

PWBM's Social Security Module

PWBM's Social Security Simulator contains three main components:

- PWBM Microsimulation
- Social Security Tax and Benefit Calculator
- Dynamic OLG Policy Estimator

PWBM Microsimulation

A detailed description of PWBM's microsimulation can be found [here](#). For the purposes of this documentation, it's sufficient to note that the microsimulation generates earnings histories for individuals over their working careers. Their longitudinal earnings records, together with simulated longitudinal information on marriages, divorces, number of children, retirement and death are fed into the Social Security tax and benefit calculator. The microsimulation is the workhorse for generating conventional (or "conventional") economic and budget projections under current and alternative fiscal policies. When simulating the effects of Social Security policies, PWBM microsimulation outputs are adjusted to take account of dynamic responses by individuals to changing economic conditions. For example, unbalanced tax and spending policies that lead to large accruals of national debt relative to GDP would induce different individual economic choices in the future relative to balanced policies. Dynamic adjustments to conventional policy projections are therefore needed to take account of changing macroeconomic conditions as the new policy matures and become fully effective.

The dynamic adjustment appropriate for making baseline projections and projections under each type of policy change are calculated using [PWBM's dynamic overlapping generations model \(OLG\) model](#), which is calibrated to key features of the microsimulation's

output (and, by extension, to key features of the U.S. economy) in the “base year.” The base year is the year just before the output of the microsimulation, integrated with the dynamic OLG model, delivers future projections of policy effects.

PWBM’s microsimulation, which incorporates highly detailed individual and family level attributes, is validated against historical US micro-data and yields, what we believe is a more accurate “conventional” or “first stage” projection of Social Security’s finances. Moreover, we believe PWBM’s microsimulation is able to capture in dollar levels the conventional effects of policy changes on Social Security’s finances and the economy. The dynamic OLG model, although less detailed in its representation of U.S. demographic and economic features, models key micro restrictions on family budgets, dynamic laws of motion for family assets and response elasticities calibrated to information from the economics literature. The dynamic OLG model captures “feedback effects” of policy changes as individuals respond to changes in macroeconomic conditions over time arising under current or alternative fiscal policies. The methods by which the two models are integrated and used to derive dynamic projections under (Social Security or other) policy changes on Social Security’s finances and the U.S. economy are described below.

PWBM’s Social Security Tax and Benefit Calculator

A. Social Security Taxes

PWBM’s Social Security tax and benefit calculator applies Social Security’s historical and projected tax rates (under current and alternative policy assumptions) to simulated longitudinal earnings histories.¹ Year specific tax rates for Old Age and Survivor’s Insurance

¹ PWBM’s microsimulation produces demographic and economic characteristics of simulated individuals beginning in the year 1996. Pre-1996 earnings histories of are derived from the Social Security Administration’s [2006 Earnings Public Use File](#). The simulation of those earnings histories is implemented by matching simulated individuals to sub-samples in the 2006 Earnings

(OASI) taxes and Disability Insurance (DI) taxes are applied to earnings up to the taxable maximum (\$128,400 in 2018). The taxable maximum threshold changes each year based on changes in the national average wage index (AWI), the latter being computed internally by PWBM's Social Security simulator, which uses individuals' simulated earnings histories.

The Social Security simulator reduces gross wages subject to the employee and employer portions of the payroll tax appropriately when payroll taxes are increased. The wage reduction is predicated on keeping total worker compensation (including employer payroll taxes) constant. Such wage adjustments imply that economy-wide wages and the wage index projection used to determine annual payroll tax and benefit parameters would be different under a new payroll tax policy. These effects imply that a new payroll tax policy would change projections of future wages and benefits. A payroll tax increase today would, under general equilibrium calculations, result in lower gross wages beginning immediately after the policy change and lower Social Security benefits in the long term. Aggregating OASDI payroll taxes across all individuals alive in a given year yields that year's total payroll taxes. Total benefits taxes are calculated at the aggregate level, consistent with the Social Security Trustees' assumptions.

