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Budget Model

Summary: PWBM projects that the ongoing coronavirus pandemic reduces the OASDI trust fund depletion date by four years, from 2036 to 2032, under the "U-shaped" recession projected by PWBM. If the recovery is faster ("V-shaped"), the trust depletion date falls by two years, from 2036 to 2034. The conventionally-measured OASDI 75-year actuarial balance worsens between 0.07 and 0.13 percent of future payroll.

The Impact of the Coronavirus Pandemic on Social Security's Finances

Introduction

The coronavirus pandemic has had human and economic costs, with nearly 100,000 total deaths in the United States and more than 36 million new claims for unemployment benefits. The pandemic and policy responses to it will have long-term consequences for the federal budget and economy. The annual Social Security Trustees Report, released on April 22, 2020 relied on a pre-pandemic baseline. This post presents Penn Wharton Budget Model (PWBM) projections of how the coronavirus pandemic will affect the finances of the Social Security program.

Reductions to Revenue

The coronavirus pandemic lowers nominal Social Security revenue in three primary ways. First, the loss of jobs, especially concentrated among low-wage workers, reduces payroll tax revenues. The size of this effect increases with the length of the recession. Second, lower interest rates reduce the interest income received by the Trust Fund. Third, a prolonged period of low inflation reduces earnings for all workers and, therefore, reduces tax revenue received by the Trust Fund.

Reductions to Costs

The pandemic also lowers nominal Social Security costs in three ways. First, the coronavirus increases mortality rates (skewed towards those of retirement age), which reduces total benefits paid out of the Trust Fund. Second, lower inflation reduces the Cost of Living Adjustment (COLA) adjustment to benefit payments. Third, initial benefits claimed at retirement fall due to two factors: (a) depressed earnings history of beneficiaries, many of whom lost their jobs; (b) a reduction in the Average Wage Index (AWI) factor that is applied to initial benefits. The smaller AWI reduces benefits even for near retirees who maintain their employment during the pandemic.[1]

Projection: Trust Fund Depletion

The first column in Table 1 presents the depletion date for the Trust Fund under four different scenarios. The first scenario reports the 2020 projection recently released by the Trustees that does not include the effects of the pandemic. For comparison, we include the PWBM pre-pandemic baseline as the second scenario. The final two scenarios show PWBM projections under two different assumptions about the pandemic-induced recession. The third scenario assumes a "V-shaped" recession characterized by a quick recovery. Under this scenario, the depletion date is moved forward two years, from 2036 to 2034, compared to the pre-pandemic baseline. The fourth scenario is a "U-shaped" recession with a more gradual recovery. Under a slower recovery, the depletion date is moved forward by four years, from 2036 to 2032.

## Table 1. OASDI Trust Fund Depletion Date Under Four Scenarios: Conventional Estimates

	Trust fund depletion year	75-year actuarial balance, 2020-2094 (%)
Pre-pandemic baselines:		
SSA	2035	-3.21
PWBM	2036	-3.08
PWBM post-pandemic baselines:		
V-shaped pandemic	2034	-3.15
U-shaped pandemic	2032	-3.21
Mortality shock only	*2036*	*-3.07*
U-shaped employment shock only*	*2035*	*-3.09*
U-shaped inflation shock only	*2035*	*-3.08*
U-shaped interest shock only	*2034*	*-3.23*

* Includes reductions to AWI factor, as discussed in text.

Actuarial Balance Ratio

The "annual balance ratio" represents the difference between annual costs (including all benefit expenditures) and revenues (excluding interest income) divided by annual taxable payrolls under each scenario. Figure 1 reports the actuarial balance ratio on an annual basis. The second column in Table 1 reports a standard long-term metric – the summarized annual balance ratio over the next 75 years, with costs, revenues, and payrolls each present-valued over the projection horizon. Under the "V-shaped" recession, we project that the coronavirus pandemic worsens the 75-year actuarial balance, raising the shortfall from 3.08 percent of future taxable payroll to 3.15 percent. Under the "U-shaped" recession, the 75-year actuarial deficit worsens to 3.21 percent of future taxable payroll.

