Preliminary Fiscal Effects of COVID-19 on Indiana's Local Tax Revenues

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Background

In this impact brief, we simulate the effects of COVID-19 and responses to the disease on local government tax revenues in the short run. This extends previous work examining the impact of the COVID-19 disease. That work estimated a significant decline in 2nd Quarter GDP in Indiana.[1] Here, we further refine that analysis into the remainder of 2020 under two different scenarios. One scenario is similar to our earlier work, which includes an extreme period of social distancing and lost GDP followed by a return to 2019 levels of GDP in the 3rd and 4th Quarters of 2020. The second scenario includes the deep 2nd Quarter declines in employment and GDP, and a slow recovery during the second half of 2020 as the nation continues to take precautions against the spread of the virus. We also include a broader analysis of local taxes. The impact of federal aid programs is not included in this analysis.

The Analysis

Indiana's economy performed poorly in 2019, with annualized real GDP growth averaging only 0.26 percent over the first three quarters, and employment growth at a stagnant 7,400 jobs. This was more than 1.5 percent below our projections. The adjusted baseline (no COVID-19) projections for 2020 are for zero nominal GDP growth. So, tax revenues for 2020 would be anticipated to remain at their 2019 level in 2020. This is the baseline against which we provide two scenarios for COVID-19 related economic and fiscal effects.

In our revised estimate of the 2nd Quarter of GDP growth, we construct a growth accounting framework to evaluate the shocks from COVID-19. We then extrapolate two different scenarios for 3rd and 4th Quarter economic and fiscal effect.

We anticipate negative shocks from the March onset of COVID-19 restrictions 1st Quarter to carry into 2nd Quarter GDP, slowing 2nd Quarter's GDP growth by 0.9 percent. To this we include estimates of supply disruptions to the state's manufacturing industry, annualized estimates of the impact of

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[1] Hicks, Michael J. Dagney Faulk and Srikant Devaraj (2020c) Memorandum to Matt Greller, Accelerating Indiana's Municipalities, March 20, 2020.

mandatory social distancing and sheltering in place on the state's economy (-12.8 percent). This figure was derived from the annualized estimate of job closures due to workers who interact with the public (roughly 28 percent) and a full closure of roughly 40 percent of additional businesses for three weeks. In an update to our earlier work, we eliminated the voluntary closures as all of these were captured by the social distancing and shelter in place estimates. We also included an impact of significant negative shocks to stock markets and other assets, resulting in a wealth effect reduction of roughly 1.1 percent of GDP in second quarter. These are all empirically derived from data.

We also assume labor supply disruptions of 1.5 percent, as some 1.1 million children, of whom half are younger than age 12, are home through most of 2nd Quarter. This affects perhaps 400,000 families in Indiana, of whom two thirds we believe are headed by a single working adult, or two-income families who will have to adjust their labor supply (or face productivity reductions). This is a very conservative figure because this withdrawal of labor supply constitutes roughly 7.7 percent of the state's labor force. We anticipate some of these short-run effects will be mitigated by other employees in these firms, and that some of the workers displaced by school closures will be in affected industries, so are already unemployed in the short run. We also acknowledge that productivity of younger workers is lower, so the loss of 7.7 percent of the labor force among workers aged 18-40 will have a less than 7.7 percent impact on the state's GDP. *See Table A, which is an update of our earlier work.*

Table A. Revised 2020 Economic Forecast, USA and Indiana		
Contributions	USA	IN
1st Quarter autoregressive effect	-0.7%	-0.9%
Supply disruptions (Wuhan, S. Korea to USA)	-0.5%	-0.9%
Social distancing (annualized)/Shelter in Place	-13.6%	-12.8%
Wealth effect	-1.4%	-1.1%
Labor supply disruption (closed schools)	-1.5%	-1.5%
Total GDP change in 2nd Quarter 2020	-17.7%	-17.2%

The resulting GDP decline through the first half of 2020 will be large for both the nation and state as a whole. This is in addition to a slowing economy, in which Indiana likely grew at a rate of less than 0.5 percent in 2019.

This has significant fiscal effects on both state and local taxes. In order to better understand what the fiscal effects are, we estimated the responsiveness to GDP change on personal income taxes, which will allow us to model Local Option Income Taxes. We treat Gaming Revenues, Food and Beverage Taxes, and Innkeeper's Taxes separately.

