

January 2003

# SOCIAL SECURITY REFORM

## Analysis of Reform Models Developed by the President's Commission to Strengthen Social Security





Highlights of [GAO-03-310](#), a report to the Chairman of the Special Committee on Aging, U.S. Senate

## Why GAO Did This Study

Social Security is an important social insurance program affecting virtually every American family. It represents a foundation of the nation's retirement income system and provides millions of Americans with disability insurance and survivors' benefits. Over the long term, as the baby boom generation retires, Social Security's financing shortfall presents a major solvency and sustainability challenge. Numerous reform proposals have been put forward in recent years, and in December 2001 a commission appointed by the President presented three possible reform models.

Senator Breaux, Chairman of the Senate Special Committee on Aging, asked GAO to use its analytic framework to evaluate the Commission's models. This framework consists of three criteria: (1) the extent to which a proposal achieves sustainable solvency and how it would affect the economy and the federal budget; (2) the balance struck between the twin goals of income adequacy and individual equity; and (3) how readily such changes could be implemented, administered, and explained to the public.

[www.gao.gov/cgi-bin/getrpt?GAO-03-310](http://www.gao.gov/cgi-bin/getrpt?GAO-03-310).

To view the full report, including the scope and methodology, click on the link above. For more information, contact Barbara D. Bovbjerg at (202) 512-7215 or [bovbjergb@gao.gov](mailto:bovbjergb@gao.gov).

## SOCIAL SECURITY REFORM

# Analysis of Reform Models Developed by the President's Commission to Strengthen Social Security

## What GAO Found

Applying GAO's criteria to the Commission models highlights key options and trade-offs between efforts to achieve sustainable solvency and maintain adequate retirement income for current and future beneficiaries.

For example, the Commission's Model 2 proposal reduces Social Security's defined benefit from currently scheduled levels through various formula changes, provides enhanced benefits for low-wage workers and spousal survivors, and adds a voluntary individual account option in exchange for a benefit reduction. Model 2 would provide for sustainable solvency and reduce the shares of the federal budget and the economy devoted to Social Security compared to currently scheduled benefits (tax increase benchmark) regardless of how many individuals selected accounts. However, with universal account participation, general revenue funding would be needed for about 3 decades.

GAO's analysis of benefit adequacy and equity issues relating to Model 2 found that

- Across cohorts, median monthly benefits for those choosing accounts are always higher, despite a benefit offset, than for those who do not; this gap grows over time. In addition, benefits assuming universal account participation are higher than payment of a defined benefit generally corresponding to an amount payable from future Social Security trust fund revenues (benefit reduction benchmark). However, benefits received by those without accounts fall below the benchmark over time.
- For the lowest quintile, median monthly benefits with universal participation in the accounts tend to be higher than GAO's benefit reduction benchmark, likely due to the enhanced benefit for full-time "minimum wage" workers. This pattern becomes more pronounced across the cohorts analyzed.
- Regardless of whether an account is chosen, many people could receive monthly benefits under Model 2 that are higher than the benefit reduction benchmark. However, a minority could fare worse. Some people could also receive a benefit greater than under the tax increase benchmark although a majority could fare worse. Benefits for those choosing individual accounts will be sensitive to the actual rates of return earned by those accounts.

Adding individual accounts would require new administrative structures, adding complexity and cost. Public education will be key to help beneficiaries make sound decisions about account participation, investment diversification, and risk. Finally, any Social Security reform proposal must also be looked at in the context of both the program and the long-term budget outlook. A funding gap exists between promised and funded Social Security benefits which, although it will not occur for a number of years, is significant and will grow over time. In addition, GAO's long-term budget simulations show, difficult choices will be required to reconcile a large and growing gap between projected revenues and spending resulting primarily from known demographic trends and rising health care costs.

