance under IC 6-3.6-9-15			
Trust account balance for December 31, 2019	6,034,442	28,541,899	(844,000)
(Less): Estimated distributions in CY 2020 (Not included in Trust balance 2019)	(2,165,776)	(14,042,688)	-
Adjusted Trust account balance for December 31,2019	3,868,666	14,499,211	(844,000)
(Less):15% of Certified Distribution for CY 2021	(3,271,418)	(17,149,134)	(944,039)
Excess account balance to be distributed on May 1st pursuant to IC 6-3.6-9-15	597,248	-	-

Certified distributions also can be changed to correct past mathematical or clerical errors. There were no such adjustments in CY 2021.

The certified distribution is frequently adjusted for changes in LIT tax rates. For CY 2021 there were 38 counties with adjustments for rate changes, 35 increases and 3 decreases. There were no adjustments for changes in rates for locally-provided homestead credits.

Distributions are adjusted proportionally for changes in tax rates. For example, Cass County increased its tax rate from 2.5% in tax year 2018, to 2.6% in 2019, to 2.7% in 2020. Collections for 2021 are for taxes paid on 2020 incomes at a rate of 2.7%. Collections in the second half of 2019 were on 2018 incomes at a rate of 2.5%, so these are adjusted upward by 8% (since the hike from 2.5% to 2.7% is an 8% increase in tax payments). Collections in the first half of 2020 were on 2019 incomes at a rate of 2.6%, so these are adjusted upward by 3.85%. The two adjustments sum to $894,792, which is the amount reported in the document.

The next section of table 1 shows the calculation of excess balances, which determines whether there will be a supplemental distribution on May 1 of the calendar year. The report provides the data, and also shows how this calculation is done.

As of February 2021, when the report in table 1 was published, the most recent data for LIT account balances was from December 31, 2019, which of course is the balance at the start of 2020. From this is subtracted the supplemental distribution of 2020, which was determined in February 2020. What remains is the adjusted account balance. This is compared to 15% of the 2021 certified distribution, which is calculated as the previous fiscal year collections plus adjustments. The minimum required balance is 15% of the certified distribution. If adjusted balances are greater than 15% of certified distributions, they are "excess" balances, and will be distributed to the county on May 1 2021. If the adjusted balance is less than 15%, no supplemental distribution is made.

For example, for Cass County in 2021, start-of-2020 balances were $6,034,442. The supplemental distribution in 2020 was $2,165,776, so the remaining adjusted balance is $3,868,666. 15% of the 2021 certified distribution of $21,809,454 is $3,271,418. The adjusted balance is higher than this 15% minimum by $597,248, so this amount is an excess balance, to be distributed to the county.

Note that the adjusted balance does not include the growth in collections which would occur in an expansion year, and also excludes interest earnings. This added revenue is added to actual end-of-year balances, so they will be more than 15% of certified distributions.

Elkhart's adjusted balance was $14,499,211, which was less than 15% of the certified distribution. There was no excess balance, so there was no supplemental distribution. Likewise, Pulaski began 2020 with a negative balance, so there was no excess balance and no supplemental distribution.

In 2021 supplemental distributions totaled $226.5 million statewide. 81 counties received distributions and 11 counties did not. The previous year, 2020, supplemental distributions were $225.9 million, and 69 counties received them.

The County Information Reports have several other sections not shown in table 1. The reports show the division of certified distributions and tax rates by type. These are certified shares, public safety, economic development, LIT correctional facilities, property tax relief and special purpose. The report also gives a detailed accounting of the changes in rates and distributions from the previous calendar year.

Local Income Tax Balance Reports.
The Local Income Tax Balance Reports offer a historic accounting of collections, distributions and balances. For each calendar year and each county, the reports show the beginning LIT account balance, tax collections during the calendar year, the certified distribution, special (supplemental) distributions, interest earnings on the balances in the account, and the end-of-year balance. Data in the February 2021 report include calendar years 2000 through 2019, and a partial report for 2020. Table 2 shows the data for 2018, 2019 and 2020, again for Cass, Elkhart and Pulaski counties.

Report data are presented monthly, with annual totals; Table 2 shows the annual totals. The tax collections data show that the monthly figures are simply the year's total divided by 12, and not actual monthly collections. These data are still useful, however, because they change proportionally when tax rates change. Knowing the month that a tax rate change took effect is useful in calculating the average tax rate for the year.

Table 2 shows that the data for 2020 are incomplete. The start-of-year balance is known (it's the same as the previous year's end-of-year balance, of course). The certified distribution for 2020 was based on fiscal year 2019 collections, with adjustments, which were reported in the February 2020 County Informational Report. The supplemental distribution for 2020 was also calculated and reported at that time. These are the actual figures for 2020.

However, as of February 2021 actual calendar year collections for 2020 were not yet known. The Budget Agency uses collections from 2019 as a place-holder. This means that end-of-year balances are also not known. Without knowledge of the actual balances to be invested, interest earnings must also be estimates. Complete data are available from the document for calendar years 2000 through 2019. The full data for 2020 will be reported in February 2022, and actual end-of-year balances for 2021 will be reported in February 2023. This study will estimate those balances.

Table 2.

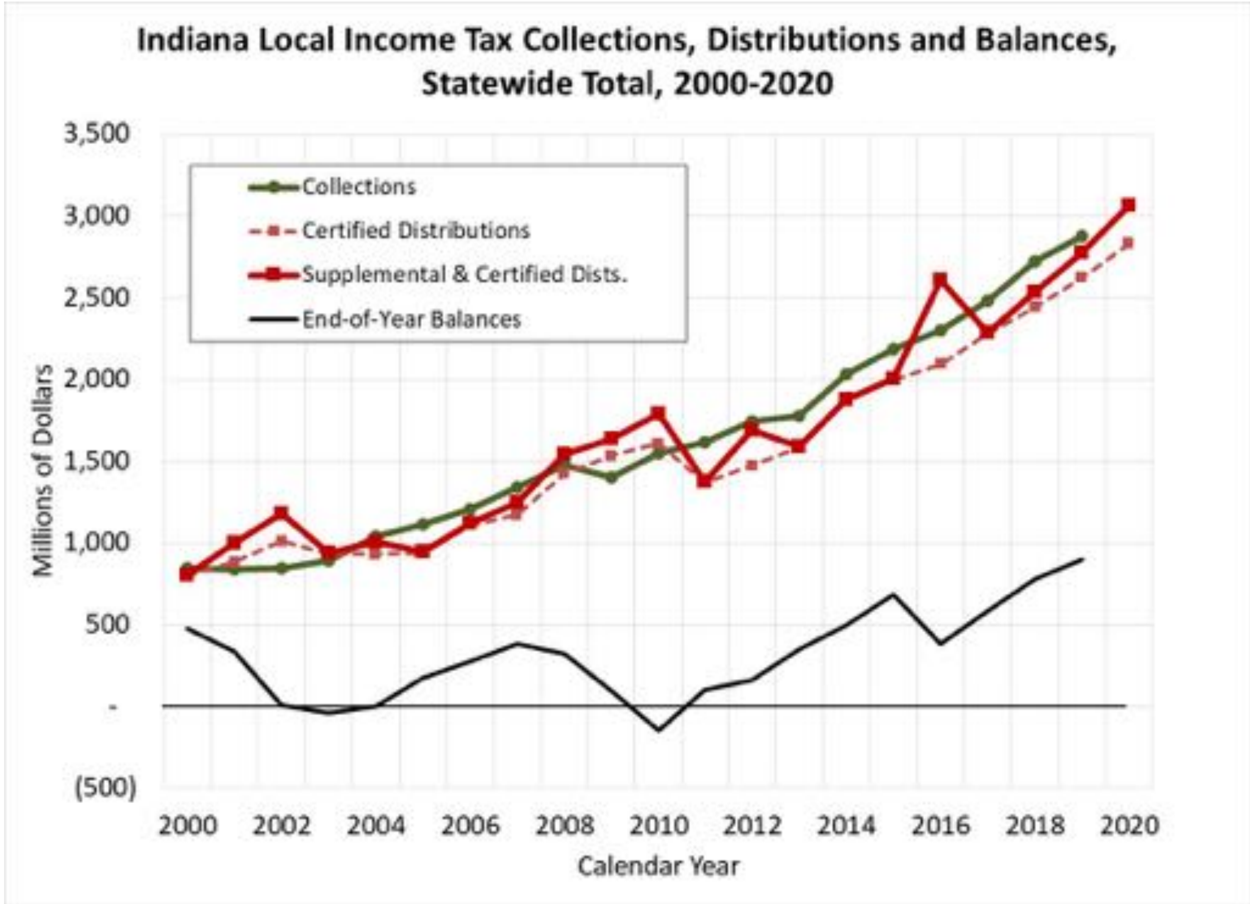
Local Income Tax Balance Reports Through 2019 Actuals and 2020 Estimated February 2021