B. Social Security Benefits

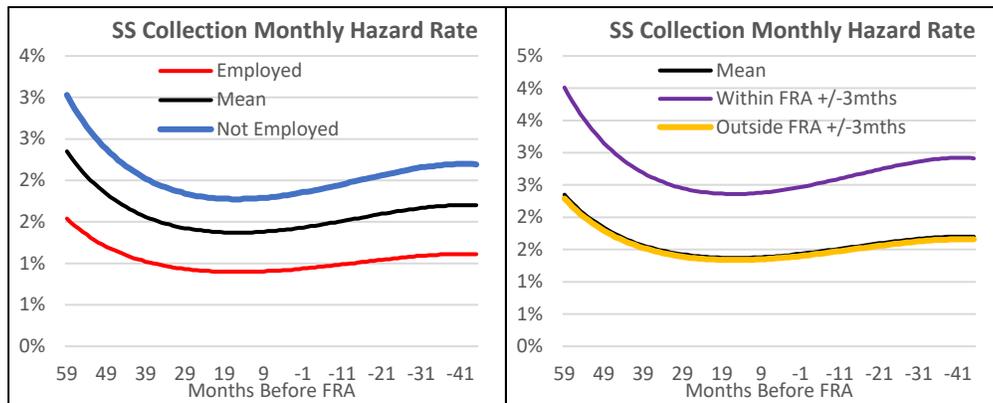
(i) Benefit Collection Age

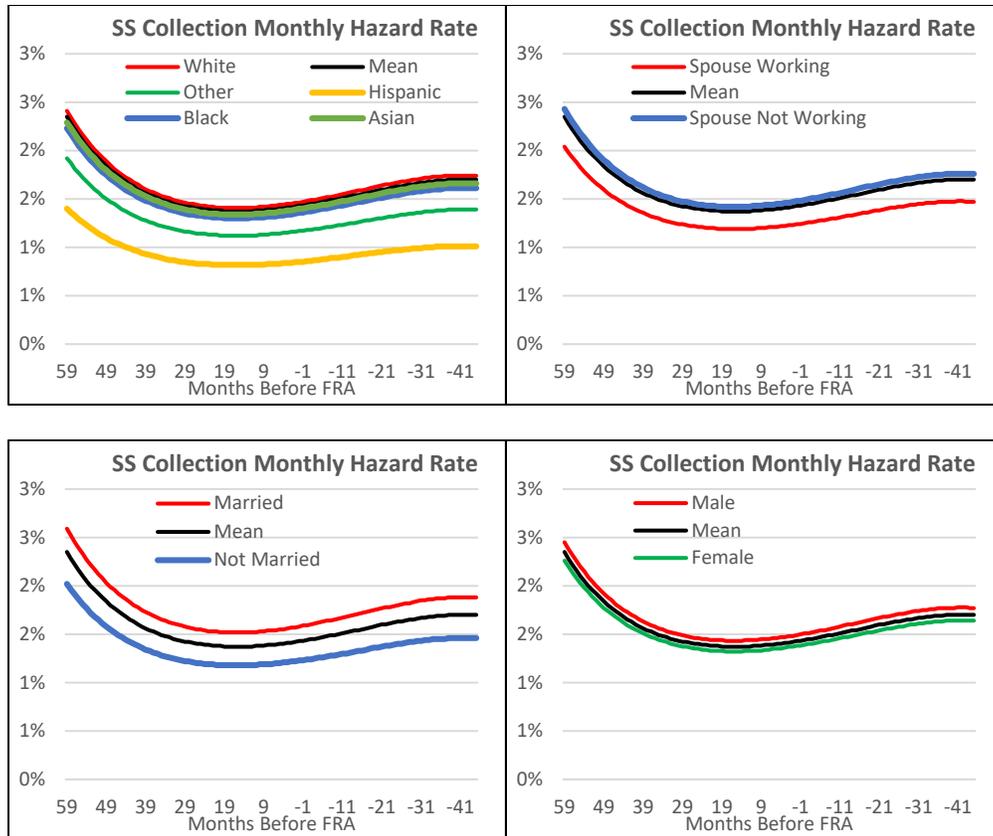
Public-Use File. Matches are based on gender, year-of-birth and average indexed earnings during 1996-2006. In addition to earnings, information on annual quarters of coverage (credits based on quarterly or annual employment history) is added to simulated individuals from the matched 2006 PUF record. With earnings matched in this manner, computed benefits are too low relative to SSA's published aggregates. Thus, additional benefit imputations are implemented, especially for older individuals, who are subject to the old-law Social Security benefit formula and for the survivors of workers who died before 1996. The amounts and likelihood of additional benefit imputations by gender, race and age are calibrated using the year-[2000 Annual Statistical Supplement](#) and the year. Imputed benefits evolve over time and can potentially generate additional auxiliary benefits.

First, PWBM’s Social Security benefit calculator simulates the age (and year) of first collection when each worker begins collecting Social Security retirement benefits. The simulation is based on benefit-collection hazard rates estimated from the Current Population Survey’s longitudinal data. Statistics on transitions into benefit collection status are calculated by tracking sample individuals across two adjacent years.

The fraction of those collecting Social Security benefits in the second but not in the first year constitutes the observed hazard rate out of the pool of those not collecting in the first year. Individual observations of transitions into collecting benefits are regressed against demographic controls such as age (relative to full retirement age), gender, race, education, marital status, etc. The estimated hazards behave in the expected manner. For example, the following groups are less likely to begin collecting benefits at any given age: unmarried individuals, those currently working, married individuals with working spouses, those with age (in months) outside three months of turning age 62 and those not within three months of full retirement age (FRA). Figure 1 shows the profile and retirement hazard rates for selected individual attributes across the months before and after reaching FRA.