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## Abbreviations

OASDI	Old-Age and Survivors Insurance and Disability Insurance
PIA	primary insurance amount
SSA	Social Security Administration



G A O

Accountability \* Integrity \* Reliability

United States General Accounting Office  
Washington, DC 20548

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January 15, 2003

The Honorable John Breaux  
Chairman  
Special Committee on Aging  
United States Senate

Dear Mr. Breaux:

This report responds to your request that we apply our criteria for assessing Social Security reform proposals to the reform models developed by the President's Commission to Strengthen Social Security.<sup>1</sup> Each of the Commission's three reform models represents a different approach to including a voluntary individual account option to Social Security. Model 1 does not restore solvency and accordingly is not analyzed in this report. In April 2002, we provided your staff with a briefing on our preliminary results for Model 2. This report contains our final results, focusing on Model 2, with results for Model 3 presented in Appendix I.

We based our interpretation of the Commission's reform models in large part on the memorandum provided by the Office of the Chief Actuary at the Social Security Administration (SSA) dated January 31, 2002, that estimated the reform models' effects on the Social Security program. Our interpretation also draws on the Commission's final report. As agreed with your office, our report is based on the analytic framework we have used in past work to evaluate Social Security reform proposals.<sup>2</sup> That framework consists of three basic criteria:

- the extent to which the proposal achieves sustainable solvency and how it would affect the U.S. economy and the federal budget,

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<sup>1</sup>The Commission's report, *Strengthening Social Security and Creating Personal Wealth for All Americans* was issued on December 21, 2001 (revised March 19, 2002).

<sup>2</sup>See, for example, U.S. General Accounting Office, *Social Security: Evaluating Reform Proposals*, GAO/AIMD/HEHS-00-29 (Washington, D.C.: Nov. 4, 1999) and *Social Security Reform: Information on the Archer-Shaw Proposal*, GAO/AIMD/HEHS-00-56 (Washington, D.C.: Jan. 18, 2000).

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- the balance struck between the twin goals of income adequacy (level and certainty of benefits) and individual equity (rates of return on individual contributions), and
  - how readily such changes could be implemented, administered, and explained to the public.

In evaluating proposals against the three basic criteria, we used a set of detailed questions that help describe potential effects of reform models on important policy and operational aspects of public concern. These questions are displayed in the report.

Our analysis of the Commission reform models included comparison with three benchmarks:<sup>3</sup>

- The “benefit reduction benchmark” assumes a gradual reduction in the currently scheduled Social Security defined benefit beginning with those newly eligible for retirement in 2005. Current tax rates are maintained.
- The “tax increase benchmark” assumes an increase in the OASDI payroll tax beginning in 2002 sufficient to achieve an actuarial balance over the 75-year period. Currently scheduled benefits are maintained.
- The “baseline extended” benchmark is a fiscal policy path developed in our earlier long-term model work that assumes payment in full of currently scheduled Social Security benefits and no other changes in current spending or tax policies.

To show the range of possible outcomes given the voluntary nature of individual accounts<sup>4</sup> in the Commission models, we simulated each model assuming (1) no participation (0%) in the individual account option and (2) universal participation (100%) in the account option. Actual experience would likely fall between these bounds but cannot be predicted with any degree of certainty.

As you requested, we used our long-term economic model in assessing Commission reform models against the first criterion, that of financing

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<sup>3</sup>From the perspective of analyzing benefit adequacy, the tax increase and baseline extended benchmarks are identical because both assume payment in full of scheduled Social Security benefits over the 75-year simulation period.

<sup>4</sup>In this report, the term “individual account” is used for the voluntary accounts, consistent with published GAO work. The Commission used the term “personal account” in its final report.