	Year Total	Beginning Balance	Collections	Certified Distributions	Special Distributions	Interest	Balance
Cass							
	2018	3,320,860	19,552,657	17,238,198	102,969	68,816	5,601,165
	2019	5,601,165	19,284,196	18,517,983	440,193	107,257	6,034,442
	2020	6,034,442	*19,284,196*	19,967,975	2,165,776	*50,636*	*3,235,523*
Elkhart							
	2018	51,392,775	115,417,731	102,110,763	16,567,466	699,258	48,831,535
	2019	48,831,535	112,737,390	116,317,806	17,377,638	668,417	28,541,899
	2020	28,541,899	*112,737,390*	116,074,728	14,042,688	*222,148*	*11,384,021*
Pulaski							
	2018	(2,403,279)	8,724,904	8,036,423	-	-	(1,714,798)
	2019	(1,714,798)	8,907,222	8,036,424	-	-	(844,000)
	2020	(844,000)	*8,907,222*	8,036,423	-	*7*	*26,806*

Table 2 shows that Cass County end-of-year balances increased from 2018 to 2019. The sum of certified and special distributions were less than the sum of collections and interest earnings in 2019, so the excess was added to balances. The large balances at the end of 2019 caused special distributions to jump in 2020. Collections fell in Elkhart County in 2019, so they were less than certified distributions. Balances were large enough at the end of 2018 to support continued special distributions in 2019, so balances fell substantially. Balances were negative in Pulaski County in 2018 and 2019. The Budget Agency froze certified distributions at an amount less than collections in all three years, and by the end of 2020 balances were probably positive—but this will not be reported until February 2022. Negative balances mean there are no special distributions or interest earnings.

Figure 1 shows state total collections, certified and supplemental distributions and end-of-year balances, from the Local Income Tax Balance Reports. Collections grow in most years, because taxable income grows with the growing economy and with inflation, and because counties adopt the taxes and raise their rates. Collections were flat after the 2000 recession, and declined in 2009 during the Great Recession.

Figure 1.



Certified distributions have been based on the preceding fiscal year's collections since 2003. Before that they were based on forecasts of calendar year collections. Figure 1 shows that certified distributions lag collections by a year or two. They tend to be less than collections in years of expansion, including every year from 2011 through 2019. Certified distributions exceed collections after recessions, as in 2002, 2009 and 2010.

Figure 1 shows the sum of supplemental and certified distributions. Supplemental distributions are positive when the sum exceeds certified distributions. In particular, supplemental distributions were large in 2001, 2002, 2008 through 2010, in 2016 and in recent years under the 15% balance limit.

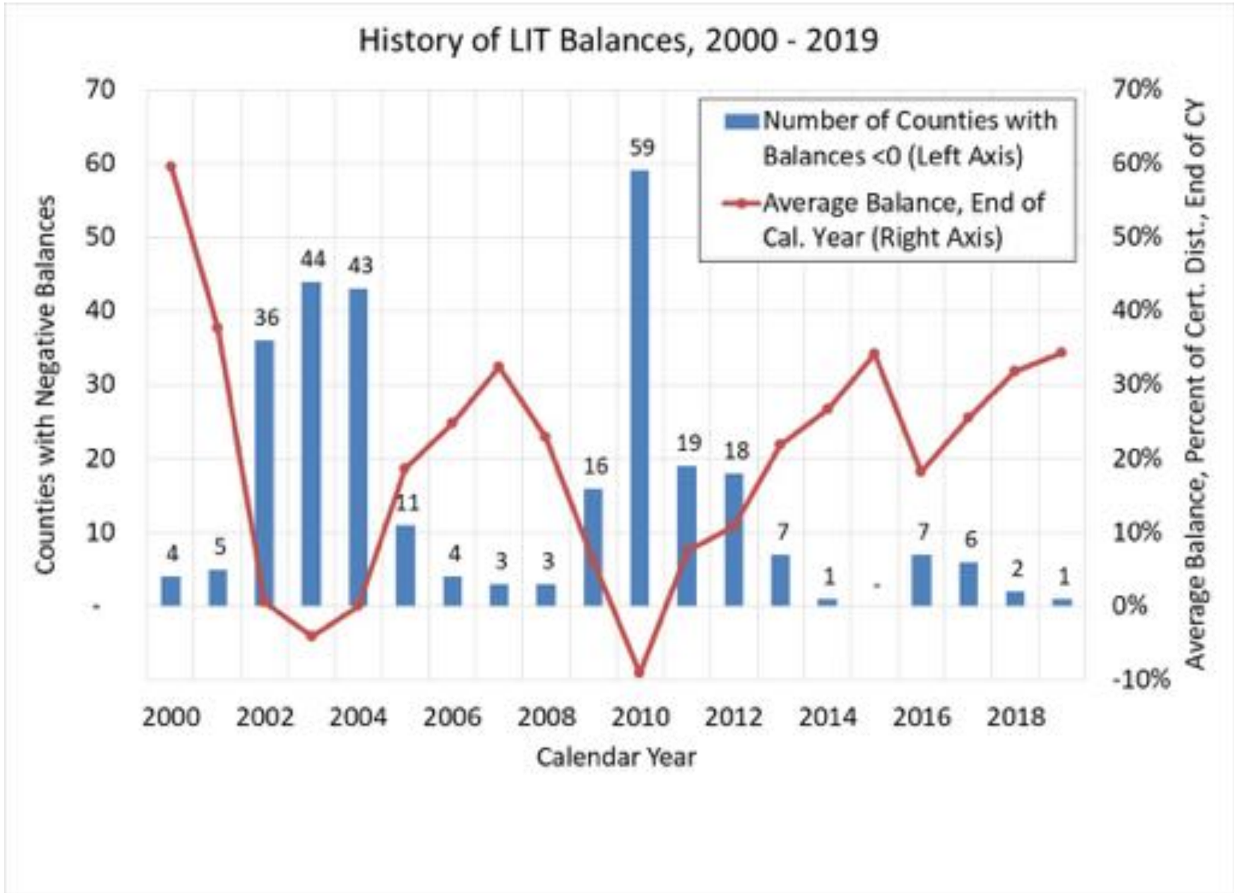
Balances grow when collections exceed the sum of supplemental and certified distributions. They fall when distributions are greater than collections. Balances fell during the recessions, and have grown in most years since the end of the Great Recession. The exception was 2016, when supplemental distributions were particularly large.

Balances are a focus of this study, so more detail is needed. Figure 2 shows the number of counties with negative end-of-year balances, and the statewide average balance as a percentage of certified distributions. This figure shows a basic tradeoff faced by the LIT distribution system, to keep balances positive but not too large.

The number of counties with negative balances is greater when total balances turn negative, of course. In particular, many counties had negative balances during 2002 through 2004, and in 2010. The very large number of counties with negative balances from 2002-2004 helps explain why the legislature mandated that certified distributions be based on past tax collections. The very large number of negative balances in 2010 helps explain the legislature's efforts to set minimum balance requirements.

Balances as a percentage of certified distributions were largest at the beginning of this period. This helps explain why supplemental distributions were increased in 2001 and 2002. Those supplemental distributions occurred just as the recession was reducing collections below certified distributions. That is why the number of negative county balances increased. Likewise, the large balance percentage in 2007 led to an increase in supplemental distributions in 2008, 2009 and 2010. Again, a recession reduced collections below certified distributions, and a record number of counties saw their balances turn negative.

Figure 2.



In recent decades expansions have been long, but each expansion ended in recession. Balances accumulate during expansions, and eventually those balances are returned to counties in supplemental distributions. In the past two business cycles, supplemental distributions increased just as the recessions hit. Perhaps this was the result of the vague rules for setting supplemental distributions. Today's 15% balance requirement is quite specific. Would this rule help Indiana avoid negative LIT balances after a recession worse than the 2020 pandemic recession?

Using the Data

The data in the Local Income Tax Balance Reports can be used for two calculations, which are shown in Table 3. The local income taxes have flat rates—the same rate at all income levels—so collections divided by the tax rate should be an estimate of county taxable income (after tax credits). LIT tax rates are available from the Legislative Services Agency's annual Handbook of Taxes, Revenues and Appropriations, which is posted online for fiscal years 2001 through 2020. The monthly data in the report show when tax rate changes take effect. This allows annual average rates to be calculated when tax rates change during the year.

Table 3.

