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RETIREMENT POLICY PROGRAM

Distributional Analysis of Pension and Social Security Reforms:

Alternative Approaches and a
Report on an Expert Panel Meeting

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The Retirement Policy Program

A crosscutting team of Urban Institute experts in Social Security, labor markets, savings behavior, tax and budget policy, and micro-simulation modeling ponder the aging of American society.

The aging of America raises many questions about what's in store for future and current retirees and whether society can sustain current systems that support the retired population. Who will prosper? Who won't? Many good things are happening too, like longer life and better health. Although much of the baby boom generation will be better off than those retiring today, many face uncertain prospects. Especially vulnerable are divorced women, single mothers, never-married men, high school dropouts, and lower-income African-Americans and Hispanics. Even Social Security—which tends to equalize the distribution of retirement income by paying low-income people more then they put in and wealthier contributors less—may not make them financially secure.

Uncertainty about whether workers today are saving enough for retirement further complicates the outlook. New trends in employment, employer-sponsored pensions, and health insurance influence retirement decisions and financial security at older ages. And, the sheer number of reform proposals, such as personal retirement accounts to augment traditional Social Security or changes in the Medicare eligibility age, makes solid analyses imperative.

Urban Institute researchers assess how current retirement policies, demographic trends, and private sector practices influence older Americans' security and decision-making. Numerous studies and reports provide objective, nonpartisan guidance for policymakers.

Abstract

In April 2008, the Urban Institute convened an expert panel of researchers inside and outside of government agencies to discuss how best to perform distributional analyses of proposals to reform Social Security and private pensions. The panel discussed key technical issues, including how to measure the baseline income distribution and characterize current policies, how to address changes that alter the timing of taxes and benefits, and how to measure and report gains and losses from policy interventions. The group revealed diverse viewpoints, but we conclude that current methods used in recent UI research fall within the range of reasonable alternatives.

Introduction

The aging of the large baby boomer cohorts will create financial challenges for both Social Security and private pension systems by raising the ratio of retirees collecting benefits to workers paying into retirement funds. The Trustees of the Old-Age, Survivors, and Disability Insurance (OASDI) Trust Funds (Social Security Trustees 2008) project that the current operating surplus of the trust funds as a percentage of taxable payroll will decline after 2008 and that outlays will exceed trust fund receipts (excluding interest) beginning in 2017. They project that the OASDI trust fund balance will reach zero in 2041, after which projected receipts will cover about 78 percent of projected outlays.

To address the long-term funding problem in Social Security, policymakers may consider reducing benefits, increasing taxes, or a combination of both. Policymakers may also consider proposals to restructure the benefit formula and proposals to supplement or replace a portion of retirement benefits with contributions to individual accounts.

For potential reforms under consideration, policymakers will be concerned about how they affect vulnerable groups in the population and, more generally, how the gains and losses they produce are distributed among people in different income and demographic groups. In April 2008, the Urban Institute convened an expert panel of researchers inside and outside government agencies to discuss methods for performing these distributional analyses. The panel met at the Urban Institute and discussed key methodological issues in distributional analysis of Social Security. Panelists received a document summarizing the key technical issues before the meeting. This paper combines a summary of these issues with a summary of the expert panel's discussion. We discuss the main areas of consensus and disagreement among the panelists and highlight issues that require additional research and analysis.

Background

Publicly available estimates by government agencies of the distributional effects of proposed Social Security reforms across income or demographic groups are very limited. The Office of the Chief Actuary of the Social Security System (OCACT) reports outcomes under current law and has provided estimates for selected reform proposals for a group of "representative" workers with stylized earnings patterns. OCACT does not, however, show how these policies may affect broad population groups classified by income or demographic characteristics. The Congressional Budget Office has produced distributional effects in several studies (Congressional Budget Office 2004, 2006a, 2006b). The Office of Policy in the Social Security Administration creates distributional tables for internal use but has not made its distributional analyses public.

In addition to government analyses, some academic experts and research firms have estimated distributional effects of the current system and proposed Social Security reforms, using microsimulation modeling or longitudinal databases. For example, Urban Institute researchers have displayed distributional tables (Butrica, Smith, and Toder 2008; Butrica 2007; Cohen, Steuerle, and Carasso 2003; Favreault et al. 2004; Mermin 2005; Mermin and Steuerle 2006;

Smith, Toder, and Iams 2001; Uccello et al. 2003) based on simulations using the Dynamic Simulation of Income Model (DYNASIM), developed at the Urban Institute, and the Model of Income in the Near Term data system (MINT), developed by the Urban Institute, the RAND Corporation, and the Brookings Institution for the Social Security Administration. Other academic studies of the distributional effects of Social Security using longitudinal data sets include Coronado, Fullerton, and Glass (1999), Gustman and Steinmeier (2001), Harris and Sabelhaus (2005), and Liebman (2002). There are, however, no standard formats or agreed upon set of assumptions for generating these estimates.

In contrast to their more limited use in Social Security policy analyses, distributional tables are frequented cited in consideration of tax policy changes. Both the executive branch of government (the Office of Tax Analysis at the U.S. Treasury Department) and congressional agencies (the Joint Committee on Taxation and the Congressional Budget Office) produce estimates of the effects of proposed and enacted changes in the tax law by income group. Private groups also produce distributional tables. For example, recent estimates by the Urban-Brookings Tax Policy Center (TPC) of the distributional effects of the presidential candidates' tax proposals have been widely cited in the press and both cited and questioned by the candidates (Tax Policy Center 2008). These distributional tables typically show how a proposed change in the tax law will affect the distribution of taxes paid and after-tax income by income group in some single year.