Figure 1: Benefit Collection Hazard Rates by Demographic Attributes





Source: Calculations by PWBM staff.

(ii) *Social Security Benefit Amounts*

Retirement benefits are computed according to Social Security’s [Wage-Indexed Method](#).² Based on a worker’s Primary Insurance Amount (PIA), auxiliary benefits are computed for eligible family members. PWBM’s Social Security benefit calculator supports detailed features of current law benefit rules as described below:³

Assumptions:

- a. *Demographic assumptions:* A detailed discussion is available in the [microsimulation documentation](#).

² See http://www.havard.com/Docs/OASDI_Digest_2004.pdf

³ Some benefit computations cannot be simulated at the individual level. The current version of PWBM’s microsimulation does not project disability transitions into and out of the Disability Insurance program. Disability benefits are related to disability status (disability insurance benefits, disabled adult child benefits, disabled spouse benefits), which are computed by estimating the share of benefits by age and gender, consistent with Trustees’ projections and added to aggregate numbers.

b. *Economic Assumptions:*

Trust Fund Interest Rates: PWBM projects that the interest rate on 10-year Treasury notes will rise to 4.3% in the long term. This projection is based on PWBM's expectations for economic growth and monetary policy, as well as an empirical model of the yield curve.⁴

Labor productivity: PWBM projects that labor productivity (real GDP per worker) will grow at an average annual rate of 1.2% in the long term. In PWBM's microsimulation model, each individual's employment status and labor efficiency are simulated based on demographic and economic attributes (for example, age, education and recent work history). Labor efficiency is a measure of how productive a person is in comparison to others. If an individual is employed, the amount of output they produce depends on their simulated efficiency, the stock of physical capital and multifactor productivity. Total labor productivity (output per person or per hour worked) is an output of the simulation rather than an exogenously determined time series of (parameter) inputs.

Inflation Rate: The microsimulation assumes that Consumer Price Index for Wage and Clerical Workers (CPI-W) rises by an average of 2.2% annually based on two assumptions: First, PWBM expects the Federal Reserve to set monetary policy such that growth in the Personal Consumption Expenditures (PCE) price index averages slightly less than their official target of 2% in the long term. Second, PWBM expects the gap between the growth rates of the CPI-W and the PCE price index will remain close to its average over the last two decades (about 25 basis points).

c. *Benefit Calculations*

Quarters of coverage (QC): Historical nominal wage earnings are compared to the earnings thresholds per quarter published by SSA. QCs are assigned according to the level of earnings relative to earnings thresholds for one, two, three and four QCs per year.

⁴ See <https://www.sas.upenn.edu/~fdiebold/papers/paper49/Diebold-Li.pdf>.

Average Indexed Monthly Earnings (AIME): The historical wage index is used for years before the starting year of the microsimulation (1996). Beginning in 1996, the Average Wage Index is computed using the microsimulation's average wages.

Primary Insurance Amount (PIA): The PIA is computed with bend point factors set to 90 percent, 32 percent and 15 percent as under current law. The PIA dollar brackets are increased with the average wage index as described earlier.

Early Retirement reduction factors and delayed retirement credits: In the case of early retirements, benefits are reduced by five-ninths of one percent for each month before full retirement age (FRA) for up to 36 months. If the number of months exceeds 36, then the benefit is further reduced by five-twelfths of one percent per month for months of early retirement above 36 months. In the case of delayed retirements (between full retirement age and age 70), benefits are increased with yearly percentage by one to eight percent, depending on birth year.

Spousal benefit reduction factors for early retirement: Spousal benefits are reduced 25/36 of one percent for each month before FRA, for up to 36 months. If the number of months exceeds 36, then the benefit is further reduced five-twelfths of one percent for each month that exceeds 36 months.

Cost of Living Adjustment (COLA): The COLA used for indexing Social Security post-initial-retirement benefits is the CPI-W.

Deduction or suspension of benefits for work (annual and monthly earnings test): Earnings tests are applied for those working between age 62 through their full retirement age. The dollar thresholds are those provided by the Social Security Administration.

Adjustment of reduction for age: Those eligible for this adjustment include retirees, spouses and survivors entitled to benefits, who are between age 62 and FRA and for whom a work reduction was applied or the benefit was reduced before FRA because of dual eligibility to another benefit.

Spouse and divorced spouse benefits: Spousal benefits equal the amount needed to top off a spouse's own benefits so that total benefits equal at least one-half of the workers' PIA. The same formula applies to divorced spouses as long as they have not remarried before the age of 60.