Calculations from Tax Rates and Local Income Tax Balance Reports

	Year	Average Tax Rate	Collections	Taxable Income (millions)	Average Balance	Interest	Interest Rate
Cass							
	2018	2.592%	19,552,657	754.4	4,461,013	68,816	1.54%
	2019	2.600%	19,284,196	741.7	5,817,804	107,257	1.84%
	2020	2.700%					
Elkhart							
	2018	2.000%	115,417,731	5,770.9	50,112,155	699,258	1.40%
	2019	2.000%	112,737,390	5,636.9	38,686,717	668,417	1.73%
	2020	2.000%					
Pulaski							
	2018	3.380%	8,724,904	258.1	(2,059,039)	-	n/a
	2019	3.380%	8,907,222	263.5	(1,279,399)	-	n/a
	2020	3.380%					

For example, Cass County increased its LIT rate from 2.5% to 2.6% as of February 2018. The average rate is calculated at 2.592%, one month at 2.5% and eleven months at 2.6%. Collections divided by this rate estimate county taxable income. For Cass in 2018, collections of $19,552,657 divided by the average tax rate of 2.592% yields an estimated taxable income of $754.4 million.

The State Treasurer invests county LIT balances to earn interest, which becomes county revenue. The data provide start-of-year and end-of-year balances. The interest rate or rate-of-return for each county's interest earnings can be estimated by dividing interest earnings by the average of the starting and ending balances each year. For Cass County in 2018, interest was $68,816 on an average balance of $4,461,013, which is an estimated interest rate of 1.54%.

County Taxable Income

County taxable income is an estimate from collections and the average tax rate. These numbers are not provided by the Budget Agency's Local Income Tax Balance Report. Are they accurate? Here is a test.

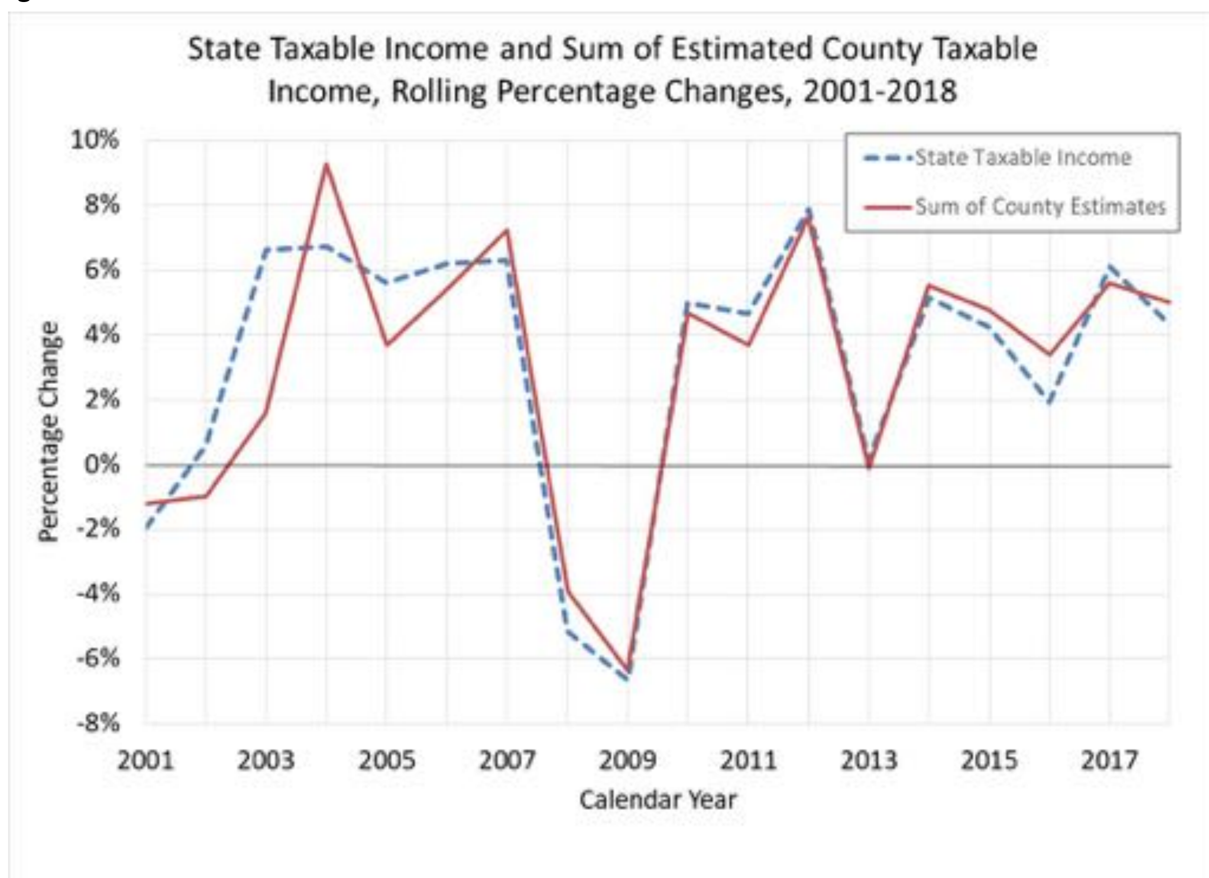
The tax base for the local income taxes is that same as for the state income tax. Taxpayers pay these taxes together, on the same calculation of Indiana taxable income. So, the statewide sum of these county taxable income estimates should at least approximately equal state taxable income.

State taxable income data are available from the Legislative Services Agency's annual Indiana Handbook of Taxes, Revenues and Appropriations. State income tax data are published with a lag, so the most recent figures available in the 2020 Handbook are for tax year 2018.

Actual state taxable income was $179,206 million in 2018. The sum of the 92 county taxable income estimates for 2018 was $178,337 million, which is different from the state total by only 0.5%. Differences since 2013—the first year when all counties used local income taxes—are always less than 3%. This is encouraging.

Figure 3 shows the year-to-year percentage changes in actual state taxable income and the "rolling" percentage change for the sum of county estimated taxable income. The rolling percentage adjusts for new LIT adoptions. In 2000 only 85 counties had LITs; by 2013 all 92 had adopted. The percentage changes in the county taxable income sum are higher when additional counties adopt LITs. In 2013, for example, when Lake County became the 92nd county to adopt LIT, its estimated taxable income was added to the statewide sum. Lake is a large county, so the statewide county taxable income sum jumped 7.5%, while state taxable income increased only 0.1% that year.

Figure 3.



Percentage changes are adjusted for new adoptions by comparing the county sum each year to the sum of those same counties the year before. (This is similar to "same store sales" reports used by retail chains.) For example, for 2013, the year Lake County collections began, the percentage change is calculated from the 91 counties that had taxes in both 2012 and 2013. In 2014 and after, the percentage change includes all 92 counties. This is the rolling percentage change.

The two percentage change series in Figure 3 follow similar patterns. The recessions of 2001 and 2008-09 show percentage drops for both series. Both also show a near zero increase in 2013, and rapid growth in 2007 and 2012. The ups and downs during the 20-teens expansion also match. The correlation between the two for 2001 through 2018 is 0.922.

The match between the percentage changes is especially close in 2008 and after. There were new counties adopting LITs almost every year between 2003 and 2007. After 2008 the percentage changes include 91 and 92 counties. The correlation between the state and county sum percentage changes in 2008 and after is very high, 0.988.

The comparison of actual state taxable income shows that county taxable income can be estimated by dividing collections by the tax rate.

Interest Rate on Balances

The Local Income Tax Balance Reports include data on start-of-year and end-of-year balances, and interest earnings. Interest rates on balances are estimated by dividing interest earnings by the average of start-of-year and end-of-year balances, for each county. Years with negative balances are excluded.

