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# **COVID-19 and Illinois State Tax Revenues**

**April 17<sup>th</sup>, 2020**

**Paula R. Worthington**



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## **Abstract**

The 2020 COVID-19 pandemic and consequent contraction in economic activity have led to shuttered businesses, laid-off workers, and nearly unfathomable stress on every sector of the U.S. economy. States and localities are likely to bear the financial brunt of responding to the crisis, because they simultaneously face sharp increases in the public health and social services they need to provide while experiencing substantial declines in the tax and fee revenues that fund subnational government service provision. This short paper investigates the potential impact of the COVID-19 crisis on state tax revenue collections, particularly in the already-vulnerable state of Illinois. I find that Illinois state tax revenue collections will decline sharply as the economic effects of the COVID-19 pandemic spread. The severity of decline and subsequent recovery path will depend in part on the future path of economic activity and federal fiscal policy. I conservatively estimate that every 1 percentage point increase in the state's unemployment rate is associated with nearly an \$870 million decline in state tax revenues. Alternative estimates suggest an even larger hit to state tax revenues. Under alternative scenarios for the severity of the contraction that now seems likely to be underway, I estimate that the annual negative impact on Illinois state tax revenues ranges from \$3.5 billion to \$8.7 billion, a significant impact given the state's FY 2019 tax revenues of \$42.5 billion.

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## Overview

The 2020 COVID-19 pandemic and consequent contraction in economic activity have led to shuttered businesses, laid-off workers, and nearly unfathomable stress on every sector of the U.S. economy. Firms have suspended operations and laid off workers, retail sector activity has been turned upside down as “shelter-at-home” orders spread throughout the country, and states and local governments have scrambled to meet surging public health and safety needs amidst a collapse in general economic activity and compromised work forces. Further, states and localities are likely to bear the financial brunt of responding to the crisis, because they simultaneously face sharp increases in the services they need to provide while experiencing substantial declines in the tax and fee revenues that fund subnational government service provision (Walsh 2020). This short paper focuses on the revenues side of the equation: what impact is the COVID-19 crisis likely to have on state tax revenue collections, particularly in the already-vulnerable state of Illinois?

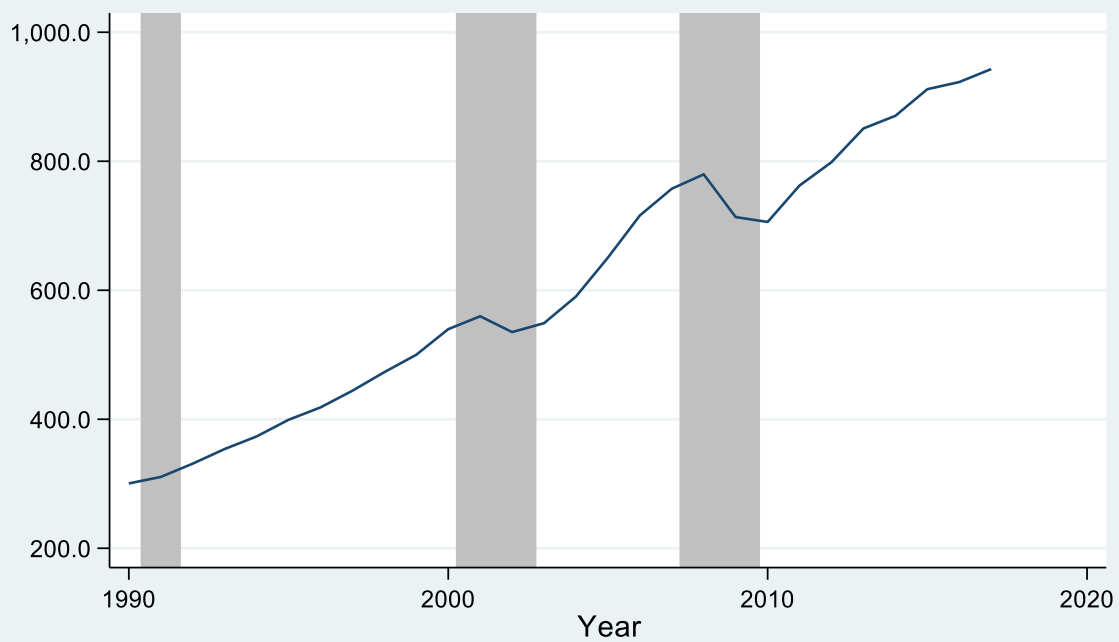
In a nutshell, I show that state tax revenue collections will decline sharply as the economic effects of the COVID-19 pandemic spread. The severity of decline and subsequent recovery path will depend in part on the future path of economic activity and federal fiscal policy. I conservatively estimate that every 1 percentage point increase in the state’s unemployment rate is associated with nearly an \$870 million decline in state tax revenues. Alternative estimates suggest an even larger hit to state tax revenues. Under alternative scenarios for the severity of the contraction that now seems likely to be underway, I estimate that the annual negative impact on Illinois state tax revenues ranges from \$3.5 billion to \$8.7 billion, a significant impact given the state’s FY 2019 tax revenues of \$42.5 billion.

In the rest of this paper, I briefly review existing evidence on how state tax revenues change over the business cycle and next describe the data used for the present analysis. Building on previous work by Fiedler et al. (2019), I then estimate the empirical relationship between Illinois state tax revenues and economic activity, as measured by changes in the state’s unemployment rate. I then use this estimate to calculate a range of possible revenue impacts on the state, which depend on the severity of the crisis and how quickly economic activity returns to “normal.” Finally, I show why Illinois is among the most fiscally vulnerable states and suggest considerations for policymakers going forward.

