



# Budget Model

## Lasting Macroeconomic Impacts of the Coronavirus Crisis, Absent Fiscal Policy Response

**Summary:** We estimate the lasting macroeconomic effects of the anticipated recession due to coronavirus, as the initial shock leads to lower federal revenue and higher debt. If the economy recovers the year after a deep recession ("V shape"), we project that federal debt will be 3.2 percent higher and GDP will be 0.3 percent lower by 2030. If the recovery occurs over two additional years ("U shape"), federal debt rises by 5.9 percent and GDP falls by 0.6 percent lower by 2030. Barring future fiscal policy to reduce debt, so-called "potential GDP" will, therefore, be permanently lower due to the coronavirus.

### Introduction

Regardless of how deep the coronavirus-induced recession turns out to be, there will be lingering adverse impacts on the longer-term economy even without new fiscal policy measures. The actual impact will depend on how quickly the recovery takes hold. While some commentators have expressed concerns about the additional debt that federal stimulus spending would create, the recession itself will create additional debt. As economic activity slows during a recession, federal revenues shrink. In the absence of changes in federal spending, deficits and debt will, therefore, increase. This increased debt [crowds out](#) private investment and leads to lower future output and income.

During the 2007-2009 Great Recession, the [Congressional Budget Office](#) (CBO) estimated that GDP fell well below "potential GDP," defined as the maximum sustainable output of the economy. According to CBO's estimate, GDP fell by 5.6 percent relative to potential GDP in 2009 and remained significantly below potential through 2016. Many macroeconomic forecasters [now predict](#) the immediate, short-term loss of GDP in the coronavirus-induced recession will be much larger. Using our [dynamic model](#), this blog reports PWBM estimates of the long term effects on debt and GDP related to the effects of coronavirus absent any additional fiscal policy change.<sup>1</sup>

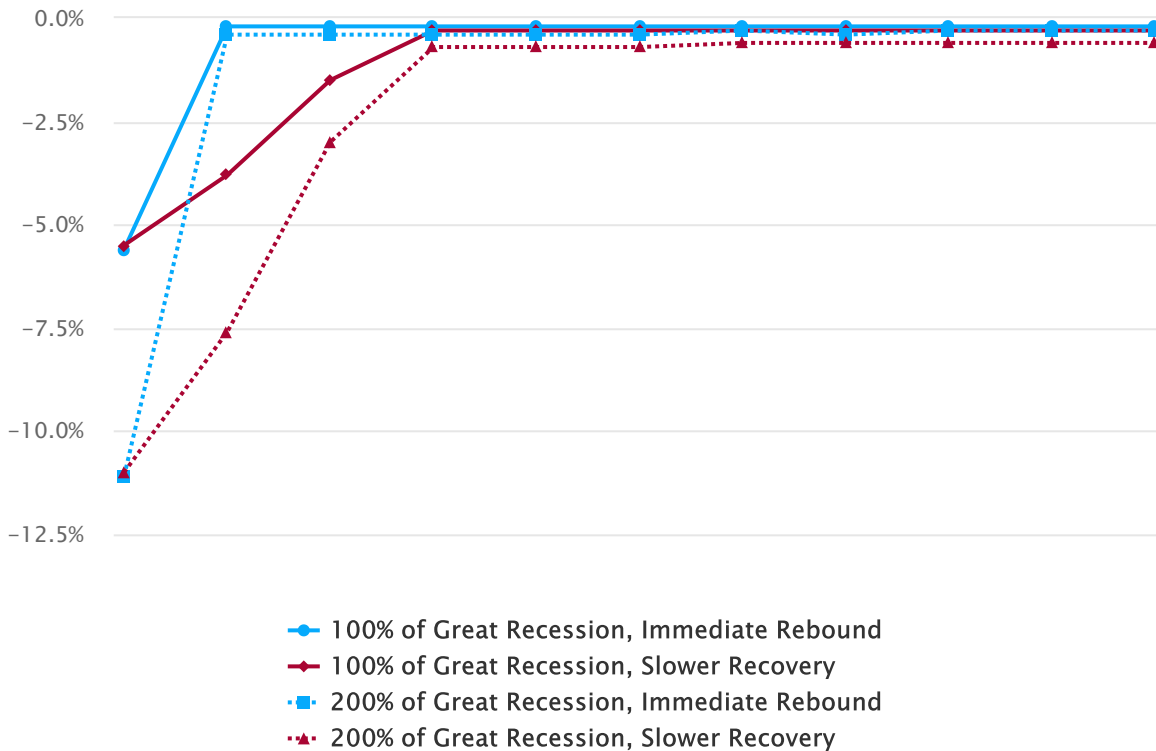
### Four Recession Scenarios

Figure 1 shows the simulated path of GDP for four different scenarios. We consider two *initial* recession scenarios: a fall in 2020 GDP equal to the size of the Great Recession as well as a fall in 2020 that is twice as large. For each initial recession scenario, we consider two *recovery* scenarios: a "V shape" recovery where the economy recovers in one year (by end of 2021) if there were no debt effects, and a "U shape" recovery that takes two additional years (2022). GDP does not fully recover to the baseline economy before coronavirus due to debt effects.