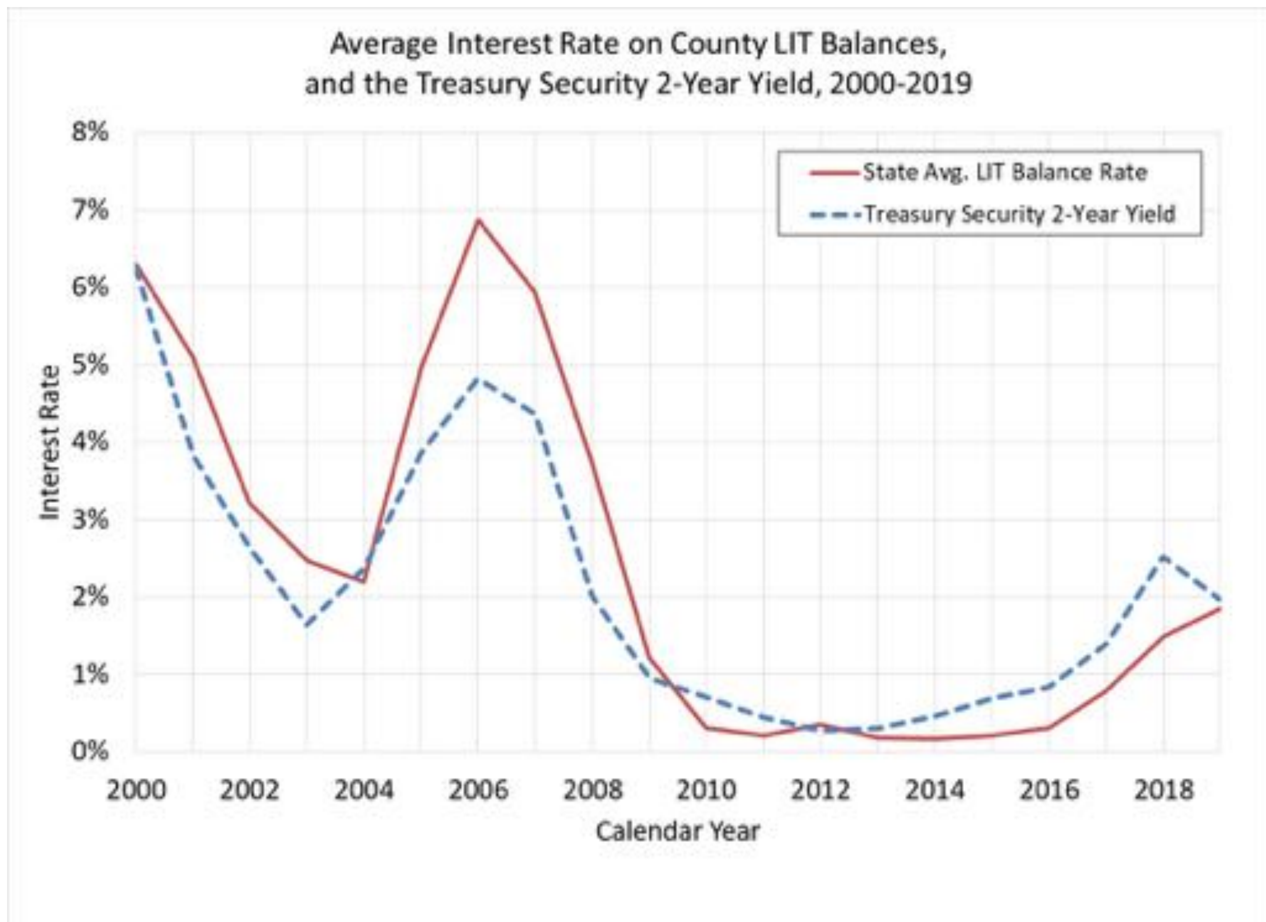
Balances in county LIT accounts are held by the state, and invested along with the state's balances, so each county should see approximately the same interest rate each year. They do. In 2019, in counties with positive balances at the start and end of the year (all but Martin and Pulaski), the calculated interest rate ranged from 1.7% to 2.0%. The rate is 1.8% in 34 counties and 1.9% in 51 counties.

Figure 4 shows the average interest rate for counties with positive balances from 2000 through 2019, and the average yield on 2-year U.S. Treasury securities. The two series show the same ups and downs. Rates are higher at the end of expansions and lower just after recessions. The very low interest rates during the 20-teens are reflected in both series.

The correlation between the two is 0.949. Correlations between the county average interest rate and other short-term Treasury securities are nearly as high. But the correlation with the *10-year* U.S. Treasury bond rate is only 0.877, and the correlation with the *corporate* AAA bond rate is lower still, 0.743. It appears that the state treasurer invests county LIT balances in short term Treasury bonds, or in other investments with similar yields.

The LIT balance and interest earnings information in the Budget Agency document reflect how these balances are invested. All LIT counties earn similar yields on their balances, and these interest rates track yields on short-term U.S. Treasury securities.

Figure 4.



Why are Actual Balances More than 15% of Certified Distributions?

Statewide LIT balances were 34% of certified distributions in 2019. Why are balances so high when the calculation of supplemental distributions is based on 15% of certified distributions? The reason is that the supplemental distribution calculation underestimates excess balances when collections exceed certified distributions, as they usually do during expansions.

The County Information Reports make this clear. The calculation in the lower third of the Informational Report in table 1 shows the minimum balance at 15% of the 2021 certified distribution, which is $3,271,418 for Cass County. The supplemental distribution is then the excess of the adjusted account balance over this 15% amount. The adjusted account balance subtracts the 2020 supplemental distribution from end-of-2019 balances.

However, the adjusted balance did not count the excess of collections over the certified distributions for 2019 and 2020—because collections were not yet known. The interest earnings in 2019 and 2020 were also excluded from the adjusted balance calculation. During periods of expansion, collections rise and will usually exceed the certified distribution. In the 2011-2019 expansion an average of 88 counties per year saw collections exceed certified distributions. This means that the adjusted account balance is always smaller than the actual balance which is eventually reported in the LIT Balance Report. Balances are estimated low, so supplemental distributions are low, so actual balances end up higher than 15%.

Consider Adams County in CY 2019, shown in Table 4. In the County Information Report for 2019, the actual calculation of the supplemental distribution for 2019 was based on the adjusted balance for the start-of-2019, less 15% of 2019 certified distribution. The supplemental distribution was $236,256. However, the actual end-of-year balance in 2019 from the LIT Balance Report was $4,439,762, which was 37.5% of the 2019 certified distribution.

Table 4.

Adams County, CY 2019

Actual Calculations	
Total CY 2019 certified distributions after adjustments	11,842,255
Calculation of excess balance under IC 6-3.6-9-15	
Trust account balance for December 31, 2017	2,032,723
(Less): Estimated distributions in CY 2018 (Not included in Trust balance 2017)	(20,129)
Adjusted Trust account balance for December 31,2018	2,012,594
(Less):15% of Certified Distribution for CY 2019	(1,776,338)
Excess account balance to be distributed on May 1st pursuant to IC 6-3.6-9-15	236,256
End of 2019 Balances, Trust Balance Report	4,439,762
Balance Percent of 2019 Certified Distribution	37.5%
Modified Calculations	
Excess of Collections over Certified Distributions, 2018	1,462,519
Excess of Collections over Certified Distributions, 2019	1,083,808
Interest Earnings, 2018-19	117,098
Total Balances above Adjusted Trust Account balance for Dec. 31, 2018	2,663,425
Excess account balance to be distributed, based on actual collections/interest	2,899,681
End of 2019 Balances, with distribution based on actual collections/interest	1,776,337
Balance Percent of 2019 Certified Distribution	15.0%

The adjusted trust account balance does not include the excess of collections over certified distributions for 2018 and 2019, which was more than one million dollars each year. Since certified distributions were based on past collections and the Adams County economy was expanding, collections exceeded certified distributions. The relatively small interest earnings for 2018 and 2019 were also not included in the adjusted balance. The sum of net balances not included in the adjusted balance was $2,663,425. If this amount had been added to the supplemental distribution, end of 2019 balances would have been $1,776,337, which is 15% of 2019 certified distribution.

To reduce actual balances to 15% of the certified distribution in 2019, the supplemental distribution in 2019 would have to be $2,899,681. Since that is more than the adjusted trust account balance in the calculation, it would not be possible to use this system with this data to bring the actual balance down to 15%. Distributing all adjusted balances as supplemental distributions—a zero percent minimum balance--would still be too little.

The Determinants of Certified Distributions

The Local Income Tax Balance Reports include calendar year collections and certified distributions, but do not include data on fiscal year collections. Since 2003 certified distributions have equaled fiscal year collections from the previous fiscal year, but they also are adjusted for tax rate changes and negative balances. Tax rate adjustments are made proportionately, but the adjustments for negative balances are unclear.

A regression equation can shed some light on the determination of certified distributions over the years. Regress certified distributions for each year and county on the calendar year collections in the previous two years, a measure of tax rate change, and a measure of negative balances.

Certified distributions in 2019 (for example) are based on fiscal 2018 collections. Fiscal 2018 ran from July 2017 to June 2018. Most fiscal year collections occurred in the January to June period, 2018, but some came from July to December 2017. Certified distributions in 2019 depend on calendar year collections from 2017 and 2018. Both coefficients should be positive, but the coefficient on 2018 collections should be much larger.