## Background and Motivation

State tax revenues are generally pro-cyclical, rising during expansions and falling during contractions, but returning to pre-recession peaks often extends quarters, if not years, past the actual trough of a given cycle. For example, pre-Great Recession state tax revenues for the United States peaked at \$779.7 billion (nominal) in 2008 and did not surpass that level until 2012, well after the June 2009 trough (Graph 1).

Graph 1 Aggregate State Tax Revenues (\$ billions)  
1990-2017

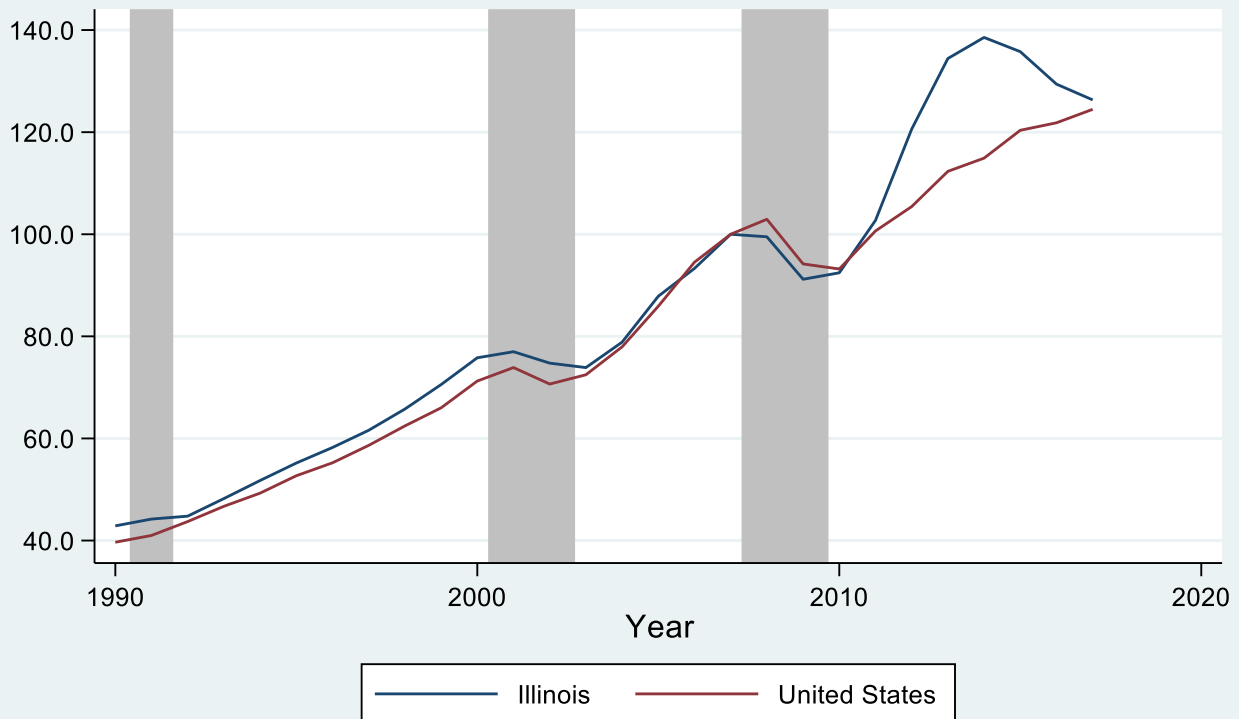


U.S. Census Bureau, as downloaded from Tax Policy Center  
<https://state-local-finance-data.taxpolicycenter.org/help/technical.cfm>  
Recession shadings based on NBER dates

Illinois' experience since 1990 has roughly paralleled that of other states, with the recent exception of the post-Great Recession period, when Illinois raised its income tax rates in 2011, lowered them in 2015, and raised them again in 2017.<sup>1</sup> As Graph 2 shows, Illinois' tax revenue rose steeply starting in 2011, peaking in 2014 at nearly 140 percent of its pre-recession peak, far different from the national pattern of fairly steady growth in nominal tax revenues since 2012 (Graph 2).

<sup>1</sup> The state's flat personal income tax rate was raised from 3% to 5% on January 1, 2011; lowered to 3.75% on January 1, 2015; and raised to 4.95% on July 1, 2017, with corresponding changes in the corporate income tax rate.

Graph 2 State Tax Revenues as Percent of 2007 Values  
1990-2017



Author's calculations based on data from U.S. Census Bureau, as downloaded from Tax Policy Center  
<https://state-local-finance-data.taxpolicycenter.org/help/technical.cfm>  
Recession shadings based on NBER dates

Recent estimates of the relationship between state tax revenues and economic activity suggest that each increase of one percentage point in the national unemployment rate is associated with a 3.7 percent decrease in total state tax revenues, where revenues are adjusted for legislative changes (Fiedler and Powell III 2020; Fiedler, Furman, and Powell III 2019). This latter point is worth emphasizing: in these analyses, tax revenues are adjusted to be “tax-policy neutral”, which allows analysis of the impact of economic activity on tax revenues, holding tax policy constant. Graph 2 shows why holding policy constant matters for an investigation of tax revenues and economic activity: Illinois raised its individual and corporate rates mid-(fiscal) year in 2011, allowing it to collect a “burst” of additional tax revenues, and when it lowered those rates in mid-(fiscal) year 2015, revenues declined. That revenue swing was largely policy-driven, and it would be misleading to attribute those revenue changes to the changes in underlying economic activity happening at that time.