Our estimates of the responsiveness of Personal Income Taxes (PIT) are important for county and municipal governments anticipating changes to their collections. To model this relationship, we use historical data on PIT and Indiana GDP from 1997 through 2018. We estimate the change of annual PIT given a change in GDP, accounting for major rate changes in the PIT.[2]

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[2] This is formally an error correction model, with exogenous tax changes, with a quadratic cointegrating equation and 2 lags.

The result of this estimate is an elasticity (responsiveness) of Personal Income Taxes to a change in state gross domestic product of 1.48. That means a 1.0 percent reduction in GDP will result in a 1.48 percent decline in Personal Income Tax collections. This estimate is lower than that produced by Fox, Bruce, and Tuttle (2006). However, that estimate was made during a period of higher PIT rates, which would increase consumer responsiveness to GDP changes.[3] These PIT elasticities should be nearly identical to those of the Local Option Income Taxes in Indiana (LOIT). From this we build two scenarios of fiscal impacts, from two possible levels of economic disruption.

- *Scenario 1* is the mild disruption resulting from an -17.2 percent annualized GDP decline in one month of 1st Quarter and 2nd Quarter (as reported in Table A), followed by a return to our baseline (2019) level of economic activity in the second half of 2019. For all other taxes (Food and Beverage, Innkeeper's, and Gaming) we assume a 90 percent reduction for the four-month period (March through June), followed by a return to baseline in the second half of 2020.

- *Scenario 2* is a deeper downturn, which combines the 1st and 2nd Quarter declines from *Scenario 1* with a continued lower level of economic activity through the remainder of 2020, with GDP averaging -4.0 percent lower than baseline for both 3rd and 4th Quarter 2020. For all other taxes (Food and Beverage, Innkeeper's, and Gaming) we assume a 90 percent reduction for the four-month period, and a return to 60 percent of baseline for the second half of 2020.

While forecasts and simulations are never perfect, these revenue estimates are meant to give local leaders information about the potential magnitude of revenue losses due to the pandemic.

Modeling Scenario 1 and 2

The first scenario presumes a deep period of social distancing and shelter in place for most residents through the end of June 2020. Following this, a return to baseline (2019) levels in the second half of 2020. This is a rosy scenario which assumes the actual declines in economic activity are too modest to generate long-term changes to equilibrium consumption and production. Thus, there are no critical long-term shifts between industrial sectors.

To calculate the LOIT effects in *Scenario 1*, we included a four-month decline in GDP to an average of -17.2 percent (from Table A, above) to calculate the mean county loss of Local Option Income Tax for each county. However, we also adjusted the loss in GDP for each county based on the employment mix of the most heavily affected sectors. The calculation is thus:

$$dLOIT_i = \frac{nt}{\sum t} * LOIT_{i,2019} * \left[dGDP_t \left(1 + \frac{\bar{Z}}{GDP} \frac{Z_i - \bar{Z}}{\bar{Z}} \right) \right] * \mathrm{E}_{LOIT,GDP}$$

…Where the change in each Local Option Income Tax is the affected share *n*, times *t* periods in the total year $\sum t$, times the 2019 level, adjusted by the expected change in GDP, plus the adjustment for local industry mix in each county, times the share of that industry as a share of GDP, which is $\frac{\bar{Z}}{GDP} \frac{Z_i - \bar{Z}}{\bar{Z}}$. This calculation is included to capture counties' differing shares of businesses, such as services and retail,

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[3] Bruce, Donald, William F. Fox, and Mark H. Tuttle. "Tax base elasticities: A multi-state analysis of long-run and short-run dynamics." Southern Economic Journal (2006): 315-341.

that are closed during the pandemic. This provides the share of income change for each county, which is then adjusted by the common elasticity estimate of Local Option Income Taxes to GDP.

We present county-wide tax revenue impacts. A statewide model of each taxing entity is not supported by publicly available data. We focus on reporting all six current Local Option Income Taxes and their sum. We do this simply to inform local governments, who will better understand the implications of these levels of changes on supporting current operations or bonding in each fund. *Scenario 1* impacts appear in *Table 1*.