Although the methods used for distributional estimates of tax policy and the way data are presented involve some difficult analytical choices and are controversial (see Bradford 1995), the TPC and government estimators have developed standard ways of computing and displaying distributional estimates that have gained broad acceptability among policy analysts. A number of publications describe past and current methodologies used by government agencies and private groups (Joint Committee on Taxation 1993; Cronin 1999; Rohaly, Carasso, and Saleem 2005.)

The distributional effects of Social Security reform proposals are much more complicated to analyze than the distributional effects of tax policies because they change the patterns of taxes paid and benefits received over peoples' entire lifetimes or large portions of their lives. Therefore, they must be evaluated over the life cycle rather than simply by how they change incomes in any single year. The Social Security reforms policymakers have considered and will consider have effects that differ not only across income groups and by demographic characteristics (gender, race, country of origin, education level), but also among the same people at different ages and among people at the same ages in different birth cohorts. There are numerous ways the projections generated by simulation models can be summarized and presented, and how the data are presented strongly influences how proposals are shown to affect people in different circumstances.

This paper lists the key methodological issues in the development and presentation of the estimates and summarizes the contribution of the expert panel on each issue. The conference did not address all issues described below and some of the issues that were addressed remain unresolved. The purpose of this paper is to summarize the current knowledge and point to areas where further analysis is required.

Options for Distributional Analysis

There are three broad questions that must be addressed in performing analyses of how policy options affect the distribution of well-being across income or demographic groups: (1) how to measure the baseline income distribution and baseline policy, (2) how to address timing issues, and (3) how to measure and report the gains and losses from policy interventions.

1. Measuring the Baseline Income Distribution and Baseline Policy Assumptions

The baseline is the state of the world that would exist in the absence of the policy change under consideration. Defining the baseline for Social Security and other retirement-related policy analysis is especially challenging for two reasons. First, reforms to Social Security and private pensions will affect taxes and retirement benefits in future years, depending on the characteristics of the population at some future date. This means that the population that the policies will affect must itself be *projected*, based on future patterns of earnings, wealth accumulation, pension coverage, and demographic events (marriage, divorce, mortality, disability). It cannot be assumed that tomorrow's older population will look like the older population today. Second, the current federal policies for retirement and health are not sustainable. This means the analyst has to decide whether to measure reforms relative to current scheduled benefits and taxes or relative to some default changes in policies that will be financially sustainable in the long run.

Choosing a baseline income distribution and baseline policy assumptions involves the following steps:

A. Constructing a Database of Future Beneficiaries

There are numerous sources of microdata on households, including surveys—the Health and Retirement Study (HRS), the Current Population Survey (CPS), the Survey of Income and Program Population (SIPP), the Panel Study of Income Dynamics (PSID), the Survey of Consumer Finances (SCF)—and sources of administrative data—the Social Security Administration's Summary Earnings Records (SER) and Detailed Earnings Records (DER) and NUMIDENT files, the Internal Revenue Service Statistics of Income Division public use individual income tax returns file (SOI PUF), and administrative data from other federal programs. The analyst must select from these data sources to pick a representative sample of households, in some cases using either exact matches (where permitted) or statistical matching techniques to create records with merged data from different sources.

Beyond this, to analyze reforms of Social Security and pensions, the dataset of currently or recently surveyed households must be projected to future years. Typically this is done by modeling demographic and economic processes (earnings trajectories, pension plan participation and benefits, wealth accumulation outside of pensions, marriages, divorces, fertility, mortality, disability, retirement decisions, and the decision on timing of Social Security benefit take-up) based on historical trends, possibly modified by assumptions generated from external sources of how some processes may change in the future (such as, for example, recent information on freezes in defined benefit (DB) plans). The analyst may adjust projections for individual units to

replicate aggregate projections of earnings growth, life expectancy, and disability incidence projected by the Social Security Office of Chief Actuary or other agencies.

Constructing a micro data base to represent the future retired population that will be affected by a policy change is a huge undertaking. The Congressional Budget Office, the Social Security Administration, the Urban Institute, and others have been undertaking these model development efforts for a number of years.[1] The choices in building a dynamic microsimulation model to represent the future older population are not addressed in this paper and were not discussed at the panel meeting, but nonetheless it is important to recognize that any estimated impacts of policy changes will be sensitive to projections of the characteristics of the future population.

B.   *Defining the Policy Baseline and Budget Neutrality*

Distributional estimates typically compare outcomes under current law (the baseline scenario) with outcomes under some assumed alternative set of policies. Because the current OASDI trust fund taxes will eventually be insufficient to pay promised benefits, there are different assumptions one could make about how to characterize the baseline scenario. One could assume that current law benefit and tax rules are the baseline policy and that any changes to bring the system into balance represent either benefit cuts or tax increases. Alternatively, one can use a baseline in which the OASDI Trust Fund is in long-term actuarial balance. Such an alternative baseline would require assumptions about what changes would be made to bring the system into balance and when the changes would be made. One assumption that could arguably be said to represent current law would have all benefits reduced by the fixed percentage required to be payable with current revenues when the Trust Fund balance falls to zero, but it also could be assumed that the benefit cut would be made sooner in anticipation of Trust Fund expiration, that it would be distributed in a different fashion, or that part or all the gap would be closed by payroll or other tax increases.