Surviving spouse and surviving divorced spouse benefits: Survivors receive benefits equal to the worker's PIA if it is larger than their own retirement benefit. The same formula applies to divorced spouses as long as they have not remarried before the age of 60.

Child-in-care spouse benefits: Spouses with children in care under age 16 receive spousal benefits at any age. Child-in-care benefits cease once the child turns 16.

Child benefits: Unmarried children of retired workers under age 18, full-time students aged 18 and 19 or children older than age 18 with a disability that began before age 22 are paid Social Security child benefits.

Family maximum benefit (FMB): The FMB refers to the maximum monthly benefit amount that can be paid on a worker's record. The formula for the family maximum benefit is similar to the PIA bend point formula with different bend point factors and brackets.⁵

Lump-sum death payment: A one-time payment of \$255 to spouse (if present) or children (if present but there's no spouse).

Entitlement to more than one benefit: Children entitled to benefits on more than one earnings record are paid benefits corresponding to the earnings with the higher PIA. However, the benefit from the lower earnings record is paid if the benefit on that earnings record, before reduction for the family maximum, is higher. Similarly, a person may be entitled to more than one benefit, for example, old-age benefits and spousal benefits. However, a person's benefit amount cannot exceed the highest single benefit to which that person is entitled.

C. Social Security Calculator Validation

⁵ Details are available at: <https://www.ssa.gov/oact/cola/familymax.html>.

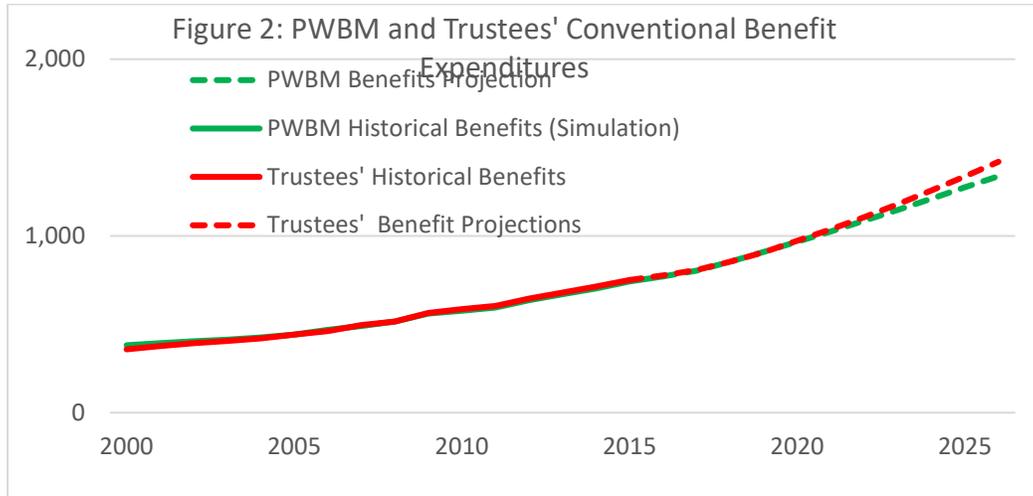
a. Individual Benefit Comparisons with the Social Security Administration's Official Calculator

PWBM's Social Security Benefit Calculator was tested against the Social Security Administration's calculator in a highly detailed manner. A dataset of individuals with a multitude of attributes related to retirement benefits was created and both calculators were employed to calculate Average Indexed Monthly Earnings (AIME), Primary Insurance Amounts (PIA) and payable benefits estimates. The dimensions along which individual attributes were varied include year of birth, month of birth, day of birth, month of retirement, benefit collection year, the year of benefit calculation (current year), the year of death, the year of benefit recalculation and the level of earnings. The combinations of these attributes generate more than twenty three thousand individual cases. The percent difference between the two calculators was computed to validate PWBM's calculator. Any observed discrepancies were examined and traced to coding differences between the two calculators. Coding differences were tracked and eliminated until the final version of the calculator generated benefit differences of less than 0.1 cent across all of the cases examined.