County	Certified Shares (IC 6-3.6-6-10)	Public Safety (IC 6-3.6-6-8)	Economic Development (IC 6-3.6-6-9)	LIT Correctional Facility (IC 6-3.6-6-2.7)	Property Tax Relief (IC 6-3.6-5)	Special Purpose (IC 6-3.6-71)	Total Certified Distribution
Table 1. County LOIT Losses Under Scenario 1 (Optimistic)							
Adams	363,390	151,413	243,053	0	226,759	0	984,615
Allen	3,958,301	821,054	4,358,523	0	3,020,658	0	12,158,536
Bartholomew	2,533,986	101,359	507,104	405,438	0	0	3,547,887
Benton	133,411	33,353	33,290	0	38,679	0	238,733
Blackford	171,552	42,888	43,230	0	0	0	257,670
Boone	2,470,443	1,235,222	0	0	0	0	3,705,665
Brown	432,181	70,924	70,964	0	141,847	0	715,916
Carroll	560,700	30,896	51,507	68,659	68,659	0	780,421
Cass	586,197	146,549	88,019	117,239	586,197	0	1,524,202
Clark	2,306,525	576,631	578,780	0	1,155,411	0	4,617,347
Clay	418,371	104,593	0	0	313,779	104,593	941,336
Clinton	515,421	257,710	130,264	0	257,710	0	1,161,105
Crawford	100,137	0	33,380	0	0	0	133,518
Daviess	558,506	0	139,764	0	139,764	0	838,034
Dearborn	674,218	449,479	0	224,739	0	0	1,348,436
Decatur	612,157	120,503	120,614	0	38,597	241,007	1,132,878
De Kalb	853,211	213,303	215,083	110,917	426,606	0	1,819,121
Delaware	1,064,837	443,682	710,134	0	443,834	0	2,662,487
Dubois	653,123	0	435,591	0	0	0	1,088,714
Elkhart	4,586,366	1,146,591	1,152,917	0	1,146,591	1,146,591	9,179,057
Fayette	313,485	0	0	0	351,367	78,920	743,771
Floyd	1,433,966	0	574,560	382,391	191,520	0	2,582,438
Fountain	263,733	65,933	52,672	0	26,355	145,053	553,746
Franklin	441,629	110,407	110,602	0	0	0	662,639
Fulton	339,177	84,794	67,852	67,835	162,824	84,794	807,276
Gibson	141,495	0	357,496	0	0	0	498,991
Grant	1,235,762	0	228,225	0	950,586	9,509	2,424,082
Greene	475,496	237,748	117,991	0	0	0	831,235
Hamilton	12,889,422	0	0	0	0	0	12,889,422
Hancock	1,727,204	414,529	172,296	0	431,801	258,444	3,004,274
Harrison	524,920	0	175,239	0	0	0	700,159
Hendricks	4,145,033	414,503	1,038,478	0	621,755	0	6,219,769
Henry	703,259	175,815	0	0	176,191	0	1,055,265
Howard	1,091,051	155,864	311,996	0	779,322	389,661	2,727,895
Huntington	692,841	203,074	149,368	119,455	0	0	1,164,739
Jackson	779,817	194,954	195,027	0	389,981	77,982	1,637,760