The Budget Agency adjusts for tax rate changes proportionately. If a rate rises 10%, the certified distribution is adjusted upward by 10% of fiscal year collections. Data on fiscal year collections are not available, but we know that most of those collections come from the previous calendar year. So, the adjustment should be close to the proportional increase in tax rates, times the previous calendar year's collections. If this is how the adjustment is made, the regression coefficient should be positive and close to one.

The Budget Agency reduces certified distributions when county balances are negative. It is allowed to spread these adjustments over several years, though there is no explicit procedure mandated in law. The regression includes a variable set to previous year end-of-year balances if they are negative, and zero if not. The regression coefficient should be positive, since this would reduce the certified distribution when multiplied by a negative balance. It should be between zero and one, if the adjustment is spread over several years. If the adjustment were made in a single year, the coefficient would be one.

The regression is run on data from 2007 through 2019, for all counties that had local income taxes in each year. Though the procedure probably started in 2003, 2007 is the first year that the County Information Report confirms that the certified distribution was based on collections from the previous fiscal year.

Table 5 shows the regression results. The R-squared and F-statistics are high. Three coefficients are significant at the 5% confidence level (shown in bold).

The regression implies that previous calendar year collections make up 93% of certified distributions. This is consistent with the recent 90% share of January-June collections in fiscal year collections. The coefficient on collections from two years before is not significant at 5% (though it is significant at 10%). It is small, as expected. The sum of these two coefficients is less than one. This may imply that the fiscal year collections used to determine certified distributions are not the final figures. Certified distributions may tend to be lower than actual collections. The accounting for calendar year collections seems to find more tax revenue, which winds up in end-of-year balances. If so, this is another (small) safeguard against negative balances.

Table 5. Regression Results, Certified Distributions, All LIT Counties, 2007-2019

	Coefficients	*Std. Error*	*t Stat*
Constant	92308	73123	1.26
Collections, one year previous	**0.931**	**0.0126**	**74.06**
Collections, two years previous	0.023	0.0135	1.72
Rate Change x Collections	**0.928**	**0.0122**	**75.99**
Balances if less than zero	**0.377**	**0.0327**	**11.53**
R Square	0.997		
F-statistic	99365		
Observations	1278		

The rate change coefficient is 0.928. This is significantly less than one in a statistical sense, but perhaps not in an administrative sense. Certified distributions are adjusted in near proportion to the rate change times past collections.

The coefficient on negative balances is 0.377, which implies that certified distributions are reduced by a bit more than one-third of the value of negative balances. A negative balance would be eliminated in two to three years, all else equal. The result implies that the Budget Agency did tend to spread the adjustment for negative balances over several years during 2007 to 2019.

Supplemental Distributions and Balances during the Great Recession

Figure 2 shows that statewide 2007 end-of-year balances were 32.5% of certified distributions in 2007, just as the Great Recession began. Taxable income fell 3.9% in 2008 and 6.3% in 2009. The statewide decrease was 10.0% over the two years. Statewide, there were more than enough balances to cover the two-year drop in taxable income.

Only 14 counties had balances as a percent of certified distributions less than 15%, and only 3 of those had negative balances. Only 10 counties saw two-year taxable income decreases of more than 15%. And, most tellingly, only 4 counties saw two-year LIT collections drop more than their end-of-year balances in 2007. Almost every county had enough in balances at the end of 2007 to cover the drop in collections through 2009. Yet 59 counties had negative balances by the end of 2010.

Suppose the current system with its 15% minimum balance had been put in place for 2008. Collections and certified distributions would remain the same, since they are based on taxable income. Adjusted balances in 2008 would have been calculated as end-of-year balances in 2006 less supplemental distributions in 2007. Then 15% of certified distributions in 2008 would have been subtracted, and if there were excess balances, they would have been supplemental distributions in 2008. The same procedure is followed in 2009 and 2010, with actual collections and certified distributions, and re-calculated supplemental distributions. Interest earnings are based on the average interest rate times average balances.

In this experiment, only 25 counties have negative balances in 2010, only 5 in 2011, and by 2012 there would have been only one. The actual count was 59 in 2010, 19 in 2011 and 18 in 2012. Using a

minimum balance system set at 15% of certified distributions would have lessened the negative balance problem.

Historically, in 2008 3 counties with negative balances received supplemental distributions, 15 received them in 2009 and 59 received them in 2010. In fact, *every* county with a negative balance received a supplemental distribution in 2010, because all 91 counties with local income taxes received them.

In the experiment with the 15% minimum balance, no counties with negative balances would have received supplemental distributions in 2008, 3 counties would have received them in 2009, and 13 in 2010. Over the three years supplemental distributions would have been reduced from $402 million to $233 million, a reduction of $169 million.

Balances and the 2020 Recession

After the 2001 recession 44 counties had negative balances in their local income tax accounts. After the 2007-09 recession 59 counties had negative LIT balances. What is likely to happen after the 2020 recession? Will a large number of counties have negative LIT balances at the end of CY 2021?

The data in the County Information Reports and Local Income Tax Balance Reports can be used to make a reasonable guess.

We know start-of-year balances for 2020, from the LIT Balance Report of February 2021. We know certified and supplemental distributions for both 2020 and 2021, from the Information Reports of February 2020 and 2021. What is needed is an estimate of tax collections and interest earnings for 2020 and 2021. The estimates for 2020 will allow calculation of end-of-year 2020 balances, and the estimates for 2021 will yield estimates of end-of-year balances in 2021.

The Information Reports give the tax rates for 2020 and 2021, so estimated collections can be based on estimates of taxable income growth in 2020 and 2021. Taxable income for 2020 collections was earned in 2019, which was the last year of the long 20-teens expansion. Suppose each county's income increased by the 3-year average growth rate in taxable income from 2016 to 2019. Statewide collections would have risen by 4.9%.

Interest rates fell during 2020 as the Federal Reserve battled the recession. The average 2-year Treasury security rate for 2020 was 0.4%. Interest earnings for 2020 are estimated at 0.4% of the average of start-of-year balances, and estimated end-of-year balances not including interest earnings.

These estimates yield balances of $941 million statewide at the end of 2020, compared to $902 million at the end of 2019. Such balances would average 33.2% of the certified distributions, and no counties would have negative balances. The minimum balance percentage would be 4.5% in Pulaski County.

What happened to tax collections in 2021? The actual figures will not be reported until the release of the LIT Balance Reports in February 2023. However, in August 2021 the State Budget Agency released their first estimate of certified distributions for calendar 2022, in the Certifications Calculation document. These distributions are based on tax collections from state fiscal year 2021, which ran from July 2020 to June 2021. In recent years more than 90% of these collections have come from the second six months of the fiscal year. The percentage changes in county certified distributions from 2021 to 2022 can be taken as an estimate of the percentage change in tax collections in 2021.

Taxable income is tax collections divided by the tax rate in each county. The August certification report does not adjust for rate changes that have been or will be adopted for 2022, so rate adjustments are not needed. The estimates above show that there are no counties with negative balances at the end of 2020, so there should be few or no counties with certified distributions adjusted downward for this reason. The certified distributions divided by tax rates should be estimates of taxable income.

In 2021 the due date for income tax payments was postponed from April 15 to May 17. If taxpayers took advantage of this delay, it may be that the Department of Revenue was not able to process as many returns as they usually do by June 30. (Note in Table 1 that the County Informational Reports start with "processed collections" from the previous fiscal year.) Unlike 2020, the processing deadline in 2021 was not extended – so 2022 distributions are actually based on just ten months of collections: September (the 2020 extension) through June. This likely depresses the measure of 2021 collections below what was actually collected, though the specific amount will not be known until February 2023.

Estimated taxable income in 2021 declined 2.2% statewide. 56 counties saw decreases, 36 saw increases. Percentage changes ranged from -13.1% in Marshall County to 6.5% in Carroll County and 13.2% in Pulaski County. (Pulaski County's high percentage increase may be influenced by the decreases in certified distributions due to negative balances in previous years.)

Based on these estimates of tax collections growth in 2020 and 2021, *there are no counties with negative balances at the end of 2021*. Total balances fall from $941 million at the end of 2020 to $747 million at the end of 2021. **End-of-year balances in 2021 are 24.8% of certified distributions.** Balance percentages range from 3.8% in Cass County to 41.5% in Johnson County.

Table 6 shows the estimated calculations for Cass County as an example. Shaded figures are actual balances, certified distributions and special (supplemental) distributions. Unshaded figures are estimates. The trust balance at the end-of-year 2019 and the start-of-year 2020 is known from the LIT Balance Report of February 2021. It was $6,034,442 for Cass County. Collections growth for 2020 is 2.2%, an estimated based on taxable income growth from 2016 to 2019. That gives estimated collections for 2020. Interest earnings are 0.4% of average balances. Distributions for 2020 have already been made. Estimated end-of-year balances for 2020 are $4,392,408, which is 22% of the certified distribution.