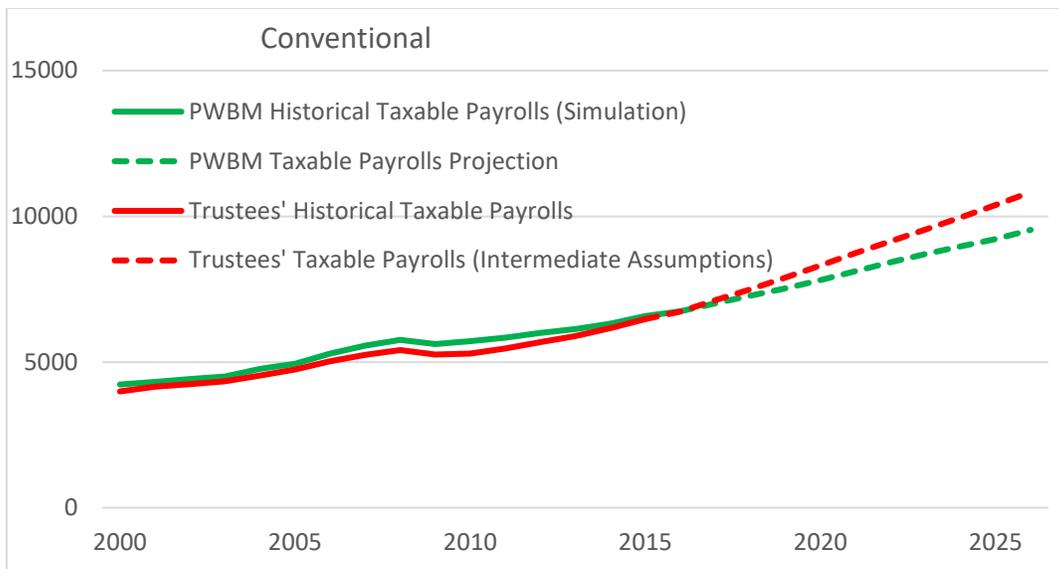
b. Aggregate Comparisons with Social Security Historical Data and Projections

The Social Security Trustees' 2018 annual report provides projected OASI benefit expenditures through 2026. The comparison below focuses on OASI as those benefits are calculated in PWBM's benefit calculator. Aggregate OASI benefits are estimated from the microsimulation by applying PWBM's benefit calculator to retirees' earnings records (those who have begun to collect benefits and those eligible to receive auxiliary benefits) during the historical simulation. The results of this exercise are compared to the program's historical data and the Trustees' projections through 2026 from their 2018 annual report. Figure 2 shows that PWBM's simulated expenditures are very close to the Trustees' estimates for the historical period. However, because PWBM's microsimulation economy generates slower economic growth in the future – primarily from lower labor productivity growth resulting from projected demographic changes such as population aging and the

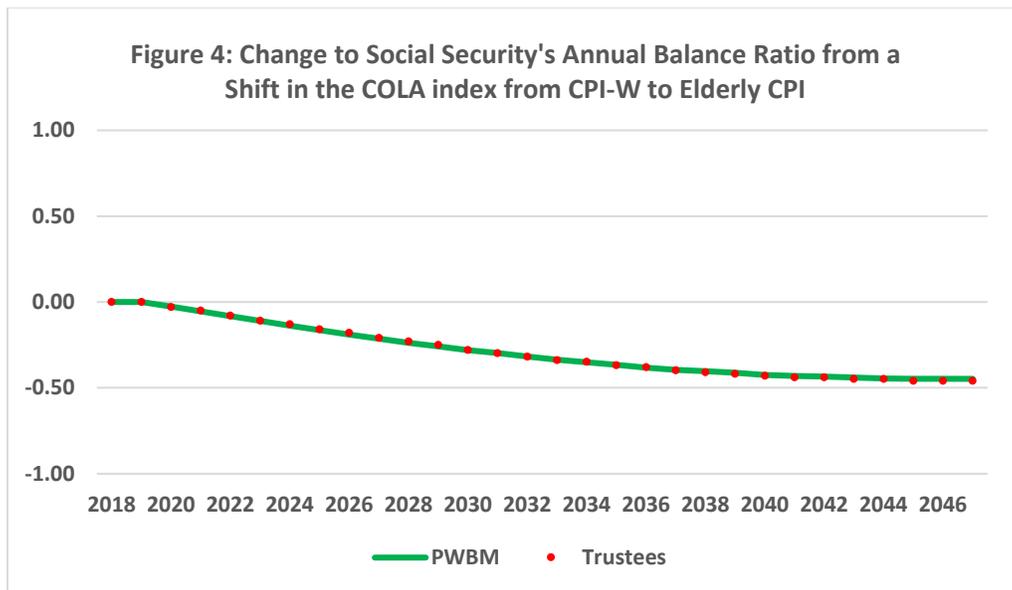
departure of the most experienced workers from the labor force – PWBM’s conventional projection of Social Security benefit expenditures begin to diverge from the Trustees’ projection after the mid-2020s.



PWBM’s slower economic growth also generates lower projected taxable payroll growth after the mid-2010s. In turn, lower taxable payrolls result in a higher PWBM cost ratio and more negative annual balance ratios compared to the Trustees’ projections. Long-term projections for the OASDI program from PWBM and the Trustees are available on [PWBM’s simulator](#).