Panel Discussion.   The expert panel engaged in a lively discussion about the appropriate baseline. One panelist suggested that the baseline could be either scheduled benefits or "precise" current law, which would assume that all benefits drop proportionately when the trust fund balance reaches zero, so that total benefits equal current revenues. While noting that the president's Reform Commission considered also using a "smoothed" baseline, in which benefits decline gradually to achieve long-run balance in the trust funds, the panelist cautioned that choosing a baseline in this way comes perilously close to defining the baseline itself as the desired policy to reach balance. In effect, current law would be represented as what the analyst or policy advisor wants the law to be. The president's Reform Commission ultimately chose to present two baselines—scheduled and payable (assuming all benefits drop by a fixed percentage in the year when the trust fund is exhausted to hit projected revenues).

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[1] For the latest CBO long-term projections using their CBOLT model, see Congressional Budget Office (2006b). The most recent projections using the latest version of the Social Security Administration's Model of Income in the Near Term (MINT5) are reported in Smith et al. (2007). For a description of the Urban Institute's DYNASIM model, see Favreault and Smith (2004).

Another panelist commented that you could legitimately make a variety of assumptions of how different benefits and taxes would adjust to maintain balance, absent the proposal, but it was most important that in comparing proposals all assume a similar long-term balance. Comparing proposals that are not fiscally equivalent would be akin to comparing "apples and oranges." A third panelist suggested that the baseline could assume the adjustment would be 50 percent benefit cuts and 50 percent payroll tax increases. A fourth panelist noted that the OCACT displays both scheduled and payable benefits in its reports and suggested distributional analyses could follow that example.

Policy scenarios could be also presented as they are or adjusted to be budget neutral. In doing the latter, one needs to define what is meant by budget neutrality. The policy change could be budget neutral in terms of its effects on the Social Security Trust Fund or the unified budget (including income tax receipts, for example). It could keep the federal deficit or trust fund balance constant in a given year, over a particular budget window, or in long-run present value terms. If a policy does not achieve budget neutrality, then one would have to assume some standard offset method (e.g., proportional payroll tax rate increases, proportional increases in payroll and income tax rates, proportional benefit cuts). The point, though, is to compare policies with equal budget impacts, so that one policy does not look more favorable to people than others simply because it increases deficits in ways the analysis does not capture.

Overall, the panel reached no definite conclusion as to whether it was better to use payable or scheduled benefits. The majority favored displaying results relative to both baselines, while recognizing that policymakers and other consumers of distributional data prefer to see fewer rather than more presentations.

C.   *Choosing a Unit of Analysis*

After selecting a database; projecting income, assets, and population characteristics; and defining the baseline against which policy alternatives are measured, the analyst then needs to decide what concepts to use to measure the distribution of income. The first step is the choice of a unit of analysis. The unit of analysis could be individuals, couples or other groupings (such as households). If the unit of analysis is individuals, the lifetime earnings of each individual could include just the individual's earnings (individual earnings measure) or could include the individual's earnings in years when single and half the combined earnings of the individual and his or her spouse in the years when married (shared earnings measure).

In its analyses of the distributional effects of Social Security, the Urban Institute has used the individual as its unit of analysis, but has measured income in retirement years as half the couple's combined income for married individuals. In measuring lifetime earnings of individuals, the Urban Institute has often used a shared earnings measure, but sometimes also used individual lifetime earnings.

Panel Discussion.   The expert panel generally supported the shared earnings measure. One panelist, however, while agreeing that shared earnings is better than individual earnings for most purposes, observed that there are "all sorts of implicit assumptions about how the world should be arrayed" and advised that analysts should use this measure with their "eyes open."

Another panelist noted that in one study of the lifetime distributional effect of Social Security, Gustman and Steinmeier (2001) imputed earnings to the non-working spouse in developing a measure of lifetime earnings. An Urban Institute participant noted further that classification of people by education also performs the function of classifying by potential instead of actual earnings.

In summary, the expert panelists generally endorsed the shared earnings measure, but with qualifications. Analysts should be aware that there are other ways of measuring an individual's lifetime well-being and some of these ways might make sense for answering some questions.

D.　*Measuring Income*

Once we have chosen a unit of analysis, we then have to decide how to measure that unit's income or other index of well-being. There are numerous choices to make, including the following:

- How broad should the measure be? In addition to cash income, should it also include imputed rent on homes, unrealized capital gains, accruals of wealth within pension funds, and other sources of unrealized income?

- Should the income measure be current income as measured by Census and other government agencies or the potential annuity that an individual's assets can purchase?[2]

- Should economic status be measured by the present value of lifetime earnings or by income at a given age (e.g., 67), based on the income measure as described in the two bullet points above?

- Should replacement rates be considered as a measure of economic status in retirement and, if so, how should they be measured?

- Should income of co-residents be included in the measure of income for those sharing living quarters with someone other than a spouse or partner?