## Data and Methods

I follow the basic approach of Fiedler, Furman, and Powell III (2019) by analyzing the historical relationship between growth in state tax revenues and economic activity, as measured by changes in the unemployment rate. Specifically, I rely on these principal data sources:

- U.S. Census Bureau, Annual Survey of State & Local Government Finances & Census of Governments, as downloaded from the Tax Policy Center at <https://state-local-finance-data.taxpolicycenter.org/pages.cfm>. These data include revenues and expenditures in nominal, real, and per capita terms from fiscal years 1977 through 2017 for all states in aggregate as well as for Illinois alone.
- U.S. Bureau of Labor Statistics, the Consumer Price Index for All Urban Consumers: All Items in U.S. City Average, Index 1982-1984=100, Monthly, Not Seasonally Adjusted (CPI-U) and monthly unemployment rates, seasonally adjusted, for both the United States and the state of Illinois, as downloaded from the FRED Economic Data repository at the St. Louis Federal Reserve Bank (<https://fred.stlouisfed.org/>).<sup>2</sup> I use the monthly data to create annual (fiscal year) average levels.
- Annual *Fiscal Survey of States* reports issued by the National Association of State Budget Officers (National Association of State Budget Officers n.d.). These reports, issued in the fall and spring of each calendar year, include information on enacted tax law changes and expected revenue impacts, which I describe further below.

I follow recent work by investigating how state tax revenues, adjusted for tax law changes, vary with changes in the unemployment rate (Fiedler, Furman, and Powell III 2019). Adjusting actual state tax revenues received entails these steps:

- Using NASBO's *Fiscal Surveys* to identify the predicted revenue impacts of tax legislation passed in each year. The fall *Fiscal Survey* typically reports these figures for the 50 states together, by fiscal year; the fall 2019 *Fiscal Survey* thus suffices for these "enactment-revenue adjustments" over the 1990-2017 time period used here. For the state of Illinois, I use earlier editions of the fall (and sometimes spring) surveys to obtain the legislation-induced revenue adjustments for the years studied. It is worth noting that the FY 2011-2015 changes took place mid-fiscal year, so the spring *Fiscal Survey* reports were needed to capture these mid-year enactments. State-specific information goes back to FY 1990.
- Converting the enacted revenue figures to real, per-capita measures, and then define enactment-adjusted state tax revenues as revenues less any enacted revenue impacts.
- Defining the dependent variable of interest at time  $t$  as the log difference between time  $t$  enactment-adjusted state tax revenues and time  $(t-1)$  actual state tax revenues.
- Defining the measure of economic activity as the change in the unemployment rate, measured in percentage points, using the average fiscal year measure described above.

## Basic Results

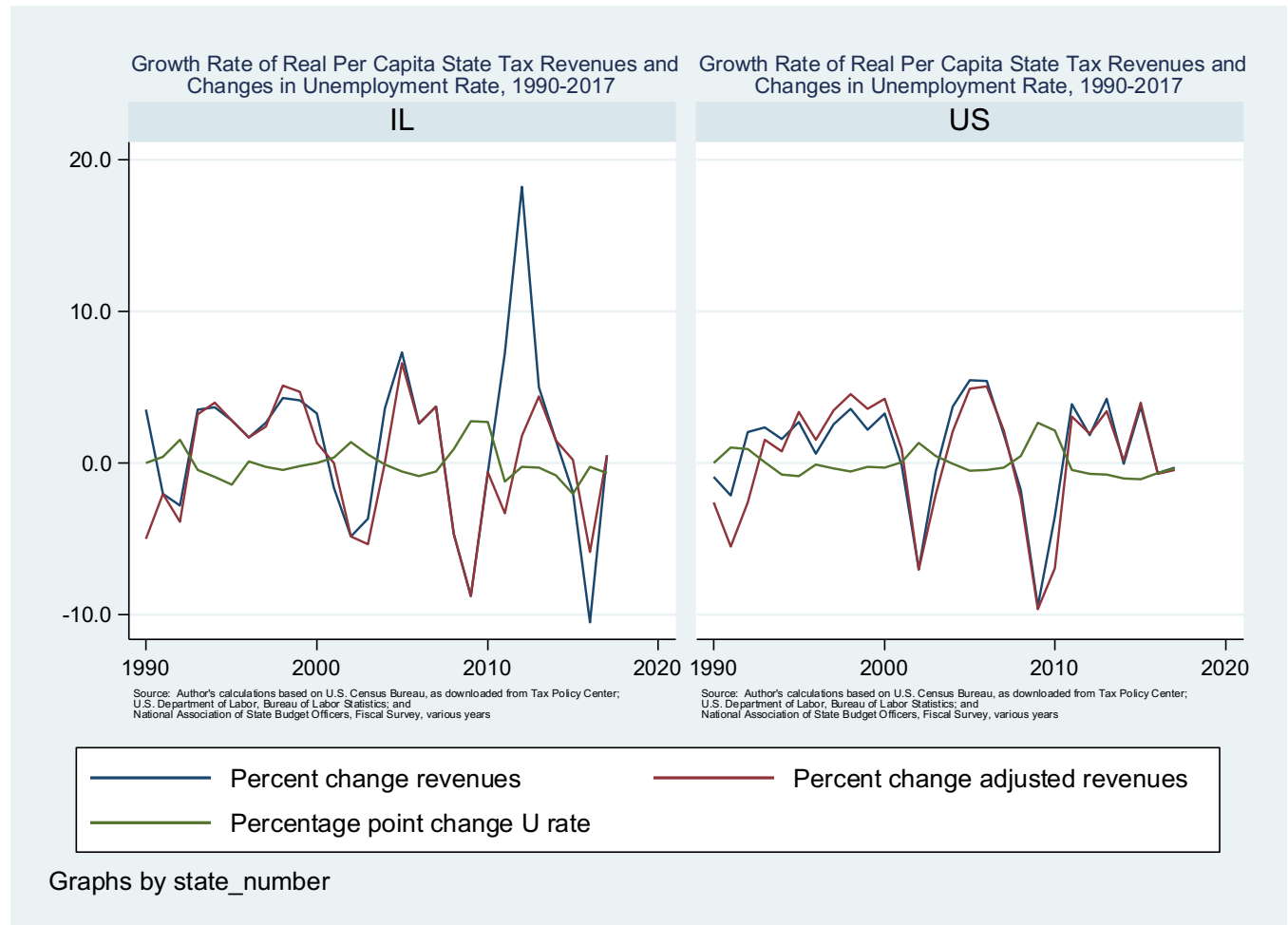
Graph 3 below depicts how the growth rate in tax revenues and changes in the unemployment rate have varied over time. The US graph shows that, in general, the enactment adjustment to state tax revenues makes little difference, as the adjusted and unadjusted series move together quite closely. As discussed elsewhere, this suggests that states typically do not respond to cyclical pressures by raising taxes aggressively (Fiedler, Furman, and Powell III 2019). In contrast, the Illinois graph on the left shows that