County							
Jasper	798,922	146,430	146,478	0	497,862	87,858	1,677,550
Jay	384,448	54,921	68,711	0	164,787	0	672,867
Jefferson	0	0	209,828	0	0	0	209,828
Jennings	394,164	394,164	98,798	0	98,541	256,207	1,241,874
Johnson	3,450,472	0	0	0	0	0	3,450,472
Knox	402,358	0	268,880	0	0	0	671,238
Kosciusko	1,189,471	0	509,963	0	0	0	1,699,433
Lagrange	777,378	194,345	194,689	0	116,814	0	1,283,226
Lake	0	2,325,127	2,339,274	0	9,300,506	0	13,964,907
LaPorte	943,450	0	850,175	0	0	0	1,793,626
Lawrence	725,386	181,346	0	0	362,693	0	1,269,425
Madison	2,026,379	506,595	0	0	1,013,190	0	3,546,164
Marion	24,438,206	10,000,575	0	0	963,255	5,000,288	40,402,324
Marshall	904,933	0	0	0	0	226,233	1,131,167
Martin	129,572	40,491	72,946	0	40,491	0	283,500
Miami	281,980	121,627	194,637	0	515,896	121,627	1,235,766
Monroe	2,650,544	698,836	0	0	144,799	265,558	3,759,736
Montgomery	649,606	389,764	0	0	454,756	0	1,494,126
Morgan	1,672,044	329,662	263,972	0	1,321,347	0	3,587,025
Newton	238,338	0	0	0	0	0	238,338
Noble	801,299	200,325	200,374	0	200,374	0	1,402,373
Ohio	100,052	25,013	0	0	0	0	125,065
Orange	304,215	152,107	76,099	0	0	0	532,421
Owen	304,257	0	91,292	0	0	0	395,549
Parke	373,593	56,605	56,650	0	113,255	0	600,104
Perry	139,940	73,591	147,862	0	24,985	147,862	534,240
Pike	0	52,462	105,656	0	0	0	158,118
Porter	0	0	2,176,101	0	0	0	2,176,101
Posey	250,561	141,082	282,596	0	31,602	0	705,841
Pulaski	271,158	48,421	48,431	0	228,554	58,105	654,669
Putnam	598,158	239,263	149,792	59,816	149,792	0	1,196,822
Randolph	348,007	87,002	87,458	0	174,004	87,458	783,929
Ripley	550,004	0	137,589	0	71,546	0	759,138
Rush	271,379	43,421	68,144	0	24,532	162,827	570,303
St. Joseph	2,969,460	1,485,919	2,388,533	0	3,568,582	0	10,412,495
Scott	346,506	259,880	0	0	55,481	86,627	748,494
Shelby	782,553	195,638	196,142	0	0	0	1,174,334
Spencer	118,401	0	227,174	0	17,640	0	363,215
Starke	163,933	0	163,834	0	19,660	212,985	560,413
Steuben	677,408	169,352	169,753	0	196,513	0	1,213,026
Sullivan	0	0	181,809	0	0	0	181,809
Switzerland	149,828	0	0	0	0	0	149,828
Tippecanoe	2,111,106	0	1,511,913	0	533,223	0	4,156,242
Tipton	425,568	36,981	106,941	0	56,894	113,788	740,172
Union	111,782	27,946	28,022	0	0	27,946	195,695
Vanderburgh	3,504,503	775,762	0	0	374,305	0	4,654,569
Vermillion	126,898	190,346	63,449	0	0	0	380,693
Vigo	1,342,687	537,075	896,421	358,050	0	447,562	3,581,795
Wabash	1,000,532	187,945	139,059	0	276,390	0	1,603,926
Warren	188,586	43,520	29,026	0	46,426	0	307,558

County							
Warrick	0	0	866,456	0	0	0	866,456
Washington	539,173	112,489	125,570	0	0	0	777,233
Wayne	1,051,078	0	263,378	0	0	262,769	1,577,224
Wells	712,987	76,391	127,380	0	152,831	0	1,069,589
White	886,438	0	110,851	0	31,038	0	1,028,326
Whitley	739,395	184,849	148,073	0	24,358	0	1,096,675
Total							**218,386,167**

In *Scenario 1*, we project a loss of roughly $218.4 million in total Local Option Income Taxes. This revenue loss will ultimately affect future distributions in FY 2021 and beyond depending on the severity of the downturn. Again, this is an optimistic scenario, which we view as a realistic baseline for projections of tax losses.

In *Scenario 1*, we model a four-month reduction of revenues, caused by revenue declines of 90 percent over the March through June periods. In the remainder of 2020, the revenues return to baseline. *Scenario 2* includes the 1st and 2nd quarter impacts of *Scenario 1*, with a reduction of occupancy by 40 percent. This would result in revenues that are 60 percent of the baseline (2019 levels). Under *Scenario 2*, we project a total of $315.4 million in lost Local Option Income Taxes.