- Should Social Security and other public benefits be included in income or should the income measure count only income before government transfer payments? Alternatively, is the best measure pretax or after-tax income?

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[2] We have raised this issue in the past because standard income measures used by Census count only interest and dividends from assets outside of annuities, but count the full annual benefit from private DB pensions and Social Security, which includes both the income from the asset and return of principal. This inconsistency in measurement makes it look like people's income is lowered when additional assets in DC plans replace an equal present value of wealth held as DB plan annuities.

- Should certain expenses (for example, health insurance premiums and out-of-pocket medical expenses) be subtracted from the measure of income?

- When comparing the incomes of different cohorts at the same ages (inter-year comparisons), is it better to compare their real (price-adjusted) incomes or their relative (wage-adjusted) incomes?

Panel Discussion. The panel addressed some, but not all of these issues. There were separate discussions of how to measure (1) income in retirement, (2) lifetime well-being, and (3) the relative economic status of people in different birth cohorts.

(1)   Income in Retirement

The panel addressed some, but not all of these issues. One panelist stated that the income measure used in MINT is reasonable. The MINT measure counts as income the sum of earnings, imputed rent from homes, annual benefits from defined benefits plans (both Social Security and employment-based pensions), and 80 percent of the annuity that could be purchased with wealth outside of DB pension plans, including wealth in tax-favored DC retirement assets.[3] The panelist then raised the additional question of how analysts should address health insurance in measuring income. The question was whether health insurance premiums and out-of-pocket health costs should be subtracted from the measure of income.

Most of the group initially rejected the notion of deducting health insurance costs from income. But an Urban Institute participant responded that health cannot really be ignored in income measures. One panelist agreed, but commented that health was the most contentious issue in distributional analysis and poverty measurement. A third panelist pointed out additionally that retirement health benefits are also not funded and this is a much bigger problem than the underfunding of Social Security cash benefits.

A discussion followed on the pros and cons of adjusting for health benefits or costs in the income measure and how such adjustment might be incorporated in the measures. At the end, most of the group concluded there should be no special treatment for health benefits or spending either in measuring income or ranking people by their well-being (see below), largely because the question of how best to do this is so complicated. The panel also agreed, however, that analysts might want to include health in examining some policy questions and that health issues certainly must be addressed in comparing the well-being of different generations.

(2)   Lifetime Economic Status

An Urban Institute participant commented that it was important to compare benefits and taxes on a lifetime basis because looking only at those who survive until retirement misses the redistribution that results from paying benefits only to those who survive until retirement age.

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[3] The MINT annuity measure is calculated as 80 percent of the actuarially fair annuity an individual could purchase, based on his or her survival probability, which is estimated as a function of cohort, gender, race, and education. The 80 percent figure is used to represent a rough approximation of the annuity an individual could actually purchase or, alternatively as an adjustment for the risk of outliving one's assets if the individual decides to self-annuitize.

While the group did not resolve the issue of how to address non-survivors in distribution tables, it did explore issues in measuring lifetime earnings.

Members of the expert panel debated how best to discount earnings from later to earlier years, with some favoring a lifetime present value of earnings measure, which discounts by the rate of return on riskless assets, and others favoring the Social Security average indexed monthly earnings measure (AIME), which discounts (through two years before entitlement) by the growth rate in average wages. Some argued that present value of earnings is a more accurate measure of potential consumption over a lifetime (because people with earnings earlier in life can save and receive the riskless interest rate), while others argued that AIME is a more intuitive measure and effectively sums earnings relative to all other earners over a worker's (or the worker and spouse's) career. After some discussion, most of the group concluded that present value was a better measure of real lifetime income than AIME, but opinion of whether to use present value instead of AIME was not unanimous.

One panelist raised an issue about how AIME is measured for people with disability benefits. The panelist thought that ranking people by AIME made DI look more progressive than it really is because of the way AIME is computed over a pro-rated fraction of possible work years instead of 35 years. Another panelist added that if someone goes on Social Security disability after 20 years of work her AIME is computed over 20 years instead of 35. An Urban Institute participant noted that MINT does not use actual AIME to compute lifetime earnings of DI recipients; instead, it uses an AIME calculation for them based on their highest 35 years of earnings, just as for everyone else. After some discussion, the Urban Institute participants, based on the group's input, concluded that the measure of lifetime AIME used in distribution tables for people who receive disability benefits should be based on their high 35 years, but should count both their earnings before they go on disability and their pre-retirement age disability benefits after they go on disability in the AIME computation.[4]

(3)   *Comparing Economic Status of Different Cohorts*

An Urban Institute participant asked if wage-indexing or price-indexing should be used in comparing well-being of people in different cohorts. Wage-indexing measures the well-being of a cohort at retirement (or over a lifetime) in relation to prevailing earnings of the population as a whole, while price-indexing measures changes in absolute living standards over time across cohorts.

Two members of the expert panel spoke in favor of using wage-indexing instead of price-indexing. But others cautioned against mixing both income classes and cohorts together in the same table.