Table 6.

Cass County LIT Estimates, 2020-2022 (Shaded entries are actual figures)

LIT Balance Report	2019-2020	2020-2021	County Information Report 2022	2021-2022
Trust Balance, start of year	6,034,442	4,392,408	Est. Trust Balance, start of year 2021	4,392,408
Growth in Collections	2.2%	-8.0%	Actual Special Distributions 2021	597,248
Plus Collections	20,470,905	18,843,375	Est. Adjusted Balances, Dec. 31, 2020	3,795,160
Plus Interest Earnings	20,812	5,221	Certified Distribution, 2022	20,075,502
Less Certified Distributions	19,967,975	21,809,453	15% of Certified Distribution, 2022	3,011,325
Less Special Distributions	2,165,776	597,248	Special Distributions, 2022	783,835
Trust Balance end of year	4,392,408	834,303		
Trust Balance, % of Certified Distribution	22.0%	3.8%		
Total Distributions	22,133,751	22,406,701	Total Distributions	20,859,337
		1.2%		-6.9%

The calculations are repeated for 2021, starting with estimated balances from end-of-2020. Collections decline by 8%, based on the reported decline in certified distributions for 2022. Interest earnings are 0.2% of average balances. Distributions for 2021 are already set. Cass County's balances are estimated to drop to $834,303 by the end of calendar 2021, 3.8% of certified distributions. This is the smallest estimated percentage for any county. It is likely that there will be no counties with negative balances after the pandemic recession.

The last two columns in Table 6 show an estimate of supplemental distributions for Cass County in 2022, which will be calculated in the Information Report in February 2022. The adjusted balance will be calculated as the end-of-2020 balance less supplemental distributions for 2021. The adjusted balance is $3,795,160. 15% of the actual certified distribution is $3,011,325. The difference is the estimated 2022 supplemental distribution of $783,835.

These calculations lead to two observations. First, after recessions the data lag in the calculation of adjusted balances (see Table 4) works to reduce balances. During expansions the adjusted balance calculation ignores current year increases in collections. During recessions it ignores decreases in collections. Balances at the end of 2021 will actually be smaller than the adjusted balance. Supplemental distributions remain higher, so the balance percentage can fall below 15%.

Second, supplemental distributions partially offset declines in tax collections. Certified distributions fall an estimated 8% in Cass County in 2022. Total distributions fall only 6.9%. The calculation is based on adjusted balances less 15% of certified distributions. Adjusted balances are lagged, so they are not affected by the latest year's tax collections. So, when certified distributions are lower, a smaller number is subtracted, so supplemental distributions are higher.

This means that the loss of processed collections because of the 2021 tax due date delay will be partially compensated by higher supplemental distributions. 15% of certified distribution loss will be recovered in supplemental distributions. For example, if certified distributions are $1 million lower because of the payment delay, supplemental distributions will be $150,000 higher.

Stress Tests for More Severe Recessions

The 2020 recession was the sharpest recession on record, but was also the shortest recession. The National Bureau of Economic Research has marked the 2020 recession with a "peak" in February 2020 and a "trough" in April 2020. Indiana income from wages and salaries fell 7.3% in the second quarter 2020, a bigger drop than the 6.6% decline from first quarter 2008 to the third quarter 2009. But in the third quarter 2020 wages and salaries recovered, and by the fourth quarter were higher than in the first quarter. Growth continued into 2021, though of course the economy has still not fully recovered.

Wages and salaries reflect the private-sector economy. Federal transfer payments to individuals, including CARES Act payments and extended unemployment insurance benefits, caused *total* personal income to *grow* during 2020, by 5.8% for the year. This was the highest growth rate in personal income since 2011. The 2020 recession was extremely disruptive to the lives of Indiana residents, but did not affect tax collections very much.

What would have happened to balances in a more severe recession? We can subject LIT balances to a "stress test," asking what would happen in a very mild recession down through an extremely severe recession.

The 2020 recession was a recession of services. People avoided contact with others, which meant lost sales for restaurants and live entertainment businesses. Durable goods purchases and construction activity were much less affected than usual.

The Great Recession was more usual, with big drops in manufacturing and construction. We'll base the stress tests on county taxable income changes for 2009, which was the worst year for taxable income during the Great Recession. Statewide, taxable income fell 6.5%, and 86 counties showed declines. (Lake County did not have LIT in 2009, so we use adjacent Porter County's 10.1% drop.) To approximate a very mild recession, we add 6.5 percentage points to the growth rates in each county, so that the statewide rate is 0%. To approximate a recession bordering on depression, we subtract 13.5 percentage points from each county's growth rate, for a statewide rate of -20%.

Collections are added to start-of-year balances for 2021, already estimated. Certified and supplemental distributions were determined by November 2020 and in February 2021, respectively, and these are subtracted. The interest rate applied to balances is 0.2%, which is slightly higher than the average 2-year Treasury rate for the first half of 2021, assuming that additional Federal borrowing could push the rate upward slightly. This rate is not unusually low. Similar rates were earned throughout the 2010-2016 period.

To evaluate the results of the stress test, we measure the number of counties with negative balances, and the statewide average balance as a percentage of certified distributions. The results are shown in Figure 5.

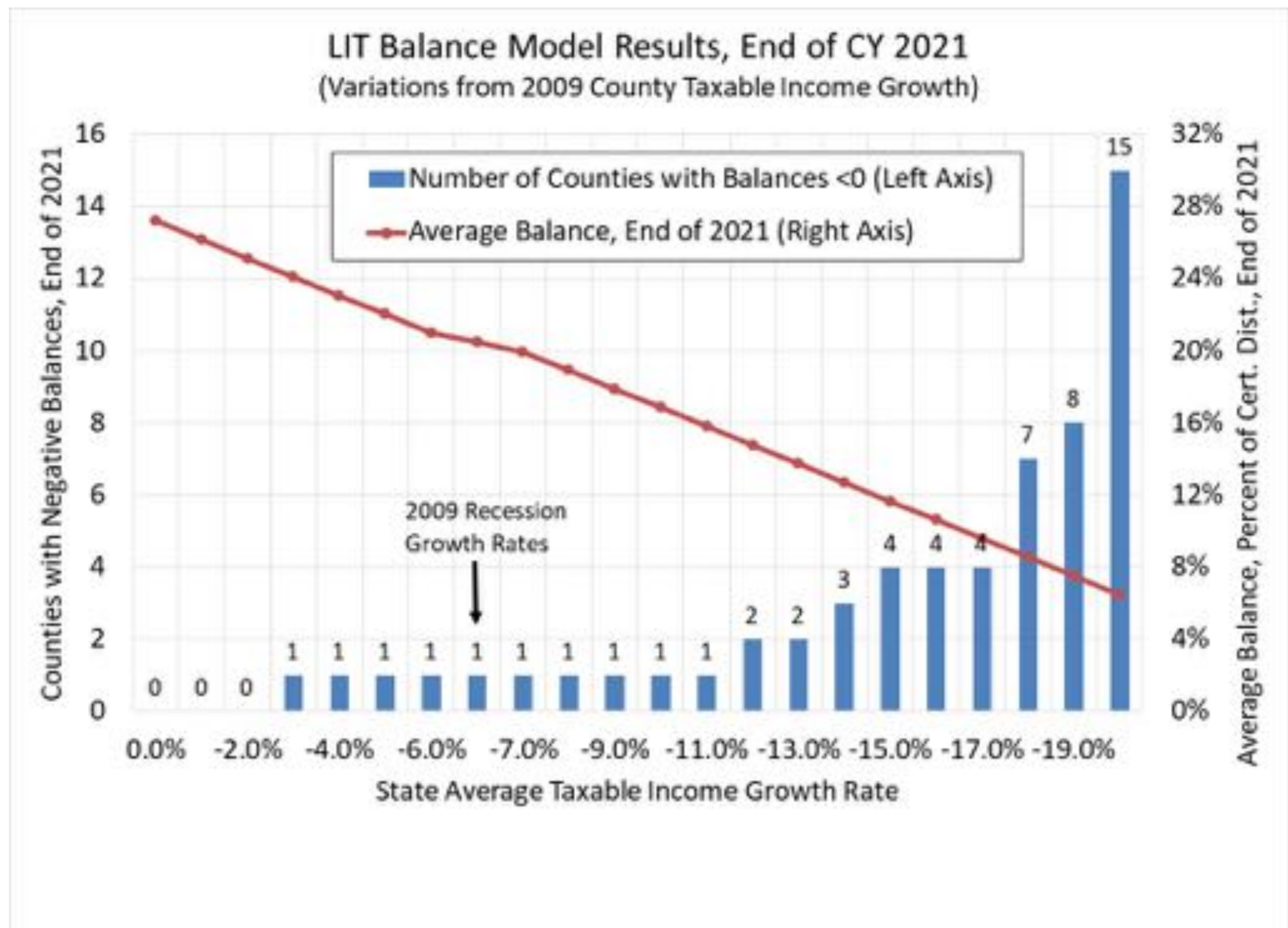
The horizontal axis shows statewide growth rates of taxable income from 0% to -20%. The bars show the number of counties with negative balances, measured on the left axis. The line shows the average balance as a percentage of certified distributions, measured on the right axis.