Table 2. County LOIT Losses Under Scenario 2 (Deeper Downturn)

County	Certified Shares IC 6-3.6-6-10	Public Safety IC 6-3.6-6-8	Economic Development IC 6-3.6-6-9	LIT Correctional Facility IC 6-3.6-6-2.7	Property Tax Relief IC 6-3.6-5	Special Purpose IC 6-3.6-71	Total Certified Distribution
Adams	524,897	218,707	351,076	0	327,541	0	1,422,221
Allen	5,717,546	1,185,967	6,295,644	0	4,363,172	0	17,562,330
Bartholomew	3,660,202	146,408	732,484	585,632	0	0	5,124,726
Benton	192,705	48,176	48,085	0	55,870	0	344,836
Blackford	247,798	61,949	62,443	0	0	0	372,190
Boone	3,568,418	1,784,209	0	0	0	0	5,352,627
Brown	624,261	102,445	102,503	0	204,891	0	1,034,101
Carroll	809,900	44,628	74,400	99,173	99,173	0	1,127,274
Cass	846,729	211,682	127,139	169,346	846,729	0	2,201,625
Clark	3,331,647	832,912	836,015	0	1,668,927	0	6,669,501
Clay	604,314	151,079	0	0	453,236	151,079	1,359,707
Clinton	744,497	372,248	188,158	0	372,248	0	1,677,152
Crawford	144,643	0	48,216	0	0	0	192,859
Daviess	806,731	0	201,881	0	201,881	0	1,210,494
Dearborn	973,870	649,247	0	324,623	0	0	1,947,740
Decatur	884,227	174,060	174,220	0	55,751	348,121	1,636,379
De Kalb	1,232,416	308,104	310,676	160,214	616,208	0	2,627,619
Delaware	1,538,098	640,874	1,025,750	0	641,093	0	3,845,815
Dubois	943,400	0	629,188	0	0	0	1,572,588
Elkhart	6,624,750	1,656,188	1,665,324	0	1,656,188	1,656,188	13,258,638
Fayette	452,812	0	0	0	507,529	113,996	1,074,337
Floyd	2,071,285	0	829,920	552,343	276,640	0	3,730,188
Fountain	380,948	95,237	76,081	0	38,068	209,521	799,855
Franklin	637,909	159,477	159,759	0	0	0	957,145
Fulton	489,922	122,480	98,008	97,984	235,190	122,480	1,166,066
Gibson	204,382	0	516,383	0	0	0	720,765

Grant	1,784,989	0	329,658	0	1,373,069	13,736	3,501,451
Greene	686,828	343,414	170,431	0	0	0	1,200,673
Hamilton	18,618,054	0	0	0	0	0	18,618,054
Hancock	2,494,851	598,764	248,872	0	623,713	373,307	4,339,507
Harrison	758,217	0	253,123	0	0	0	1,011,340
Hendricks	5,987,269	598,727	1,500,024	0	898,090	0	8,984,110
Henry	1,015,819	253,955	0	0	254,498	0	1,524,271
Howard	1,575,963	225,137	450,660	0	1,125,688	562,844	3,940,292
Huntington	1,000,771	293,329	215,754	172,547	0	0	1,682,401
Jackson	1,126,402	281,600	281,705	0	563,306	112,640	2,365,654
Jasper	1,153,999	211,510	211,579	0	719,134	126,906	2,423,128
Jay	555,313	79,330	99,250	0	238,026	0	971,919
Jefferson	0	0	303,085	0	0	0	303,085
Jennings	569,348	569,348	142,708	0	142,337	370,076	1,793,818
Johnson	4,984,014	0	0	0	0	0	4,984,014
Knox	581,184	0	388,382	0	0	0	969,566
Kosciusko	1,718,124	0	736,613	0	0	0	2,454,737
Lagrange	1,122,880	280,720	281,218	0	168,731	0	1,853,548
Lake	0	3,358,516	3,378,952	0	13,434,065	0	20,171,533
LaPorte	1,362,762	0	1,228,031	0	0	0	2,590,793
Lawrence	1,047,779	261,945	0	0	523,890	0	1,833,614
Madison	2,926,993	731,748	0	0	1,463,496	0	5,122,237
Marion	35,299,631	14,445,275	0	0	1,391,369	7,222,638	58,358,913
Marshall	1,307,126	0	0	0	0	326,781	1,633,908
Martin	187,159	58,487	105,367	0	58,487	0	409,500
Miami	407,304	175,683	281,142	0	745,183	175,683	1,784,996
Monroe	3,828,563	1,009,429	0	0	209,154	383,583	5,430,730
Montgomery	938,320	562,992	0	0	656,870	0	2,158,182
Morgan	2,415,175	476,178	381,293	0	1,908,613	0	5,181,258
Newton	344,266	0	0	0	0	0	344,266
Noble	1,157,432	289,358	289,429	0	289,429	0	2,025,649
Ohio	144,519	36,130	0	0	0	0	180,649
Orange	439,421	219,711	109,920	0	0	0	769,052
Owen	439,482	0	131,866	0	0	0	571,349
Parke	539,635	81,763	81,828	0	163,591	0	866,817
Perry	202,136	106,298	213,579	0	36,089	213,579	771,680
Pike	0	75,778	152,615	0	0	0	228,392
Porter	0	0	3,143,257	0	0	0	3,143,257
Posey	361,921	203,785	408,195	0	45,648	0	1,019,549
Pulaski	391,672	69,941	69,956	0	330,134	83,930	945,633
Putnam	864,006	345,602	216,367	86,401	216,367	0	1,728,742
Randolph	502,677	125,669	126,328	0	251,339	126,328	1,132,342
Ripley	794,450	0	198,739	0	103,344	0	1,096,533
Rush	391,992	62,719	98,430	0	35,435	235,195	823,771
St. Joseph	4,289,220	2,146,327	3,450,104	0	5,154,619	0	15,040,270
Scott	500,509	375,382	0	0	80,140	125,127	1,081,157
Shelby	1,130,355	282,589	283,317	0	0	0	1,696,260
Spencer	171,024	0	328,140	0	25,480	0	524,644
Starke	236,793	0	236,650	0	28,398	307,645	809,485
Steuben	978,479	244,620	245,199	0	283,851	0	1,752,148