Figure 1. Social Security's Annual Non-Interest Income Balance as a Share of Taxable Payroll under each scenario
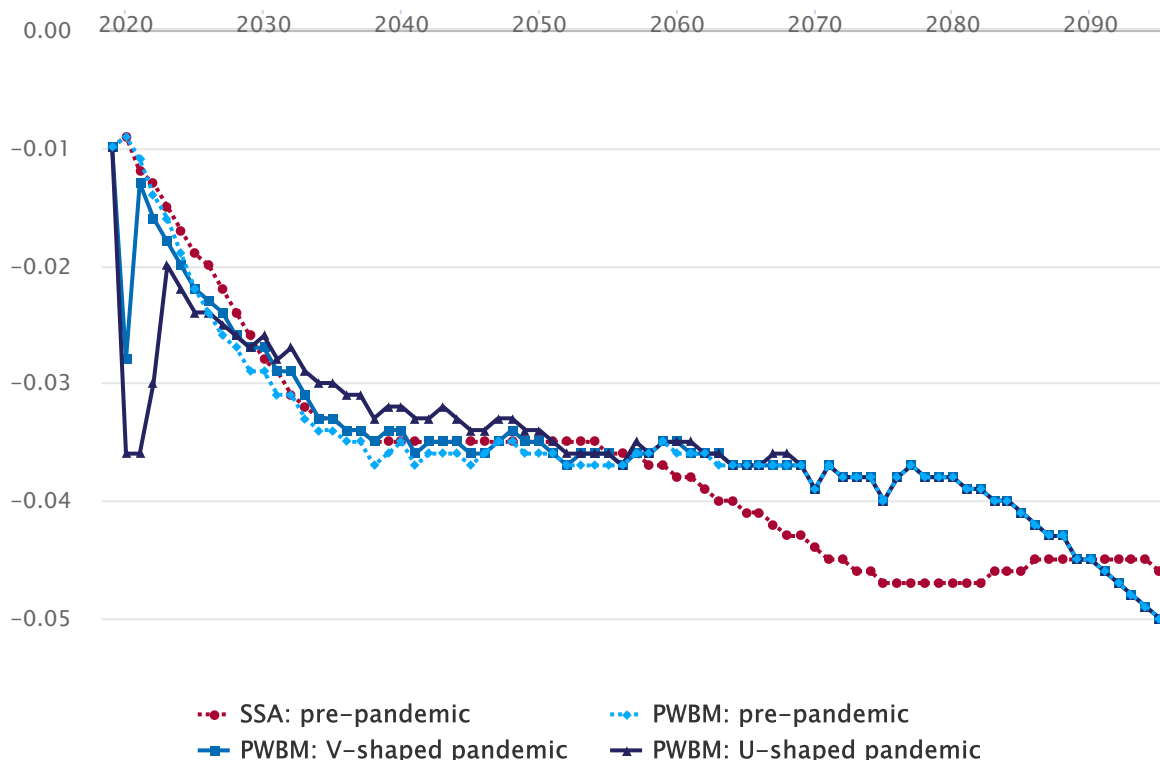
Individual Components

For the "U-shaped" recession, Table 1 also reports the individual effects of major components that changed due to the coronavirus pandemic, with each component compared to the PWBM pre-pandemic baseline. Notice that changes in mortality alone have no impact on the Trust Fund depletion date while having an almost neutral impact on the 75-year actuarial balance, improving it from -3.08 to -3.07 of future payroll. The employment shock and inflation shock each reduce the Trust Fund exhaustion date by one year but have an almost neutral effect on the 75-year actuarial balance due to smaller long-run benefits being paid. In contrast, the fall in interest rates account for more than 100 percent of the worsening 75-year actuarial imbalance.

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1. Newly eligible beneficiaries this year (who becomes 62), their average indexed monthly earnings (AIME) is replaced with 90 percent rate up to $960 and then the next segment is replaced by 32 percent up to $5,785, then 15 percent is applied to the remaining covered earnings. These thresholds, $960 and $5785, grew from last year's values, $926 and $5,583, as the average wage index (AWI) continues to grow in 2018 (the indexation is based on two-year-lagged AWI). Once 2020's reduced AWI is applied to determine PIA bend points for newly eligible beneficiaries in 2022, they may see contracted bend points, resulting in lower replacement and smaller benefits. ↵