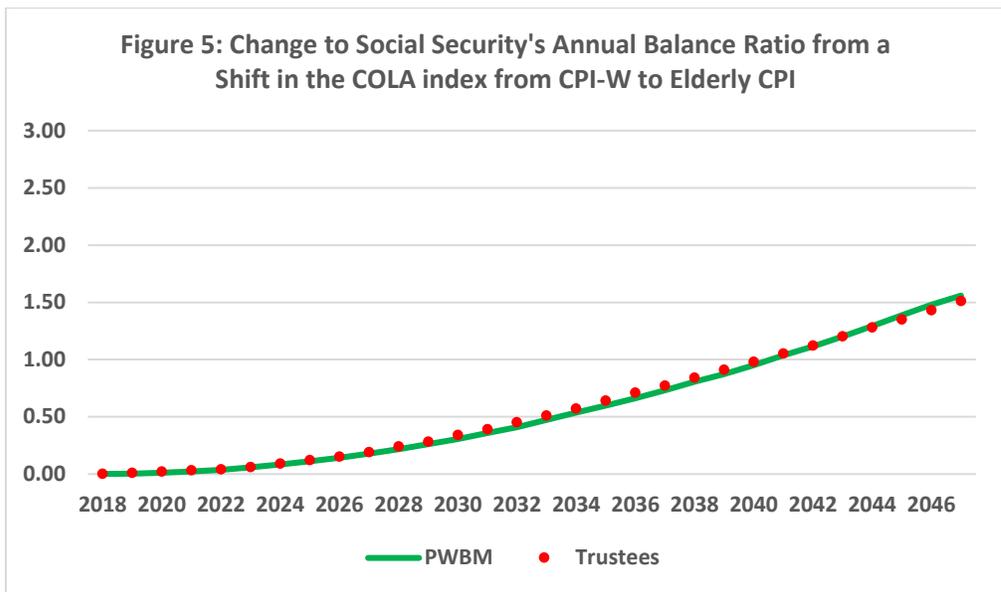
As an additional validation of PWBM’s microsimulation, we compare PWBM’s results of changing selected Social Security policies with those obtained by Social Security’s actuaries. For example, the COLA index applied to post-retirement benefits is changed from the CPI-W to the Elderly CPI. The Elderly CPI is a price index published by the U.S. Bureau of Labor Statistics. It includes items generally purchased by older individuals in the index’s base consumption basket. The exact implementation of this policy is specified as follows by Social Security actuaries: *Starting December 2019, compute the COLA using the Consumer Price Index for the Elderly (CPI-E). We estimate this new computation will increase the annual COLA by about 0.2 percentage point, on average.*⁶ Figure 4 shows that the resulting “conventional” changes in Social Security’s annual balance ratio (the ratio of annual income shortfalls to taxable payrolls) estimated through PWBM’s microsimulation are almost identical to the “conventional” estimates of the Social Security actuaries.



A second Social Security policy change tested in a similar manner is a change to the bend points for calculating Primary Insurance Amounts (PIA). The calculations involve three bend points to convert the Average Indexed Monthly Earnings (AIME) into the PIA, which equals the full retirement benefit amount

⁶ See the description available at: https://www.ssa.gov/oact/solvency/provisions/tables/table_run148.html

for workers retiring at their full retirement age (FRA). The policy change is described by the Social Security actuaries as follows: *Beginning with those newly eligible for OASDI benefits in 2018, multiply the 32 and 15 percent PIA factors each year by 0.987. Stop reductions after 2048, when the factors reach 21 percent and 10 percent, respectively.*⁷ Figure 5 shows that changes to projected annual balance ratios under PWBM’s (“conventional”) implementation of the policy is quite close to those published by Social Security Actuaries, which also uses conventional estimation methods.⁸



Integrating PWBM’s Microsimulation with a Dynamic General Equilibrium (GE) Model:

This document describes the linkage of PWBM’s microsimulation model (M) with its dynamic OLG model.⁹

A. Operational issues in integrating PWBM’s microsimulation and dynamic OLG Models

⁷ See the description available at: https://www.ssa.gov/oact/solvency/provisions_tr2017/tables/table_run152.html.

⁸ It should be noted that PWBM’s final estimates vary considerably from the Social Security actuaries’ estimates because the former include dynamic feedback effects.

⁹ See the detailed description of PWBM’s [microsimulation](#).

Budget projections from the microsimulation are calculated on a conventional basis. All demographic and economic attributes have one of two ways of evolving in the microsimulation. Stochastic simulation is always involved, but the “rates of success” in all simulation instances are calibrated to either conditional transition probabilities calculated from historical microdata or calibrated to specific external sources of information on the U.S economy and demographics.