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<sup>2</sup> I use the NSA series for the CPIU to align with the Tax Policy Center's methods.

the adjusted and unadjusted revenues diverge significantly since 2010 due to significant policy changes during that time period as discussed above.

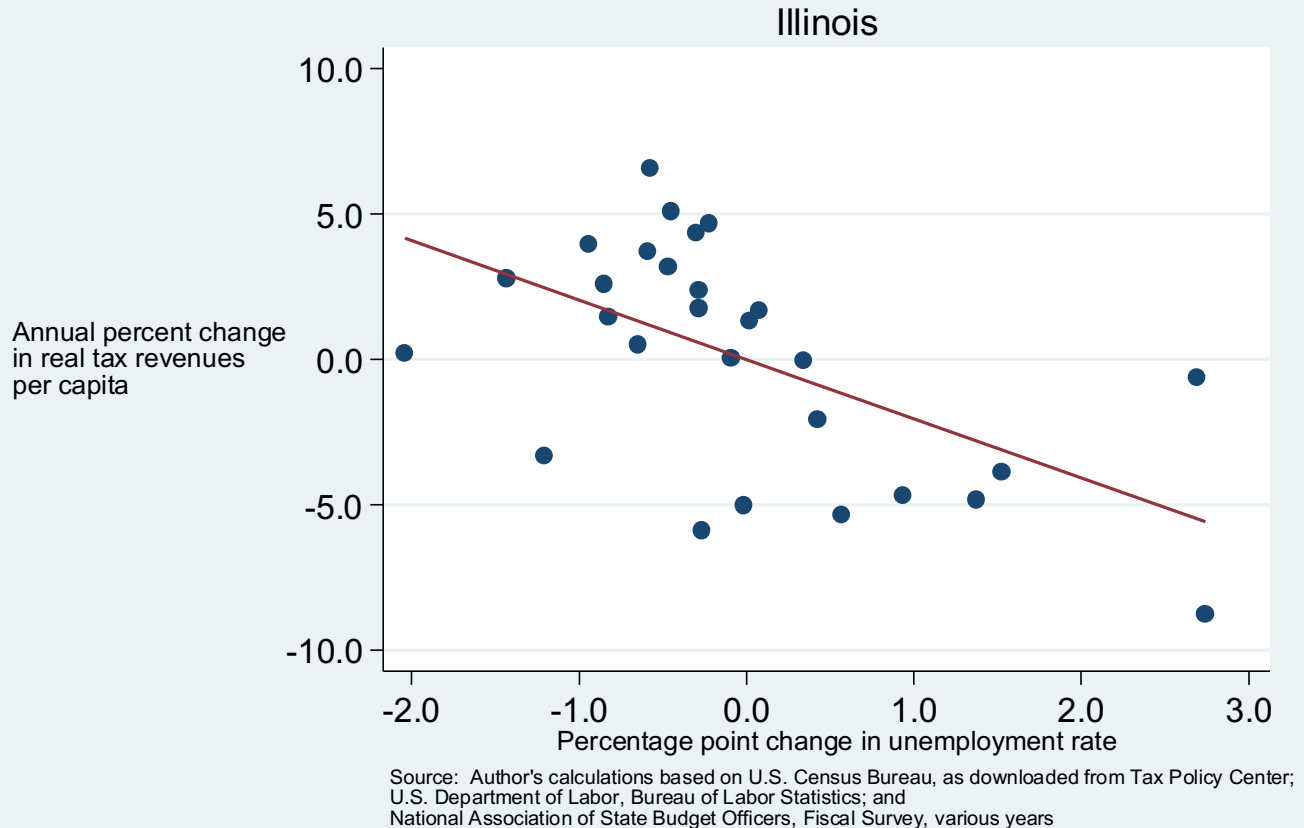
Graph 3



Following Fiedler et al. (2019), I estimate a linear regression of the growth rate in adjusted tax revenues on changes in the unemployment rate. I estimate that for every 1 percentage point increase in Illinois' state unemployment rate, the state's tax revenues decrease by 2.0%, or about \$870 million, based on FY 2019 state tax revenues of \$42.5 billion. The basic relationship between the unemployment rate and legislation-adjusted state tax revenues (on a real per capita basis) is depicted in Graph 4 below.<sup>3</sup>

<sup>3</sup> See Fiedler et al. (2019) for a similar figure based on aggregate data.