Another Urban Institute participant suggested using replacement rates as a measure of intergenerational well-being. One panelist responded that CBO shows benefits in real (price-indexed) terms when comparing across generations, but also displays changes in replacement rates over time. Replacement rates effectively incorporate a form of wage-indexing, so CBO

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[4] Calculating lifetime earnings for DI recipients this way makes the calculation of their lifetime earnings similar to the calculation of lifetime earnings of non-disabled retirees, assuming that pre-retirement age disability benefits substitute for earnings in the calculation of lifetime earnings of DI recipients.

tables show both types of measures. CBO expresses replacement rates as the ratio of benefits to AIME before benefits, or effectively shows how much of wage-adjusted lifetime earnings that retirement benefits replace.

A discussion followed on how best to measure replacement rates. Some panelists noted that financial advisors suggest a replacement rate of 70 percent, but that this replacement rate is based on final earnings, not the lifetime earnings measure that CBO and other Social Security analysts use as the denominator in their replacement rate ratio calculations. An Urban Institute participant raised five other objections to the way replacement rate calculations are typically performed; one of the flaws overstates the replacement rate, but the other four understate it, so on balance typical replacement rate figures are probably too low.[5] One panelist commented that even if one were to calculate a lifetime replacement ratio, it would still be useful to display a replacement rate for the first year of retirement only.

E. Classifying and Ranking Units of Analysis

Distribution tables group and rank people by some measure of economic well-being in order to show how policy changes might affect people based on their economic status. But the measure of well-being used to rank people into percentile groupings may or may not be the same as the measure used to describe levels of changes in economic outcomes. For example, one may wish to display how policies change the total income of families but, for purposes of classification, rank people based on their income adjusted for family size. In choosing one's rank in a distribution table, the key questions are:

- Should people be ranked by the present value of lifetime earnings, present value of shared lifetime earnings (where an individual and spouse split their combined earnings in years they are married), or income at a given age (62, 67, other)?

- In ranking people, should they be grouped by units (individuals or couples) and then ranked by income of the unit? Or, when comparing married and single people, should the ranking measure be per-capita income or income as a multiple of the poverty level (or some other threshold)? The issue is whether to compare per-capita incomes (with couples' incomes assumed to be split evenly) or assume some economies of scale for couples, treating the income of couples as equivalent to the income of a single person (i.e., two can live as cheaply as one) or divided by some measure, such as the relative poverty levels for singles and couples or the square root of family size, to derive an adjusted family income measure that puts individuals and couples on a comparable basis.

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[5] The objections are: 1) calculating in the first year overstates the replacement rate, because Social Security benefits are price-indexed and grow less than the average wage after retirement; 2) using AIME instead of wages near retirement understates the replacement rate (and incentive to retire) faced by the many workers whose relative earnings decline near the end of their careers; 3) dropping zero earning years, as is typically done, to construct the representative worker understates the replacement rate by overstating average career earnings; 4) excluding taxes from the calculation understates the replacement rate because tax rates (including payroll taxes) are typically higher while working than in retirement; and 5) failing to account for increases over time in life expectancy and thus the additional years of benefit receipt for current and future retirees than past retirees.

- In ranking people, should people of different cohorts be ranked against each other, or should people be ranked only within their own cohort group. A similar question applies to age groups.

- Should people be ranked by fixed-dollar income groups, multiples of average earnings, multiples of the poverty level, or percentile groups (such as quintiles or deciles)?

- Should individuals also be classified by other demographic characteristics, such as level of education, marital status, division of earnings between spouses for those married part of their lifetimes, gender, race, age, cohort, etc.? How informative are these additional presentations?

Panel Discussion. The group spent some time discussing whether or not to adjust incomes and earnings for family size when classifying individuals into quintiles of retirement income or lifetime earnings. The panelists agreed it was more difficult to adjust measures based on lifetime earnings than those based on income in a single post-retirement year because people move in and out of different types of family units over their lives. But one participant suggested it is possible to account for economies in scale in a lifetime earnings measure by adjusting each year's earnings for household size.

The panelists also agreed that different ways of classifying individuals by level of education, marital status, gender, race, age, and cohort were useful to present to policymakers. One Urban Institute participant noted that classifying people by level of education could serve as a proxy for using potential instead of actual earnings, arguably yielding a better measure of the relative economic status of working couples and single-earner couples.

2. Timing Issues

Analysis of distributional effects of changes in Social Security policies are especially complex because policy changes occur over time and affect different cohorts in different ways, as well as affecting groups within cohorts differently. Changes in taxes and benefits do not necessarily occur in the same year and may be phased in over many years. Furthermore, payroll tax changes will have larger effects on current workers (and future retirees) than current retirees (although current retirees may pay tax on some earnings), while the effects of benefit changes will depend on how they are phased in.

A.   *Possible Time Horizons*

Possible time horizons over which the effects of policy changes on different groups may be compared include the following:

- The entire remaining lifetime of all workers and retirees alive at the time the policy change begins;

- The remaining lifetime for all retirees beginning at age 62, 67, or some other age;

- The effect in a single year for individuals in separate age groups (e.g., how does this affect 50 year-olds, 55 year-olds, 60 year-olds, etc. this year?)

Panel Discussion. The expert panel did not devote much attention to time horizons, although some expressed a preference to use lifetime measures instead of measures based on a single year or a subset of remaining years.

B.   Years in Which Effects are Measured

The effects of the policy changes could be reported from the current year or for future years. Some alternative options are:

- Effect on income distribution in the current year;

- Effect on income distribution in some future years after the policy has had a chance to be partly or fully phased in (e.g., 2020, 2040, etc.);

- Present value of effects in future years, through some final date.