Unit							Total
Sullivan	0	0	262,612	0	0	0	262,612
Switzerland	216,419	0	0	0	0	0	216,419
Tippecanoe	3,049,376	0	2,183,874	0	770,211	0	6,003,461
Tipton	614,709	53,417	154,470	0	82,180	164,361	1,069,137
Union	161,464	40,366	40,476	0	0	40,366	282,671
Vanderburgh	5,062,060	1,120,544	0	0	540,663	0	6,723,267
Vermillion	183,296	274,945	91,648	0	0	0	549,889
Vigo	1,939,437	775,775	1,294,830	517,183	0	646,479	5,173,704
Wabash	1,445,213	271,477	200,863	0	399,230	0	2,316,782
Warren	272,402	62,862	41,927	0	67,060	0	444,251
Warrick	0	0	1,251,548	0	0	0	1,251,548
Washington	778,806	162,485	181,379	0	0	0	1,122,669
Wayne	1,518,223	0	380,434	0	0	379,556	2,278,213
Wells	1,029,870	110,343	183,993	0	220,756	0	1,544,962
White	1,280,410	0	160,117	0	44,833	0	1,485,360
Whitley	1,068,015	267,004	213,883	0	35,184	0	1,584,087
Total							**315,446,686**

Tax Effects

We next model the effects of *Scenario 1 and 2* on Food and Beverage Taxes. Because the Food and Beverage Taxes are allocated directly to individual county and municipal governments, we can present sub-county estimates of lost revenues that are not available for the Local Option Income Tax revenues. Both scenarios appear in *Table 3*.

Table 3. Food and Beverage Tax Losses Under Both Scenarios		
Unit	Scenario 1	Scenario 2
Allen County	2,336,947	4,697,499
Boone County	334,015	671,405
Lebanon	124,938	251,139
Zionsville	104,317	209,688
Putnam County (Cloverdale)	28,545	57,378
Delaware County	633,459	1,273,317
Hamilton County	2,454,138	4,933,066
Carmel	617,270	1,240,774
Noblesville	543,025	1,091,536
Westfield	428,432	861,192
Hancock County	321,750	646,750
Hendricks County	1,106,868	2,224,917
Avon	369,070	741,867
Brownsburg	210,170	422,462
Plainfield	349,077	701,680
Henry County	190,039	381,998
Johnson County	290,623	584,182
Madison County	618,188	1,242,620
Marion County	15,009,389	30,170,388

Monroe County	759,982	1,527,641
Morgan County (Mooresville)	121,389	244,005
Brown County (Nashville)	57,025	114,626
Orange County	134,510	270,379
Parke County (Rockville)	25,387	51,030
Shelby County	212,479	427,103
LaGrange County (Shipshewana)	37,497	75,372
Vanderburgh County	1,426,765	2,867,941
Vigo County	133,266	267,878
Total	**28,978,560**	**58,249,833**

We next model the effects of *Scenario 1 and 2* on the Innkeeper's Tax. *See Table 4*. In *Scenario 1*, we model a four-month reduction of revenues, caused by occupancy declines of 90 percent over the March through June periods. In the remainder of 2020, the revenues return to baseline. *Scenario 2* includes the 1st and 2nd Quarter impacts of *Scenario 1*, with a reduction of occupancy by 40 percent. This would result in revenues that are 60 percent of the baseline (2019 levels).