Graph 4 Changes in Adjusted Real Per Capita State Tax Revenues and Changes in the Unemployment Rate, 1990-2017



My estimate of 2.0% is smaller than the 3.7% estimate discussed above. However, when I use my data to estimate the model on aggregate state tax revenues and the national unemployment rate, I estimate a 3.8% response of revenues to changes in the unemployment rate, quite similar to Fiedler et al.'s (2019) results.

### Revenue Implications in a COVID-19 Contraction

The unprecedented shutdown in economic activity beginning in March 2020 has led to a dizzying sequence of new, revised, and adjusted macroeconomic forecasts. At this time, most U.S. forecasts are showing significant contraction in 2020:Q2, with varied rebound and recovery patterns to follow. For example, Bloomberg's most recent survey of economists finds that the median forecast for the national unemployment rate in 2020:Q2 is 12.6 percent, up from an average 3.8 percent in 2020:Q1 and followed by gradual declines to 8.1 percent by 2020:Q4 and lower levels in 2021 and 2022 (Golle and Yoo 2020). However, the speed with which economic activity will rebound and workers return to their jobs is a huge unknown, as the nation's governors and mayors are likely to ease shutdown restrictions and allow resumption of economic activity at different times and to different degrees.



To explore the basic range of possible Illinois state tax revenue implications, I consider three simple scenarios, summarized in Table 1 below. Under the medium severity scenario, the unemployment rate rises by 7.0 percentage points, with smaller and larger increases for the low and high severity scenarios, respectively.

Table 1

Possible contraction scenarios	Change in unemployment rate (percentage points)
Low severity	4.0%
Medium severity	7.0%
High severity	10.0%
Memo: latest unemployment rates (level)	
United States (March 2020)	4.4%
Illinois (February 2020)	3.4%

With these scenarios in mind, I calculate the implied state tax revenue impacts using the estimates presented earlier; Table 2 summarizes the results.

Table 2

Elasticity estimates and revenue impacts	Specification 1	Specification 2	Fiedler et al. (2019) estimate
Memo: FY 2019 state tax revenues (\$ billions)			
United States	\$1,072.5	\$1,072.5	\$1,072.5
Illinois	\$42.5	\$42.5	\$42.5
Coefficient estimate	-2.0%	-3.8%	-3.7%
Implied impact on state tax revenues for 1 pp increase in U rate (\$ billions)			
United States		-\$40.4	-\$39.7
Illinois	-\$0.87		-\$1.57
Implied impact on state tax revenues by severity of contraction (\$ billions)			
United States			
Low		-\$161.6	-\$158.7
Medium		-\$282.7	-\$277.8
High		-\$403.9	-\$396.8
Illinois			
Low	-\$3.5		-\$6.3
Medium	-\$6.1		-\$11.0
High	-\$8.7		-\$15.7
Fiscal years	1990-2017	1990-2017	1985-2018
National unemployment rates and state tax revenues	No	Yes	Yes
Illinois unemployment rates and state tax revenues	Yes	No	No

Source: Author's calculations based on data from the Census Bureau, Bureau of Labor Statistics, and the National Association of Budget Officers.

Using my 2.0% elasticity estimate, I estimate that a one percentage point increase in the state's unemployment rate results in nearly an \$870 million decrease in Illinois state tax revenues. The implied range of possible revenue impacts is from -\$3.5 billion to -\$8.7 billion on an annual basis, depending on the severity of the contraction (Table 1). Given the state's FY 2019 tax revenues of \$42.5 billion, these revenue impacts are significant.