At zero percent growth no counties have negative balances at the end of 2021, and average balances are 26.8% of certified distributions, down from 31.3% at the start of the year. A recession as severe as in 2009, with a 6.5% decline in taxable income, shows only one county with negative balances, and average balances of 20.1%. A recession with an 11% decline in taxable income would still have only one negative county balance, and average balances of 15.4% at the end of 2021.

At taxable income growth of -12% a second county's balances turn negative and average balances drop below 15% of certified distributions. At -18% the number of negative balance counties jumps to 4, and at -20% there are 15 counties with negative balances. Average balances become negative (as they did in 2010) when statewide taxable income falls 26%. For 59 counties to have negative balances, as after the Great Recession, statewide taxable income would have to decline 28%.

The problem of widespread negative balances is unlikely to reoccur after the 2020 recession. The current system for determining certified and supplemental distributions would likely prevent negative balances in a large number of counties even during a severe recession, much worse than that of 2009.

Figure 5.



Are Balances Too High?

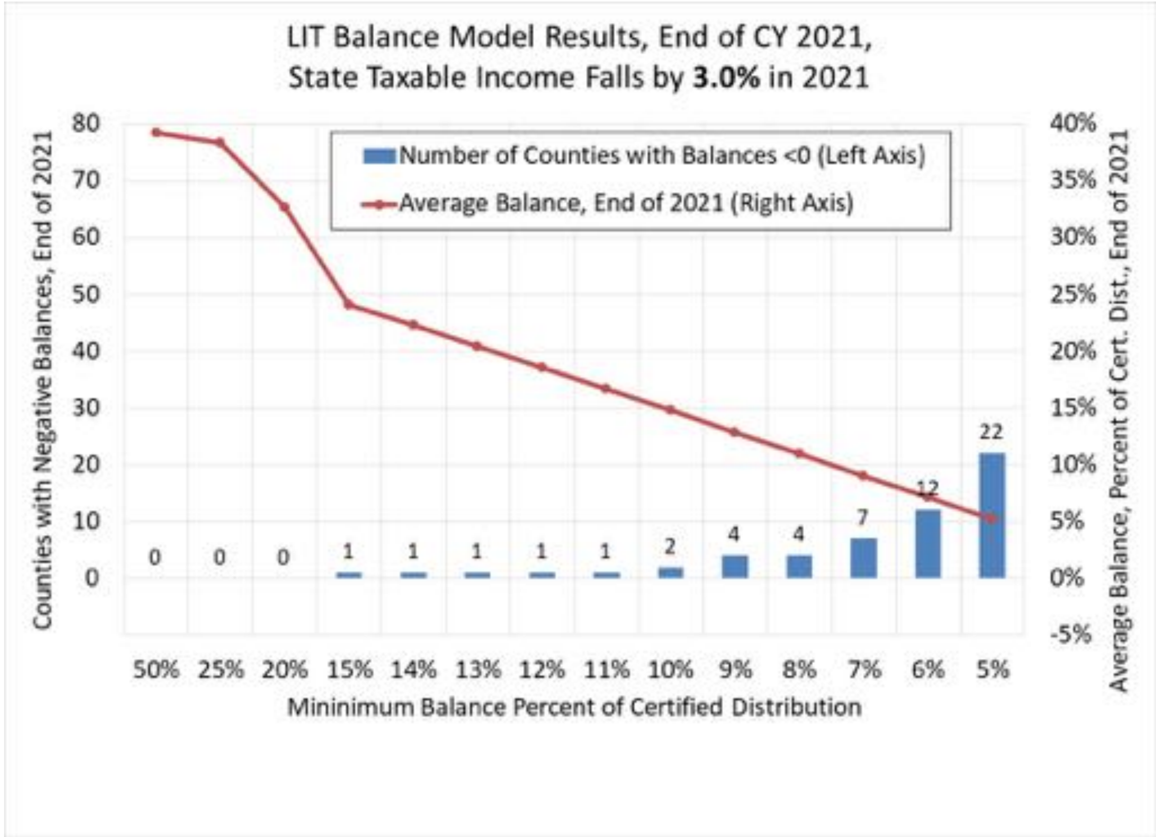
The LIT distribution system appears to be safe from widespread negative county balances up to extremely severe recessions. But this comes at a cost. Balances were 34% of certified distributions at the start of CY 2020, a total of $902 million. This is money paid by taxpayers to provide property tax relief and local public services. Instead it sits in balances earning interest—and these days, very little of that.

Balances could be reduced by cutting the present 15% balance minimum. The analysis of 2021 balances can be used to look at alternative percentages. Assume again that 2020 taxable income grew by the average growth rate for 2016-19 in each county. Use three 2021 taxable income growth rates, -3.0%, -6.5% and -10%, representing a mild recession, the severe 2009 recession and an extremely severe recession, respectively. These are three of the growth rates shown in Figure 5, with the present 15% minimum.

Now suppose that supplemental distributions for 2020 and 2021 were determined using a minimum balance percentage different from 15% of certified distributions. For reference, include higher minimums of 50%, 25% and 20%, then each percentage from 15% to 5%.

Figures 6, 7 and 8 show the results. Figure 6 shows a mild recession, with state taxable income falling 3.0%, and county taxable incomes falling proportionally as they did in 2009. Only one county has a negative end-of-2021 balance at the existing 15% balance limit. Balances average 24% of certified distributions. Certified distributions were about $3 billion in 2021, so balances are $725 million.

Figure 6.



At an 11% balance limit in a mild recession, still only one county has a negative balance, and the average balance percentage is 17%. This represents $503 million in balances, so $219 million has been released to local governments in supplemental distributions, compared to the existing 15% limit. Each one percent reduction in the balance limit frees between $50 and $60 million for distribution to local governments. In this analysis, the added supplemental distributions are split between calendar 2020 and 2021.

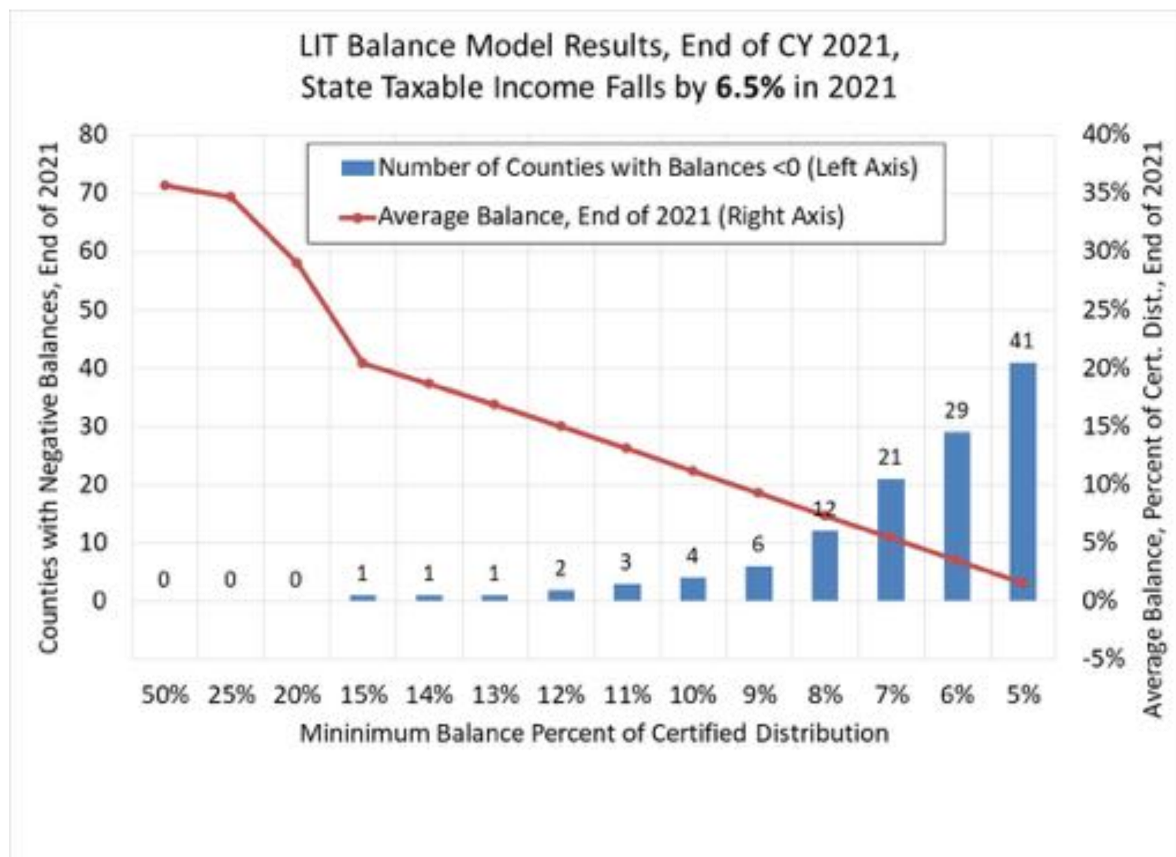
This addition to supplemental distributions is a one-time result of a shift to a lower minimum balance. Added distributions are split between calendar 2020 and 2021. In the long run, distributions can be no more than collections, so growth in total distributions will match growth in collections.