Table 4. Innkeeper's Tax Losses Under Both Scenarios		
County (Special Unit)	**Scenario 1**	**Scenario 2**
Allen County	2,425,779	4,410,507
Bartholomew County	14,006	25,466
Boone County	4,400	8,001
Brown County	15,890	28,891
Cass County	1,497	2,722
Clark County	574,664	1,044,843
Clinton County	5,753	10,461
Crawford County	2,373	4,314
Daviess County	1,262	2,294
Dearborn County	6,002	10,912
Decatur County	1,413	2,569
DeKalb County	3,528	6,415
Delaware County	9,394	17,080
Dubois County	4,198	7,633
Elkhart County	24,067	43,757
Fayette County	201	366
Floyd County	73,384	133,425
Franklin County	1,300	2,363
Fulton County	736	1,338
Gibson County	1,574	2,861
Grant County	12,197	22,177
Greene County	1,425	2,591
Hamilton County	57,353	104,277
Hancock County	5,102	9,276
Harrison County	4,229	7,690
Hendricks County	30,460	55,382
Henry County	477	868
Howard County	8,368	15,214
Huntington County	1,766	3,211

Jackson County	2,719	4,943
Jasper County	1,782	3,240
Jay County	517	940
Jefferson County	102,207	185,831
Jennings County	790	1,437
Johnson County	9,527	17,322
Knox County	2,424	4,408
Kosciusko County	14,037	25,522
LaGrange County	6,895	12,536
Lake County	40,811	74,201
LaPorte County	45,403	82,551
Lawrence County	2,168	3,942
Madison County	8,192	14,894
Marion County	22,066,036	40,120,065
Marshall County	8,956	16,284
Miami County	797	1,450
Monroe County	60,834	110,607
Montgomery County	2,872	5,223
Morgan County	2,570	4,672
Noble County	3,028	5,505
Ohio County	461	838
Orange County	3,882	7,058
Owen County	580	1,055
Parke County	1,716	3,120
Perry County	2,814	5,116
Porter County	23,750	43,183
Posey County	933	1,696
Putnam County	4,305	7,827
Randolph County	248	450
Ripley County	611	1,110
Scott County	91,676	166,683
Shelby County	110,692	201,257
Spencer County	3,616	6,575
St. Joseph County	141,911	258,021
Starke County	2,066	3,756
Steuben County	7,958	14,470
Sullivan County	346	628
Switzerland County	4,358	7,924
Tippecanoe County	49,005	89,101
Union County	470	855
Vanderburgh County	46,421	84,403
Vermillion County	-	-
Vigo County	16,542	30,076
Wabash County	2,199	3,998
Warrick County	60,236	109,521
Warrick Historic Hotel District	162,573	295,587
Washington County	690	1,254
Wayne County	7,634	13,880
White County	2,704	4,916
Total	**26,425,758**	**48,046,833**

We next model the effects of *Scenario 1 and 2* on county-level Gaming Tax distributions. *See Table 5.* In *Scenario 1*, we model a four-month reduction of revenues, caused by occupancy declines of 100 percent over the March through June periods. In the remainder of 2020, the revenues return to baseline. *Scenario 2* includes the 1ˢᵗ and 2ⁿᵈ Quarter impacts of *Scenario 1*, with a reduction of occupancy by 40 percent. This would result in revenues that are 60 percent of the baseline (2019 levels). These are similar to the Innkeeper's Tax, but restrict all casino gaming revenues to zero for four months in *Scenario 1*.