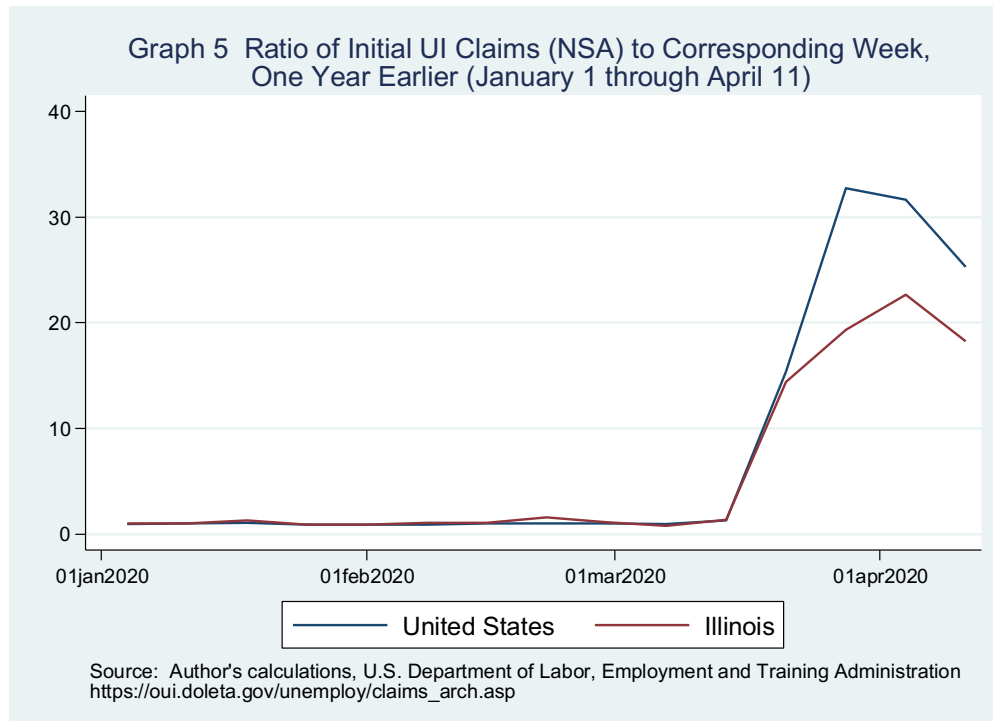
For comparison, I note two other recent estimates of the COVID-19 pandemic on state tax revenues. The first set, from the University of Illinois Institute of Government and Public Affairs (IGPA), suggests a two-year negative impact on state tax revenues between \$4.3 billion and \$14.1 billion in the event of a short downturn followed by a "strong and fast" recovery, with even greater impacts for scenarios with more protracted declines and recoveries (Institute of Government and Public Affairs 2020). The IGPA figures reflect only the "big 3" state taxes: individual income, corporate income, and sales taxes. The estimates presented in Table 2 include *all* state revenues, because in the current context, nearly all state (and local government, for that matter) tax revenues are under pressure, not just the "usual" ones. For example, news reports suggest that COVID-19-related suspensions of economic activity have led consumers to sharply cut back overall spending but also to redirect spending away from certain goods and services (restaurants, hotels, travel) and towards others (groceries and alcohol for home consumption), thus affecting other tax revenues (e.g., motor fuel taxes). Overall tax revenues will better reflect these changes in spending patterns.

A second set of estimates comes from Governor's Office of Management and Budget in Illinois (GOMB), which forecasts a \$2.7 billion decrease in FY 2020 revenues, followed by FY 2021 decreases between \$6.2 billion and \$7.4 billion (Governor's Office of Management and Budget 2020). GOMB's FY 2021 figures include a \$1.2 billion short-term loan repayment and depend on whether Illinois voters approve a state constitutional amendment on the ballot in November; the amendment would allow the state to convert its flat individual income tax rate structure to a graduated rate structure, one that seeks to raise more revenues from top income earners and more revenues for the state overall than under the status quo flat tax.

A few other points to note: my estimates from Specification 2, which relates national aggregate state tax revenues and the national unemployment rate, imply negative aggregate state tax revenue impacts of about \$40 billion per percentage point increase in the unemployment rate, similar to estimates prepared and discussed by Fielder et al. (2019). Arguably, this estimate could be an understatement in the current circumstances: as a recent post on *TaxNotes* states, "[i]f the Viruscession affects state taxes similarly to the Great Recession, state governments might experience income and sales tax reductions of roughly \$40 billion to \$45 billion in the short run (the remainder of fiscal 2020), possibly rising to as much as \$100 billion over a year (perhaps fiscal 2021). Total state government taxes could decline by 8 to 10 percent, or as much as \$110 billion" (Fisher and Wassmer 2020). The Center on Budget and Policy Priorities is also quite pessimistic, arguing that fiscal impacts are likely to far exceed those felt during and after the Great Recession (McNichol, Leachman, and Marshall 2020). Finally, the revenue estimates of Table 2 are intended to be illustrative only, as the actual timing and depth of the contraction and subsequent recovery will only be known much later.

In fact, some limited evidence suggests that the employment situation in Illinois may deteriorate at least somewhat less than that of the nation as a whole, since the composition of Illinois's workforce may be less vulnerable to layoff risk compared to the nation's. In a pair of recent blog posts, economists at the

Federal Reserve Bank of St. Louis have estimated that, for the nation as a whole, 46% of workers are employed in occupations deemed at “high risk” of unemployment—namely workers whose work is not considered “essential”, cannot be completed off-site, and/or is compensated via hourly wages. The authors find that Illinois was in the bottom quintile of states, with “only” 44.2% of its workforce in high-unemployment-risk occupations (Gascon 2020; Gascon and Werner 2020). Consistent with that view, the most recent data on initial unemployment insurance claims indicate while the explosion in claims in the latter half of March and into April was widespread, it was worse for the nation as a whole than for the state of Illinois (Graph 5), where recent claims were “only” 20 times year earlier levels, compared to 25 to 30 times for the country overall.