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sustainable solvency.<sup>5</sup> Although any proposal's ability to achieve and sustain solvency is sensitive to economic and budgetary assumptions, using a common framework can facilitate comparisons of alternative reform proposals. Our sustainable solvency standard encompasses several different ways of looking at the Social Security program's financing needs. While 75-year actuarial balance is generally used in evaluating the long-term financial outlook of the Social Security program and reform proposals, it is not sufficient in gauging the program's solvency after the 75th year. For example, under the Trustees' intermediate assumptions, each year the 75-year actuarial period changes, and a year with a surplus is replaced by a new 75th year that has a significant deficit. As a result, changes made to restore trust fund solvency only for the 75-year period can result in future actuarial imbalances almost immediately. Reform plans that lead to sustainable solvency would be those that consider the broader issues of fiscal sustainability and affordability over the long term.<sup>6</sup>

To examine how the Commission reform models balance adequacy and equity concerns, we used the GEMINI model, a dynamic microsimulation model for analyzing the lifetime implications of Social Security policies for a large sample of people<sup>7</sup> born in the same year. GEMINI can simulate different reform features, including individual accounts with an offset, for their effects on the level and distribution of benefits.<sup>8</sup> To avoid having the extremely high returns of a small portion of participants skew the average, we present most of our statistics as medians. To assess benefit adequacy, we display median monthly benefit levels for the 1955, 1970, and 1985 birth cohorts to enable comparisons over time; initial benefits by earnings

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<sup>5</sup>For this analysis, consistent with SSA's scoring of the Commission reform models, our long-term economic model incorporates the 2001 Trustees' best, or intermediate, assumptions.

<sup>6</sup>In addition to assessing a proposal's likely effect on Social Security's actuarial balance, a standard of sustainable solvency also involves looking at (1) the balance between program income and cost beyond the 75th year and (2) the share of the budget and economy consumed by Social Security spending.

<sup>7</sup>The GEMINI cohorts consist of simulated samples of 100,000 individuals, sometimes called synthetic samples. These samples were validated against data from the Social Security Administration's Annual Statistical Supplement, the SIPP, the CPS, MINT2, and the PSID.

<sup>8</sup>In simulating the individual accounts, we used the same nominal rates of return used by SSA's Office of the Chief Actuary in January 2002, with 6.3 percent for Treasuries, 6.8 percent for corporate bonds, and 10 percent for equities.

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quintile, comparing the lowest and highest quintiles; and the effects on the distribution of initial benefits within each cohort.

To examine how the Commission reform models provide for reasonable implementation and communication of any changes, we used qualitative analysis based on GAO's issued and ongoing body of work on Social Security reform. This work addresses various issues raised by reform approaches, including establishing individual accounts, raising the retirement age, and the impact of reforms on minorities and women.

Models 2 and 3 restore solvency to the Old-Age and Survivors Insurance and Disability Insurance (OASDI) Trust Funds through a combination of changes in the initial benefit calculation, general revenue transfers, and/or benefit offsets for those who choose to participate in the individual account option. Model 3 requires an additional contribution equal to 1 percent of taxable payroll under the voluntary individual account option. All models share a common framework for administering individual accounts. As agreed with your office, this report focuses on Model 2, with results for Model 3 presented in Appendix I.

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## Achieving Sustainable Solvency

The use of our criteria to evaluate approaches to Social Security reform highlights the trade-offs that exist between efforts to achieve solvency for the OASDI trust funds and efforts to maintain adequate retirement income for current and future beneficiaries. The models illustrate some of the options and trade-offs that will need to be considered as the nation debates how to reform Social Security.

Our analysis of sustainable solvency under Model 2 showed that

- As estimated by the actuaries, Model 2, with either universal (Model 2—100%) or zero (Model 2—0%) participation in voluntary individual accounts, is solvent over the 75-year projection period, and the ratio of annual income to benefit payments at the end of the simulation period is increasing. However, in Model 2—100% over three decades of general revenue transfers are needed to achieve trust fund solvency. Model 2—0% achieves solvency with no general revenue transfers.
- Model 2-100% would ultimately reduce the budgetary pressures of Social Security on the unified budget relative to baseline extended. However, this would not begin until the middle of this century. Relative to both GAO's benefit reduction benchmark and tax increase benchmark, unified surpluses would be lower and unified deficits higher throughout the simulation period under Model 2-100%. Model 2-0% would reduce

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budgetary pressures due to Social Security beginning around 2015 relative to baseline extended. This fiscal outlook under Model 2-0% is very similar to the fiscal outlook under GAO's benefit reduction benchmark.