At a 10% balance limit one more county shows a negative balance. At 6% the number of negative balances tops double digits, with 12. The number of negative balances begins to rise rapidly as the balance limit falls below 7%.

Figure 7 repeats the 2009 recession year. Statewide taxable income falls 6.5% and 9 counties see double-digit declines. The current 15% balance limit works well. Only one county has a negative balance. Balances are 21% of certified distributions, totaling $615 million.

The number of counties with negative balances remains at one with a balance limit of 13%. The average balance percentage is 17%, $507 million, so $108 million would be distributed to local governments compared to the existing 15% limit. Again, between $50 and $60 million is distributed to local governments for every one percentage point reduction in the balance limit.

Figure 7.



At a 9% limit the number of negative balances is still in single digits (6 counties), and the balance percentage averages 9%. Total balances are $279 million, so an additional $336 million is distributed compared to the 15% existing limit. The number of negative balances begins to rise rapidly when the balance limit drops below 9%.

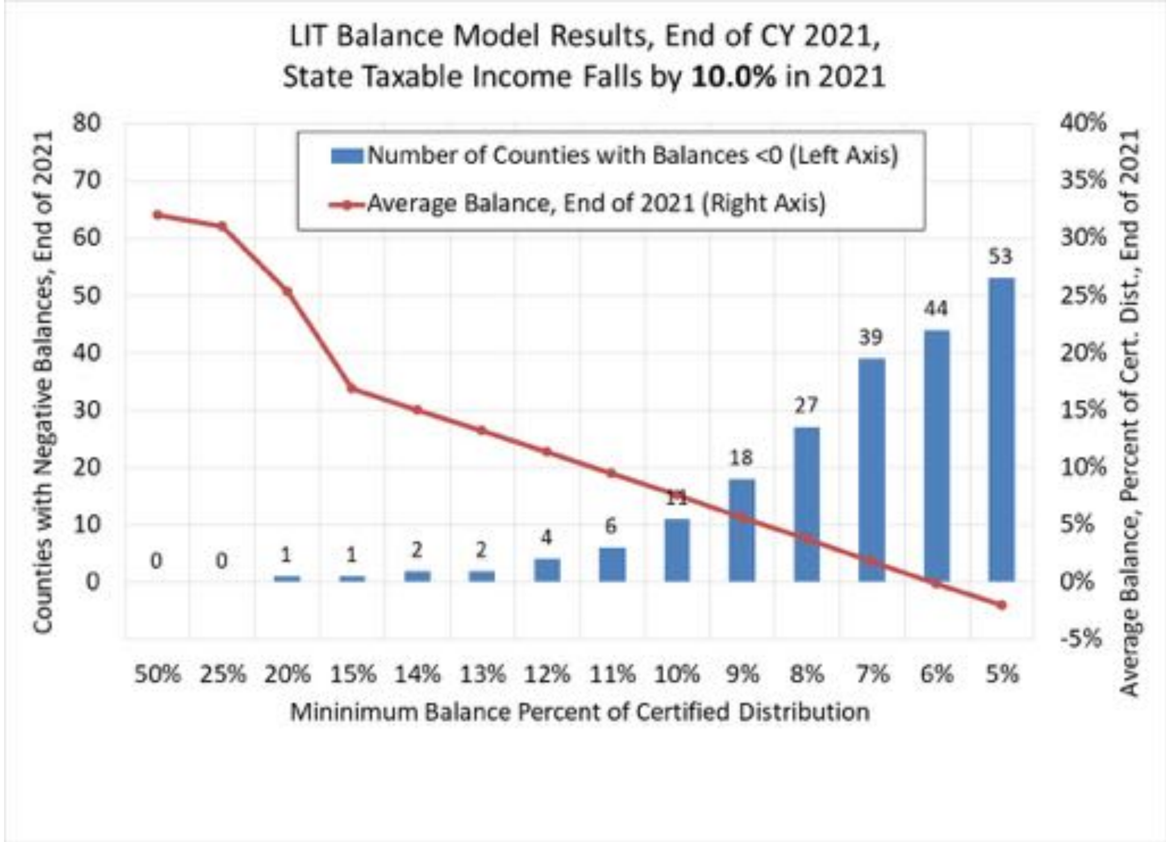
Finally, Figure 8 models a single-year drop in taxable income more severe than any recession on record. Statewide taxable income falls 10%; 38 counties see double-digit declines. Counties saw double-digit reductions in taxable income only 22 times during the whole 2000-2019 period. This one recession tops that 20-year number.

In this most-severe recession, the number of negative county balances at the existing 15% balance limit is still only one. Our current limit guards against negative balances in recessions worse than any we've experienced. Balances average 17% of certified distributions, which is $506 million.

The number of counties with negative balances remains in single digits at an 11% balance limit (again, 6 counties). The average balance percentage is 10%, a total of $285 million. Again each one percentage point reduction in the balance limit distributes $50-$60 million more to local governments, so an extra

$221 million would be distributed. The number of negative balance counties rises rapidly when the balance limit drops below 11%.

Figure 8.



Note that in this severe recession, average balances fall below the balance limit. At a 12% balance limit average balances are 11%; at a 10% balance limit the average is 8%. Average balances exceed the balance limit during expansions because collections exceed certified distributions. Collections fall short of certified distributions in recession, and a very deep recession will reverse the effects of several years of balance accumulation.

Conclusion

The LIT distribution system with a 15% minimum balance is likely to work well to prevent negative LIT account balances. Had the 2020 recession been worse than any we've experienced, only one county would have had a negative LIT account balance by the end of calendar 2021.

In a sense, though, the system works too well. It guards against extremely unlikely recessions, by holding a large amount of LIT revenue in balances. LIT has become an increasingly important component of local revenues; as noted in "Capacity-Cost Indexes of Local Governments, 2002 and 2018," published by the Indiana Fiscal Policy Institute, property taxes as a share of local revenue capacity fell from 46% to 33% between those two years, while LIT capacity expanded 166%. In light of this shift, policymakers could question at what point the limits on local budgets created by higher balances outweigh the odds of a sudden and severe recession causing balances to become negative.

The system could guard against likely recessions with lower balances, releasing this money to pay for property tax relief and public services. Each one percentage point reduction in the balance limit would result in added supplemental distributions of almost $50 to $60 million statewide.

A balance limit below 15% and above 10% would hold down the number of counties with negative balances even in a severe recession, while releasing up to $250 to $300 million for local government services.

Taxable income fell by 10% over the two years, 2007-2009. Should that decrease be concentrated in one year, the 15% minimum would leave just one county with negative balances. But a 12% minimum would hold the number of negative balance counties at 4, while releasing $160 million in revenue to support local services.

The 2020 recession turned out to be short, so big reductions in taxable income did not occur. Statewide balances likely will remain near 34% of certified distributions, $900 million at the end of 2019. This analysis shows that a recession worse than the Great Recession of 2007-09 would have left balances positive in all but one county, with statewide balances remaining near $500 million. The system that distributes supplemental distributions only when adjusted balances are above 15% of certified distributions appears to have solved the problem of negative balances during recessions.

But the analysis shows that lower minimum balance percentages could achieve this success while releasing balances to be used for local government services. An 11% or 12% minimum balance limit may be more appropriate, to hold the number of negative balance counties low, while releasing about $160 to $220 million to local governments.

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