Panel Discussion. There may be numerous other possibilities not listed here, but the expert panel did not have time to discuss this issue.

3. Measuring and Reporting Gains and Losses From Policy Changes

There are numerous ways to measure and report the burdens and benefits of changes that affect retirement benefits and taxes in future years. Below is a partial list of questions relating to reporting gains and losses.

A.   What Taxes and Benefits should be Included in the Tables?

Policies that change some benefits and taxes may also automatically affect other types of benefits and taxes. For example, increasing employer contributions to payroll taxes will reduce workers' wages, but the effect will be partially offset by lower federal-income taxes because the employer contribution is tax-exempt. The question is which of these various taxes and benefits should be included in the distributional tables. For taxes and fees, the possible items that may be included are the following:

- Payroll taxes;

- Federal income taxes;

- State income taxes;

- Other taxes, such as state sales taxes, state and federal excise taxes, local property taxes, and local income taxes.

Possible benefits that might be included are the following:

- Social Security retirement and disability benefits;

- The insurance value of Medicare and Medicaid;

- SSI benefits;

- Other federal or state assistance, such as low-income energy support or housing programs;

- Increased private pension or asset income from policies that subsidize individuals' accruals of retirement savings or pension benefits.

Panel Discussion. The expert panel did not discuss what benefits should be included in the analyses.

B.   How Should Social Security Benefits Be Reported in the Baseline Simulation?

This issue relates to the question noted in the first section about how to define the baseline before policy changes. Alternative ways of reporting projected Social Security benefits include the following:

- Scheduled benefits using the current law formulas;

- "Payable" benefits, using the current law formulas, but reducing the percentage gap between payroll taxes and scheduled benefits when the OASDI trust fund becomes insolvent;

- "Feasible" benefits, assuming benefits are reduced and payroll taxes increased by equal percentage amounts to close the funding gap when the trust fund balance reaches zero;

- Separate proportional cuts in OASI and DI benefits, when the Trust Fund becomes insolvent, based on separate funding gaps in each program.

Panel Discussion. As noted above, the group extensively discussed the issue of how to display Social Security benefits in the baseline scenario. The consensus was that both scheduled and payable benefits should be displayed, with, in the latter, all benefits reduced proportionately when the OASDI trust fund becomes insolvent. One panelist also advocated an option in which the baseline assumes equal changes in benefits and payroll taxes.

C.   *How Should Changes in Burdens and Benefits from Reforms Be Computed When Labor Supply or Saving Change?*

Changes in labor supply or saving relative to the baseline scenario can affect taxes paid (by changing the labor income basis for payroll and income taxes and the returns to saving subject to capital income taxes) and benefits received (by changing AIMEs for those who alter their labor supply). But in the presence of changes in behavior, changes in retirement benefits or taxes paid do not give a complete picture of changes in well-being because people must make other changes (changes in consumption or work effort) that also affect their well-being. In the presence of behavioral responses, there are three options for estimating distributional changes.

- Static measure based on baseline economic behavior.

- Static measure based on behavior in the presence of the new policy.

- Total changes in taxes paid and benefits received between the baseline and the new policy.

Panel Discussion. The expert panel did not address the issue of whether behavioral responses should be incorporated in the distributional analyses.

D.   *How Should Gains and Losses from Policy Changes Be Displayed?*

This question addresses the issue of what the distributional tables should report. Whether a policy change appears progressive or regressive often depends on the measures that are used and how they are scaled relative to baseline values. Some possible measures that could be displayed in tables are:

- Lifetime present value of changes in benefits and taxes paid;

  o Other metrics of the lifetime net benefit, including benefit-to-tax ratios and internal rates of return;

  o Lifetime net benefits either excluding or including those who survive to retirement age;

- Changes in benefits and taxes in a current or target future year;

- Replacement rates at age 62 or 67, defined as the ratio of income (excluding earnings) to some measure of earnings or earnings less saving in some group of previous years (entire lifetime or late career);

- The present value of changes in benefits and taxes after retirement age (defined as age 62, 67, or something else);

- The level (annuitized) annual change in benefits and taxes for the remainder of an individual's lifetime, beginning at age 62, 67, or some other age;

- For all of the above, one could display:

  o Mean or median values of changes within groups;

  o Other measures that might adjust for the presence of outliers in the data.

Note that the present value of benefits and annual annuitized values can give quite different results; present values increase if people live longer (because they are affected by the change for more years), while level annuitized benefits can be much larger for people with relatively short future life expectancy.

All of these measures can be displayed (1) in absolute dollars, (2) as a percentage of post-tax, post-transfer income before the policy change, or (3) as a percentage of baseline benefits or taxes. The tables can also display numbers of winners and losers for a policy option and the average gains and losses (however) measured for winners and losers only.