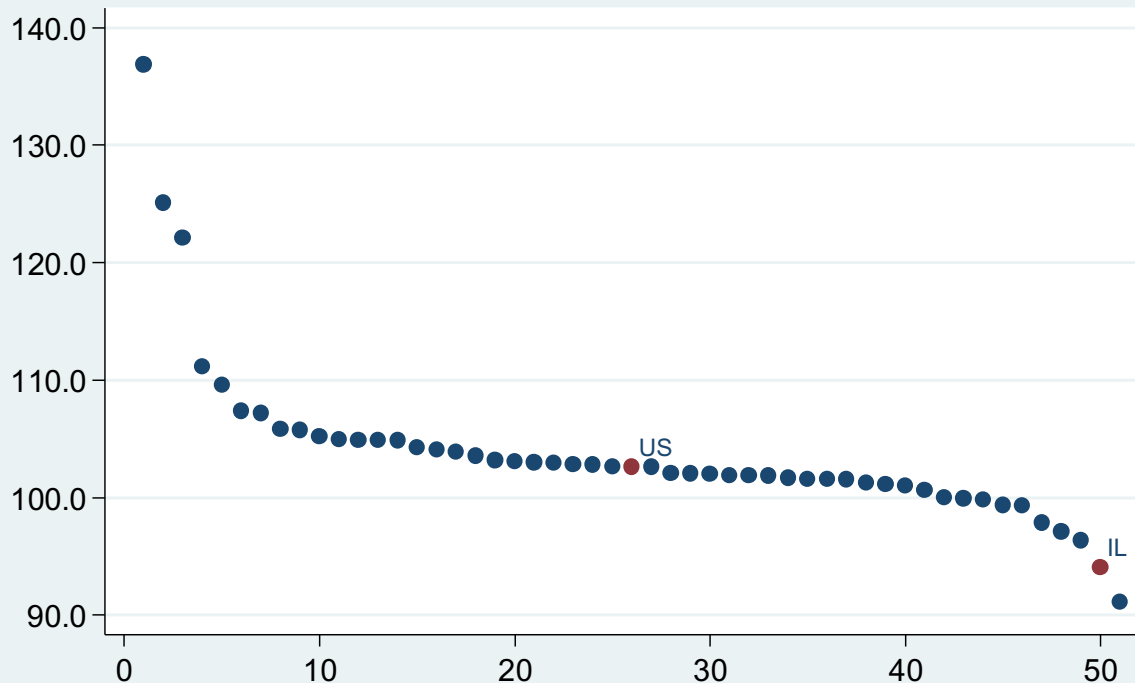


### **Illinois: Among the Nation’s Most Fiscally Vulnerable States**

Illinois’s “pre-existing conditions” were poor going into the COVID-19 crisis, most analysts agree. A typical but hardly unusual assessment comes from the Mercatus Center’s ranking of states by fiscal condition: “On the basis of its solvency in five separate categories, Illinois ranks 50th among the US states for fiscal health” according to a recent study (Norcross and Gonzalez 2018). More recently, the Volcker Alliance published state budget “report cards” and identified Illinois as a poorly performing state, particularly in three of their five categories: budget maneuvers, legacy costs, and reserve funds (The Volcker Alliance 2020). Here, I highlight a few selected indicators that show why and how Illinois is in particularly poor condition to weather this COVID-19 storm.

First, the state has consistently spent beyond its means, running structural budget deficits for years (Merriman, Guo, and Qiao 2018). Analysis by Pew Charitable Trusts shows that the state has consistently failed to collect revenues sufficient to cover its spending over the 2004-2018 period (Graph 6).

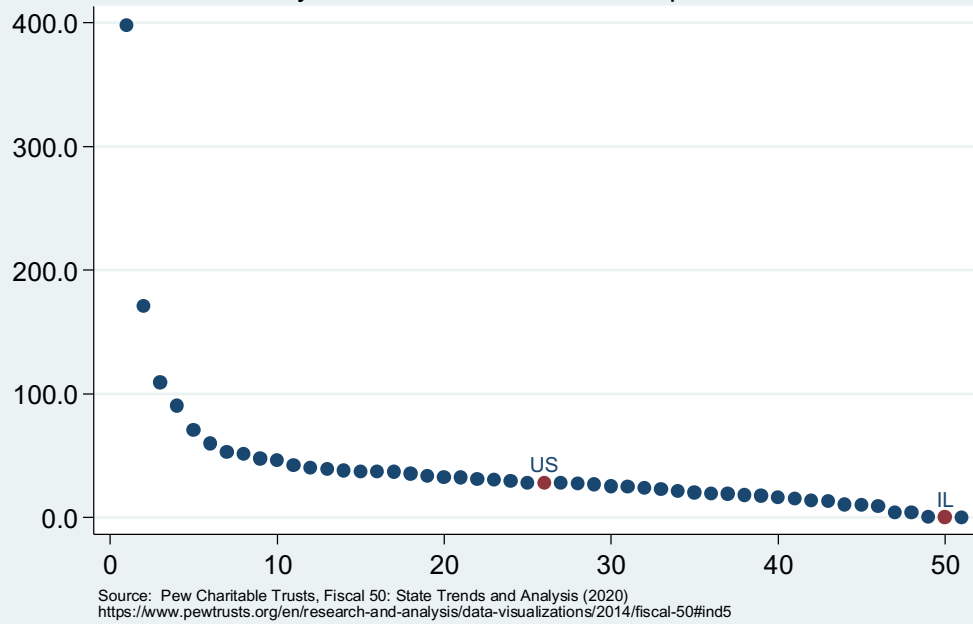
Graph 6 Total Revenue as Percent of Total Expenditures  
2004-2018