### Figure 1. GDP Under Simulated Recession Scenarios

Percent Change from Baseline

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#### Macroeconomic Effects: Immediate Rebound Scenarios

Table 1 shows the five- and ten-year effects for a larger set of macroeconomic variables for the scenario when the initial shock only lasts for one year. The drop in GDP leads to a fall in revenues, which leads to additional federal debt. This additional debt crowds-out private capital, which has long-lasting effects on wages and GDP.

Table 1. Economic Effects of a Recession, Immediate Rebound

Percent Change from Baseline

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- Size of Recession: 100% of Great Recession
- Size of Recession: 200% of Great Recession

**Size of Recession: 100% of Great Recession**

Year	GDP	Capital stock	Average Hourly Wage	Hours Worked	Debt
2025	-0.2%	-0.6%	-0.2%	0.0%	1.5%
2030	-0.2%	-0.5%	-0.2%	0.0%	1.6%

**Size of Recession: 200% of Great Recession**

Year	GDP	Capital stock	Average		Debt
			Hourly Wage	Hours Worked	
2025	-0.3%	-1.2%	-0.4%	0.1%	3.0%
2030	-0.3%	-1.0%	-0.4%	0.1%	3.2%

When the initial shock is the same size as the Great Recession, federal debt increases by 1.5 percent in 2025 and 1.6 percent in 2030, which leads to a drop in private capital of 0.6 percent in 2025 and 0.5 percent in 2030 due to crowding out. Less capital leads to slightly lower wages and GDP, both of which are 0.2 percent lower in 2025 and 2030.

When the initial shock is twice as large as the Great Recession, the larger drop in output results in a larger loss in revenue. Federal debt increases by 3.0 in 2025 and 3.2 in 2030, which crowds out additional capital. Capital drops by 1.2 percent in 2025 and 1.0 percent in 2030, which leads to a 0.3 percent fall in GDP and 0.4 percent fall in wages in both years.

**Macroeconomic Effects: Slower Recovery Scenarios**

In Table 2, we show the same macroeconomic results for the scenarios in which productivity recovers more slowly. The drop in output is longer-lived in these scenarios, which leads to a larger drop in revenues and a larger increase in debt.

Table 2. Economic Effects of a Recession, Slower Recovery

*Percent Change from Baseline*

**DOWNLOAD DATA**

- Size of Recession: 100% of Great Recession
- Size of Recession: 200% of Great Recession

**Size of Recession: 100% of Great Recession**

Year	GDP	Capital stock	Average		Debt
			Hourly Wage	Hours Worked	
2025	-0.3%	-1.1%	-0.4%	0.1%	2.7%
2030	-0.3%	-0.9%	-0.3%	0.1%	2.9%

**Size of Recession: 200% of Great Recession**

Year	GDP	Capital stock	Average		Debt
			Hourly Wage	Hours Worked	
2025	-0.7%	-2.2%	-0.8%	0.2%	5.4%
2030	-0.6%	-1.9%	-0.7%	0.1%	5.9%

When the initial shock is the same size as the Great Recession, but the shock persists,<sup>2</sup> federal debt is 2.7 percent higher in 2025 and 2.9 percent higher in 2030. The additional debt crowds out capital, which is 1.1 percent lower in 2025 and 0.9 percent lower in 2030. As before, this leads to lower wages and output, both of which are 0.3 percent lower in 2030.

When the initial shock is twice the size as the Great Recession, but the shock persists,<sup>3</sup> federal debt increases by 5.4 percent in 2025 and 5.9 percent in 2030. As before, this crowds out capital, causing the capital stock to be 2.2 percent less in 2025 and 1.9 percent less in 2030. This larger decline in the capital stock, compared to the immediate recovery scenarios, leads to a significantly higher drop in GDP and wages—GDP falls by 0.7 and 0.6 percent and wages fall by 0.8 and 0.7 percent in 2025 and 2030, respectively.

Depending on the ultimate mix of policies enacted by Congress, the long-run effects of the pandemic on federal revenues, debt, and GDP could change significantly. PWBM will reevaluate its analysis as Congress proposes additional stimulus, fiscal policy, and tax policy changes.

Regardless, this blog shows that future fiscal policy action is required to avoid a permanent reduction in potential GDP.

*This analysis was produced by [Marcos Dinerstein](#) and [Jon Huntley](#).*

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1. In our dynamic model, we represent this short-term shock through lower total factor productivity (TFP). Lower TFP leads to less GDP being produced by both labor and capital, which reflects the anticipated challenges confronting the U.S. economy. ↩
  2. Represented in our model as a productivity drop of 5 percent in the first year, 3 percent in the second year, and 1 percent in the third year. ↩
  3. Represented in our model as a productivity drop of 10 percent in the first year, 6 percent in the second year, and 2 percent in the third year. ↩