Panel Discussion. As noted above, the expert panel considered some of these issues. Several panelists endorsed displaying a lifetime earnings measure to classify people and changes in lifetime measures of benefits and taxes to measure the effects of policy reforms. In comparing gains and losses in different years, as noted above, the panelists differed as to whether one should discount future values by the risk-free interest rate or the growth rate in average earnings. The former value (the interest rate) is generally larger than the latter (the growth of wages), so using the former instead of the latter value would produce relatively larger gains for those whose gains relative to others come earlier instead of later. Several panelists also suggested displaying replacement rates, although the group did not reach a consensus on how they should be calculated

Panelists expressed additional views on the way to present results. One panelist suggested displaying changes in benefits separately for winners and losers from the policy change. Another panelist asserted that it is also important to show distributions *within* as well as among quintiles. A third panelist commented that it is risky to show counts of winners and losers in distributional tables because Congress will shy away from any proposal that has any losers. The panelist raised the example of a proposal for earnings sharing, for which a table in a report showed many widows were losers. Attempts to fix the proposal to make the losers whole made the entire reform too expensive and contributed to its defeat. A fourth panelist worried about including too much detail in the distributional tables, but then added that it is important to display the percentage change in lifetime income that different groups would experience if the proposed policy change were enacted.

E. *Incidence of Changes*

The beneficiary of a policy may not be the individual who is legally entitled to the benefits. Tax and benefit changes may affect market prices in ways that shift benefits or costs to other people. (For example, it is commonly assumed that workers pay both sides of the payroll tax—the

employee portion as a direct increase in tax liability with no change in wage and the employer portion in the form of a lower wage.) Payroll taxes and benefits for individuals may be shared with spouses and spousal and survivor benefits may be allocated in different ways within the couple.

Examples of issues that require assumptions are the following:

- How is the burden of payroll taxes divided between spouses?

- How is the benefit (in the form of higher living standards in every year) of survivor benefits divided between the higher-earning worker and surviving spouse?

- Who bears the economic burden of payroll taxes (workers or others), individual income taxes, corporate taxes, and sales taxes?

- How are private pension benefits allocated between a worker and his or her spouse? Do we assume individuals sign up for joint and survivor annuities?

Panel Discussion. The expert panel did not address these incidence assumptions.

F.   Policy Changes that Increase or Reduce Deficits

Some policy reforms may increase or reduce deficits in the unified federal budget or OASDI trust fund. For such policies, there are two main options:

- Simply report net gains and losses from the policies, without worrying about how it might be financed;

- Assume increases (or reductions) in net fiscal benefits are offset by increases (decreases) in other taxes (income, payroll, estate and gift etc) or decreases (increases) in other government benefits.

Of course, if we assume that a policy change must be offset to maintain fiscal balance, we will need a standard (and neutral) assumption about how that balance is achieved.

Panel Discussion. The panelists did not discuss these options in detail, but did generally express interest in seeing budget-neutral policy changes displayed, so that there would not be a bias in favor of options that increased the deficit by providing larger immediate net benefits to the population.

4. Risk and Uncertainty: An Additional Issue Raised by the Expert Panel

Distributional analyses typically display the dollar gains and losses from policy changes, as if these gains and losses are certain. But Social Security is not just an income transfer system; it can be thought of as a major social insurance program that protects people from the risks of premature death (through death benefits and child benefits), disability, earnings uncertainty

(through a retirement benefit formula that replaces a larger share of earnings for low-wage workers), and longevity (by paying retirement benefits in the form of an indexed life annuity). The standard distributional measures may fail to capture the "social insurance" aspect of the Social Security program. For example, if a worker dies before receiving Social Security retirement benefits, he still may have gained a benefit "ex-ante" from knowing that he was protected from the possibility of poverty in old age and, even if he did not collect benefits, his surviving spouse may collect them. Knowing this, the worker may have been able to consume more and enjoy a higher standard of living during his lifetime than if he had to save more or purchase the same insurance privately to insure an adequate income for himself or his spouse after retirement. Measuring the worker's gain as simply the Social Security benefit he actually receives fails to capture the insurance value that the program provides.

One panelist forcefully argued that Social Security needs to be analyzed as a comprehensive insurance system. The panelist suggested the starting point should be analysis of people age 62 and older as the relevant measure for how the system affects well-being in retirement. But the panelist added that the option of looking at how the system affects all participants may be more relevant, depending on how one views the insurance aspect, for measuring the relative distribution of both benefits and taxes across various socio-economic groups.

The issue of how to treat the insurance aspect of Social Security was not resolved by the expert panel, as most of the discussion focused on more concrete details of computing and presenting distributional effects. Nonetheless, this is a major philosophical issue that merits further elaboration in future work.

5. Two Examples

The table below compares methodology used in two studies—one by the Urban Institute (Mermin 2005) and another by the Congressional Budget Office (Congressional Budget Office 2006a).

CBO (2006a) estimated the budgetary effects of the Sustainable Solvency Social Security Act of 2006, a proposal introduced by Senator Robert Bennett to bring Social Security into long-run balance by reducing scheduled OASI benefits and increasing the retirement age. Mermin (2005) estimated the distributional effects of alternative ways of reducing scheduled OASI benefits, including full price (instead of wage) indexing of initial benefits, progressive price indexing (price indexing for high wage workers, while retaining wage indexing for low wage workers and using a mix for those in between), reducing cost-of-living (COLA) adjustments for retired workers, and increasing the normal retirement age for receiving full benefits.