Conditional transition probabilities for the historical microsimulation are calibrated to period-specific values based on microdata for the corresponding historical period. However, simulations for future periods hold these transition probabilities fixed at the latest available values. For example, employment transition probabilities (by annual-hours-worked categories) are calculated from Current Population Survey (CPS) microdata for the period 2012-17, applied for the historical simulation during those years and then held fixed for simulating employment outcomes (conditional on other demographic and economic attributes) after 2017. This method may be interpreted as corresponding to fixed or “conventional” behavior by agents in making labor force participation and work choices. Transition processes that may be similarly interpreted as conventional for future years are estimated from various microdata surveys for several other variables in PWBM’s microsimulation, such as education acquisition, disability incidence, emigration, marriage and divorce, retirement and Social Security benefit collection. The fixed transition probabilities in the microsimulation correspond to “fixed economic behavior.” Fixed economic choices correspond most closely to an economy with fixed prices (justifying the fixed behavior in making economic choices – labor supply and saving).

- Conditional transition probabilities of demographic control variables such as mortality, fertility, immigration are fixed historically and over future years. These transition

probabilities are taken from external sources such as the Census Bureau or the Social Security Administration.

- Specific parameters of the microsimulation are estimated from historical data and applied within a Solow-growth model framework. Under this framework, effective labor and total capital services are combined to generate economic output in each period of the simulation. Observed historical values are used for parameters that cannot be projected independently of other economic variables (by the very nature of their definitions). Key among such parameters are multi-factor productivity and the output elasticities of capital and labor.

The Solow growth model in the microsimulation is simply an annual organization framework for aggregating (labor and capital) inputs and estimating output in each period. The inputs each year are not “dynamically” determined based on responses to economic environment (wages and interest rates) each year. Instead, the drivers of behavior (transitions into and out particular states of employment, capital accumulation, education acquisition, family structure evolution, retirement, family sizes and other variables) are held constant. The annual changes in labor and capital aggregates are governed by these transition rules together with demographic drives such as projected mortality, fertility and immigration rates taken from the Social Security Administration. The output of the microsimulation in the base year – the year just prior to making future projections – provides targets for calibrating the dynamic OLG model as described below.

B. PWBM’s Dynamic General Equilibrium, Overlapping Generations (OLG) Model:

PWBM’s dynamic OLG model is a computable general equilibrium heterogeneous-agent model calibrated using the same macro parameters (production function and tax) as the microsimulation. In addition, the dynamic OLG model parameters can be set to match certain

targets – features of the microsimulation’s output. The model parameters include output shares of capital and labor, the capital depreciation rate, the time preference rate, mortality/survival rates, intertemporal substitution elasticity in consumption, the utility weight on consumption relative to labor and the model-unit conversion factor to translate results in real dollars. These parameters are selected to calibrate the model – that is to deliver the same values for three target results of the microsimulation – the capital-labor ratio, the Frisch elasticity of labor supply and total output per model household.

The dynamic OLG model also employs other parameters related to corporate leverage ratios (corporate debt/corporate capital) and to current tax laws. These parameters are applied for making baseline projections and those under alternative policy-combination settings. The settings can be selected by model users on PWBM’s Social Security Simulator. Key among the tax parameters are individual (ordinary) and corporate tax parameters, individual (ordinary and preferred) income tax rates and brackets, payroll tax rates and brackets, Social Security benefit rules and the following rates and brackets for corporate income taxes:

- Effective rate on corporate income at business level
- Net-present value rate of investment expensing for corporate investment
- Effective rate on pass-through income at business level
- Net-present value rate of investment expensing for pass-through investment
- Portion of corporate income receiving preferred rate at household level
- Portion of corporate income receiving ordinary rate at household level
- Portion of pass-through income receiving preferred rate at household level
- Portion of pass-through income receiving ordinary rate at household level
- Portion of capital income (and capital) which is from corporate businesses
- Portion of capital income (and capital) which is from pass-through businesses

In PWBM’s dynamic OLG model, a fixed price economic environment is generated when the economy is 100 percent open to foreign capital flows. Hence, conventional economic and budget projections from a microsimulation, wherein projections are conditioned on fixed transition rates

across many economic choice variables (as described above), are taken to correspond to projections from a fully open dynamic OLG economy.

Based on measurements of foreign purchases of dollar-denominated debt issued in the United States, the U.S. economy appears to be about [40 percent open](#). Therefore, the conventional economic projections from the microsimulation must be adjusted to correspond to a 40 percent open economy. The appropriate adjustment is calculated by executing the dynamic OLG model in two ways – under the 100 percent open economy assumption and under a 40 percent open economy assumption. Under the former, foreign savers provide as much savings as necessary to cover the entire amount of newly issued government debt each year. Under the latter, 40 percent of government debt is allocated to foreign savers and the remainder is assigned to the portfolios of the model’s U.S. residents.