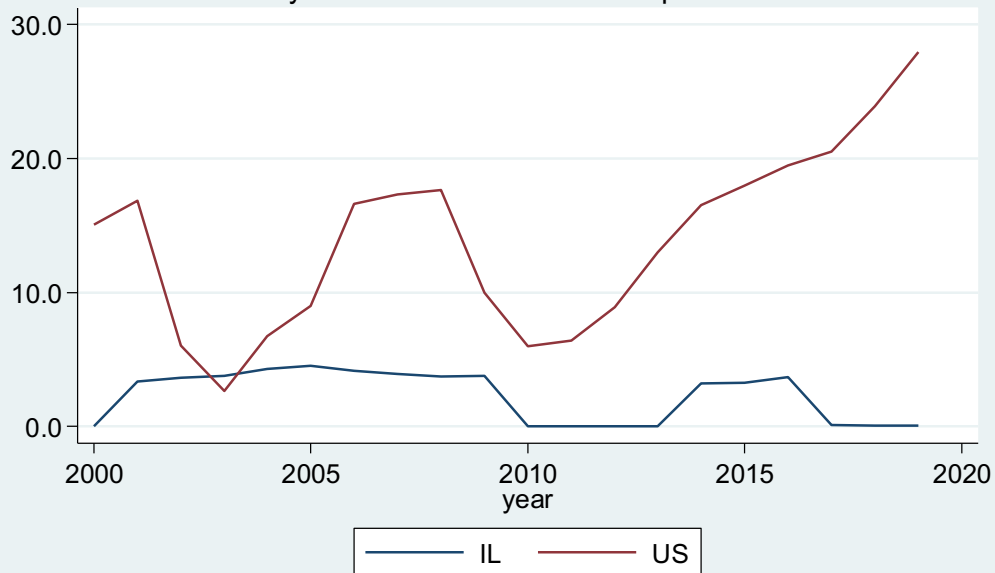
Source: Pew Charitable Trusts, 9 States Struggle with Long-Term Fiscal Imbalances (2020)  
<https://www.pewtrusts.org/en/research-and-analysis/articles/2020/03/18/9-states-struggle-with-long-term-fiscal-imbalances>

The state has also failed to “save up” for the proverbial rainy day, a fiscal “best practice” that allows states to absorb at least some recession-related revenue and expenditure impacts (Walczak and Cammenga 2020; Murphy, Bailey, and Loiaconi 2019; Tax Policy Center 2018). Data collected by the National Association of Budget Officers and made available by Pew Charitable Trusts indicate that Illinois has essentially no rainy day funds available to buffer any negative revenue impacts (Graph 7) and that, unlike many other states, Illinois failed to use the post-Great Recession expansion to build up any buffer of funds (Graph 8).

Graph 7 Rainy Days Funds, FY2019  
Days Worth of General Fund Expenditures



Graph 8 Rainy Days Funds, FY2000 to FY2019  
Days Worth of General Fund Expenditures



In addition to running structural operating deficits for years and failing to fund reserve funds, the state has consistently underfunded its state pension plans and other post-employment benefit programs, implying significant unfunded liabilities (Worthington 2020a). The state's own Commission on Government Forecasting and Accountability estimated unfunded state pension fund liabilities of \$137.2 billion and a funded ratio of only 40.3% as of June 30, 2019. Making the contributions needed to avoid increasing unfunded liabilities, or the even larger contributions needed to bring those unfunded liabilities down, will be even harder going forward, as the state's tax revenues decrease in the current contraction.

## Conclusions

State policymakers must make difficult budgetary choices. As this short paper shows, Illinois state tax revenues are likely to take a significant hit from the COVID-19 crisis, and the options available in Illinois are likely to be fewer and less desirable than those for many states. Illinois can respond by raising taxes, cutting spending, stretching out bill payments, drawing down reserves, explicit borrowing, and/or cutting back on contributions to state retirement and OPEB systems. None of these options is particularly appealing:

- *Raising taxes:* Illinois used this technique in the years following the Great Recession, and, pending voter approval in November 2020, may do so again as of January 1, 2021—and the graduated income tax proposal was touted as a needed structural reform even *before* the current fiscal crisis.
- *Cutting spending:* As Graph 6 above shows, the state has consistently failed to align revenues with expenditures. If revenue options are limited, will this crisis finally push the state to curtail spending it can no longer afford?
- *Running a tab:* The state's current backlog of unpaid bills is \$7.9 billion (State of Illinois 2020), so the state has already exercised that option, again even prior to the crisis.
- *Drawing down reserves:* In brief, the state lacks this option because it essentially has no reserves—either in terms of rainy day funds (Graph 7), or in terms of unemployment insurance trust funds (Worthington 2020b).
- *Explicit borrowing:* Illinois has already announced plans to issue up to \$1.2 billion in debt in May to plug its budget hole in FY 2020, and it seems like the state will also borrow from the federal government to shore up its unemployment insurance trust fund (Governor's Office of Management and Budget 2020; Worthington 2020b). Future actions by credit ratings agencies will affect borrowing costs in the municipal bonds market, a nontrivial issue given recent negative changes in credit outlook for the state (Schuster 2020).
- *Decreasing pension and OPEB contributions:* Extending amortization periods, taking pension holidays, issuing pension obligation bonds—all are possible responses, but all will worsen funding and liquidity conditions at the state's pension funds.

Overall, Illinois leaders—and leaders of other states as well-- must choose a mix of responses that allow them to provide essential services in a world of severely curtailed resources. While the federal government has already acted to provide fiscal support to states, primarily by establishing more generous temporary reimbursement rates for Medicaid and by defraying COVID-19-related public expenditures, states will need far more federal resources to counteract the double whammy of falling tax revenues and sharply increased public health, public safety, and social assistance expenditures (Institute of Government and Public Affairs 2020; Fiedler and Powell III 2020; Worthington 2020b; McNichol, Leachman, and Marshall 2020). While some belt-tightening is likely appropriate, slashing state spending too aggressively to meet balanced-budget requirements could act as a significant drag on GDP growth during a recovery (Belz and Sheiner 2020). Future work will explore the potential for state policy choices on taxes and spending, alongside federal fiscal assistance, to mitigate Illinois's COVID-19-driven fiscal challenges.

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