CBO used as its database the CBOLT modeled it developed. CBOLT projects earnings and demographic characteristics starting with data from the Current Population Survey (CPS) and the Continuous Work History Survey (CWHS). Mermin used the Urban Institute's Dynamic Simulation of Income (DYNASIM) model, which projects lifetime earnings, pensions, wealth, and demographic characteristics starting with data from the Survey of Income and Program

Methodological Issue	CBO (2006a)	Mermin (2005)
Purpose of Study	Estimate Budgetary Effect of Proposal to Reduce Scheduled OASI Benefits and Raise Retirement Age	Estimate Distributional Effects of Alternative Ways of Reducing Scheduled OASI Benefits
Database and Model	CBOLT; projects earnings and demographic characteristics; base data is CPS and CWHS	DYNASIM model of Urban Institute; projects future population characteristics, base data is SIPP statistically matched to PSID and CPS/SER
Policy Baseline	Current law; in CBO projections, trust funds exhausted in 2052, after which benefits limited to revenues	Scheduled benefits, assuming trust fund revenues supplemented by other sources when needed
Unit of Analysis	Retired worker	Per-capita, retired workers only and all retirees
Income Measure	Lifetime earnings	Shared lifetime earnings (based on earnings splitting in years married)
Ranking people	10th, 50th, and 90th percentiles of lifetime earnings, within birth year cohorts	Shared lifetime earnings quintiles within age groups (62-67) and (80-85) in 2050
Time Horizon	Benefits at age 65 and lifetime ratio of benefits to taxes for workers born, 1940 to 2000	Annual benefits in 2050 for workers ages 62-67 and 80-85
Taxes and Benefits Included	Retired worker benefits and payroll taxes only	Retired worker benefits and all benefits (including spousal, survivor, and disability)
Reporting Gains and Losses	Benefits for median worker in quintile; current law and proposed; benefit to tax ratios, current law and proposed at 10th and 90th percentiles	Mean benefits in $2005 and mean percentage of schedule benefits received under policy options, for each quintile, in 2050.

Participation (SIPP), statistically matched to the Panel Survey of Income Dynamics (PSID) and a public-use CPS match to Social Security earnings records.

CBO's policy baseline is currently scheduled benefits until 2052, when CBO projects the OASDI trust fund balance will fall to zero. After 2052, the policy baseline scales down scheduled benefits proportionately to match trust funds revenues. Mermin's policy baseline is scheduled benefits, implicitly assuming that trust fund revenues will be supplemented by other sources when they fall to zero. (Mermin reports distributional effects no later than 2050, however, when according to CBO—but not the Social Security actuaries—there will still be positive balance in the OASDI trust funds.) CBO's unit of analysis is retired workers only, while Mermin's unit is each person at a given age, with married couples assumed to split their incomes. CBO measures economic status by lifetime earnings, while Mermin uses a shared lifetime earnings measure, which assigns to workers half the combined income of the worker and spouse in years the worker is married. Mermin divides the population into quintiles of shared lifetime earnings at ages 62 to 67 and 80 to 85, while CBO examines people grouped into 10th, 50th, and 90th quintiles of lifetime earnings *within their birth cohort*.

CBO estimates the effects of policy changes on benefits at age 65 and the lifetime ratio of benefits to taxes paid for all workers born between 1940 and 2000. Mermin estimates the effects of policy changes in 2050 on workers ages 62 through 67 (born between 1983 and 1988) and 80 through 85 (born between 1965 and 1970). CBO examines effects on retired worker benefits only, while Mermin also looks at changes in spousal benefits, survivor benefits and disability benefits. CBO displays the change in benefits and in the ratio of benefits to taxes paid for the median worker in the bottom, middle and top quintiles. Mermin displays changes in mean benefits in constant (2005) dollars and in the share of benefits received for each quintile in 2050.

These studies illustrate how distributional studies can differ in terms of databases used, methods of projecting data, methods of ranking people into groups, and ways of displaying and reporting results. But in spite of difference in details, the approaches share a number of common features. Both studies start with current law as the baseline, although one assumes benefits will be cut proportionately to match current revenue when the trust fund balance falls to zero. Both studies construct a large data file by combining separate databases that include different information and both project future economic and demographic events for the resulting sample population. Both studies classify people's economic status based on earnings over their entire lifetime, although only one includes spousal earnings in the measure of economic status. Both studies group people into quintiles and rank them against others in their own birth cohort, but not relative to people at different ages born in different years.

6. Conclusion

Distributional analyses will play an important role in considerations of future proposals to achieve fiscal solvency in the Social Security system. But distributional analysis of Social Security is complex because it involves assessment of how policy changes affect people over an extended time period, based on projections of economic and demographic characteristics of older Americans in future years. While both government and private groups have performed

distributional analysis of the effects of proposed Social Security reforms, there is no standard agreed on format either for performing these analyses or displaying the results.

This paper has considered some of the many choices in constructing such distributional analyses and reported on the discussion of a panel of government and private sector experts who reviewed these options. The expert panel offered important insights about methodological choices, but also revealed diverse viewpoints about some issues should be addressed. While further work remains to be done, we believe the discussion helped narrow the range of choices and confirmed that current methods used in recent research, while perhaps not the best possible methodologies in all respects, fall within the range of alternative reasonable approaches.

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Appendix: Participants in Expert Panel Meeting

Expert Panel

Andrew Biggs, American Enterprise Institute
Gary Burtless, The Brookings Institution
Stephen Goss, Social Security Administration
Joyce Manchester, Congressional Budget Office
Paul van de Water, Center on Budget and Policy Priorities

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