Table 5. Reductions in Local Gaming Tax Distributions		
Unit	Scenario 1	Scenario 2
Dearborn County	1,891,651	3,611,334
Dearborn CVB	189,164	361,130
Lawrenceburg	1,891,651	3,611,334
Harrison County	3,014,579	5,755,106
Harrison *CVB*	150,728	287,753
Lake County	4,805,205	9,173,574
Lake CVB	433,739	828,047
East Chicago	1,659,873	3,168,848
Gary	1,597,088	3,048,986
Hammond	1,562,401	2,982,765
Michigan City	1,060,357	2,024,318
NW Ind Law Enforcement Training Academy	48,187	91,993
LaPorte County	2,308,773	4,407,658
LaPorte CVB	106,035	202,430
Ohio County	640,194	1,222,189
Ohio CVB	64,019	122,218
Rising Sun	640,194	1,222,189
Switzerland County	1,360,267	2,596,873
Switzerland CVB	68,013	129,843
Vanderburgh County	603,288	1,151,731
Vanderburgh CVB	60,328	115,172
Evansville	603,288	1,151,731
Total	**24,759,021**	**47,267,222**

Summary and Discussion

In this impact brief, we offer estimates of the potential COVID-19 impacts on local budgets under two scenarios.

- *Scenario 1* is the relatively mild disruption resulting from a -17.2 percent annualized GDP decline in one month of 1ˢᵗ Quarter and 2ⁿᵈ Quarter, followed by a return to our baseline (2019) level of economic activity in the second half of 2019. For all other taxes (Food and Beverage, Innkeeper's, and Gaming) we assume a 90 percent reduction for the four-month period, followed by a return to baseline in the second half of 2020.

- *Scenario 2* is a deeper downturn, which combines the 1st and 2nd Quarter declines from *Scenario 1* with a continued lower level of economic activity through the remainder of 2020, with GDP averaging -4.0 percent lower than baseline for both 3rd and 4th Quarter 2020. For all other taxes (Food and Beverage, Innkeeper's and Gaming) we assume a 90 percent reduction for the four-month period, and a return to 60 percent of baseline for the second half of 2020.

In the preceding analysis we examined the impact on Local Option Income Tax, Food and Beverage Tax, Innkeeper's Tax, and local share of Gaming Tax revenues in Indiana. *Table 6* illustrates the magnitude of the losses across taxing districts.

Table 6. Aggregate Effects		
Tax Type	Scenario 1	Scenario 2
Local Option Income Tax	218,386,167	315,446,686
Food and Beverage Tax	28,978,560	58,249,833
Innkeeper's Tax	26,425,758	48,046,833
Gaming Tax (local distributions)	24,759,021	47,267,222
Total	298,549,506	469,010,574

To better explain this, we offer an example from a single representative county. Delaware County collects $31 million in Local Option Income Taxes, 2.1 million from Food and Beverage Taxes and 24,000 in Innkeeper's Taxes. The lost revenues outlined in this example range between 9.9 percent and 15.4 percent of these three taxes.

As a share of total county and municipal budgets, these estimates are for losses of between 2.0 percent and 3.1 percent of Property Tax, Local Option Income Tax, Food and Beverage, and Innkeeper's Tax.

Limitations

Some cautions are in order. We have been observing and participating in economic estimates of the impact of COVID-19 since January. The only consistent observation over this period is that every projection has worsened following later analysis. Our *Scenario 1* is especially rosy, suggesting a return to normalcy and baseline economic conditions in the second half of 2020. *Scenario 2* is more likely, suggesting continued economic performance well below baseline through 2020. Indeed, this forecast is for a three-quarter recession that is greater than any in the post-war period. This too might be optimistic.

This forecast does not deal with property taxes, which should statutorily be unaffected in the short run. However, the ability of taxing bodies to collect expected revenues from property tax payers is questionable given the reductions in the level of economic activity over the coming weeks.

The impact of the recently passed federal aid programs is also not included in this analysis. These programs may mitigate the negative effects of COVID-19 on local revenue. We believe the currently constructed aid is unlikely to significantly affect local revenue

This is an analysis of revenues, not of expenditures. Some costs, such as student transportation or public safety may be smaller in 2020 than in 2019, while other expenditures may be significantly higher. We

have not attempted to model this, but offer it simply as a warning to anyone who views these estimates as sufficiently modest to alleviate major budget worries in Indiana.

These estimates are good faith effort to prepare local and state policymakers with a description of the potential revenue conditions likely to surround the state in the coming weeks. We will update these estimates as more information becomes available.

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