The differences in macroeconomic outcomes (to the projected values of employment, capital services, gross domestic product and government revenues and expenditures) between these two executions of the dynamic OLG model under current fiscal policies yield the required adjustments to the microsimulation’s conventional estimates of those outcomes. Applying adjustments to each macroeconomic output from the microsimulation in this manner yields PWBM’s baseline macroeconomic projections. This adjustment can be expressed as

$$X(40, C) = X^M(100, C) \frac{X^{GE}(40, C)}{X^{GE}(100, C)}.$$

Here, X represents a sequence of projected values for the macroeconomic variable to be adjusted. Superscript M indicates outcome of the microsimulation, superscript GE indicates outcome of the dynamic OLG model. The two items in parentheses indicate the degree of the economy’s

openness – that is, the fraction of government debt issues that foreigners finance – and whether the projection is under current policy, C, or an alternative policy, P (see below).

PWBM's microsimulation is used for generating conventional or "first-stage" baseline (or "current policy") projections because the microsimulation incorporates individuals' demographic attributes in a [highly detailed manner](#). The statistical modeling and historical validations of individual attribute transitions better captures the levels (history and projections) of budget totals and economy wide variables, such as output, the labor force and employment, than any dynamic OLG model could because of computational limitations. The dynamic OLG model incorporates key budget restrictions at the individual level, dynamic laws of motion for asset holdings, a multi-period utility maximization framework with individual response elasticities calibrated to information from the economics literature and an estimation of individual economic decision rules based on anticipated effects of a given collection of (current or alternative) fiscal policies. These features make the dynamic OLG model better suited to estimate the dynamic response adjustment to be added to the microsimulation's conventional policy projection. The integration of the dynamic OLG model with the microsimulation is described in the remainder of this document.

To explore the impact of policy changes (superscript P) on a macroeconomic projection, X , the procedure adopted is as follows. First, the policy change (tax increase or benefit cut) is implemented in the microsimulation to generate conventional projections of the macroeconomic outcome under the new policy $-X^M(100, P)$. As before, this projection (under fixed economic behavior) must again be adjusted to correspond to the 40 percent open economy. In addition, it must be adjusted further to incorporate changes in individuals' economic decisions as they respond to a shift from current policy, C, to the new policy, P. The latter adjustment is estimated

by executing the dynamic OLG model in two ways: Assuming a 40 percent open economy under policy P and assuming a 40 percent open economy with behavior fixed to that under policy C.

Letting Δ represent the change in a policy parameter (the change in a tax rate, for example), PWBM's fully dynamic macroeconomic projection under shift from policy C to P, can be expressed as the following.

$$X(40, P) = X^M(100, P) \frac{X^{GE}(40, C)}{X^{GE}(100, C)} \frac{X^{GE}(40, P)}{X^{GE}(40, C+\Delta)}$$

Here, the denominator in the final term indicates that individual economic choices (for example, labor supplies) are held fixed to that of the 40 percent open economy executed under current policy, C and the projected values of the macroeconomic variable, X, which are calculated by applying the new policy parameter (C+ Δ) to its appropriate base (income, payrolls and others).

Social Security Simulator Output

The Social Security Simulator generates output of the program's finances through the year 2048 (corresponding to the last year of the Congressional Budget Office's long range extended baseline).¹⁰ The Simulator shows projection outcomes under user-selected policies for several Social Security revenue, cost (benefit expenditures) and financial balance metrics for the period 2018-48. Each item is shown in constant real 2018 dollars and as shares of taxable payrolls (where appropriate). The output series includes trust fund reserves, taxable payrolls, trust fund income (payroll taxes, interest income and income taxes on benefits are shown separately), benefits and other expenditures, annual balance and annual non-interest balance. Projections for several additional economic and budget variables are also displayed.

¹⁰ See: <https://www.cbo.gov/about/products/budget-economic-data#1>.

Simulator projections are shown under the current policy baseline consistent with the user-selected assumption on the economy's degree of openness. The remaining dial controls select the policy (combination) that is executed. A policy combination generates a new line showing the policy-based and baseline projections. The output series include the Trust Fund reserves, Taxable payrolls, Social Security's income (payroll taxes, interest income on Trust Fund treasury securities and taxes on benefits) and Social Security cost (benefits and other expenditures).

One noteworthy feature of the display is the memo item: General Fund Transfers required for covering annual income shortfalls. These transfers generate no Trust Fund liabilities (the Social Security trust funds are not allowed, by law, to issue debt) and do not need to be repaid to the U.S. Treasury's General Fund in the future. Instead, the General Fund transfers are interpreted to be similar to dissipative "government consumption" expenditures. Any policy combination that produces future annual surpluses, however, results in the immediate re-emergence of a positive trust fund reserve position.