- Under Model 2-100%, the government's cash requirement (as a share of GDP) to fund the individual accounts and the reduced defined benefit would be about 20 percent higher initially than under both the baseline extended and tax increase benchmarks. This differential gradually narrows until the 2030s, after which less cash would be required under model 2-100%. By 2075, Model 2-100% would require about 40 percent less cash than the baseline extended and tax increase benchmarks.
- Viewed from the perspective of the economy, total payments (Social Security defined benefits plus benefit from individual accounts) as a share of GDP would gradually fall under Model 2-100% relative to the baseline extended and tax increase benchmarks. In 2075, the share of the economy absorbed by payments to retirees from the Social Security system as a whole under Model 2-100% would be roughly 20 percent lower than the baseline extended or tax increase benchmark and roughly the same as under the benefit reduction benchmark.
- With regard to national saving, Model 2 increases net national saving on a first order basis primarily due to the proposed benefit reductions. The individual account provision does not increase national saving on a first order basis; the redirection of the payroll taxes to finance the individual accounts reduces government saving by the same amount that the individual accounts increase private saving.

Beyond these first order effects, the actual net effect of a proposal on national saving is difficult to estimate due to uncertainties in predicting changes in future spending and revenue policies of the government as well as changes in the saving behavior of private households and individuals. For example, the lower surpluses and higher deficits that result from redirecting payroll taxes to individual accounts could lead to changes in federal fiscal policy that would increase national saving. However, households may respond by reducing their other saving in response to the creation of individual accounts.<sup>9</sup>

Model 3 results are presented in Appendix I. Because the benefit reductions in Model 3 are smaller than in Model 2, long-term unified deficits are larger under Model 3. Model 3 requires an additional contribution equal to 1 percent of taxable payroll for those choosing individual accounts. Assuming universal account participation in both

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<sup>9</sup>No expert consensus exists on how Social Security reform proposals would affect the saving behavior of private households and businesses.

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models, Model 3 would result in a larger share of the economy being absorbed by total benefit payments to retirees—about the same share as would be the case under the baseline extended and tax increase benchmarks.

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## Balancing Adequacy and Equity

The Commission’s proposals also illustrate the difficulty reform proposals face generally in balancing adequacy (level and certainty of benefits) and equity (rates of return on individual contributions) considerations. Each of the models protects benefits for current and near-term retirees and the shift to advance funding could improve intergenerational equity. However, under each of the models, some future retirees also could face potentially significant benefit reductions in comparison to either the tax increase or the benefit reduction benchmarks because primary insurance amount (PIA) formula factors that are reduced by real wage growth, uncertainty in rates of return earned on accounts, changes in benefit status over time, and annuity pricing.

Our analysis of Model 2 shows that:

- Median monthly benefits (the Social Security defined benefit plus the benefit from the individual account) for those choosing individual accounts are always higher, despite a benefit offset, than for those who do not choose the account, and this gap grows over time. In addition, median monthly benefits under universal participation in the accounts are also higher than the median benefits received under the benefit reduction benchmark. However, median monthly benefits received by those without accounts fall below those provided by the benefit reduction benchmark over time.
- For the lowest quintile of beneficiaries, median monthly benefits with universal participation in the accounts tend to be higher than the benefits received under the benefit reduction benchmark, likely due to the enhanced benefit for full-time “minimum wage” workers. This pattern becomes more pronounced over time.
- Regardless of whether an account is chosen, under Model 2 many people could receive monthly benefits that are higher than the benefit reduction benchmark. However, a minority could fare worse. Some people could also receive a benefit greater than under the tax increase benchmark although a majority could fare worse. Monthly benefits for those choosing individual accounts will be sensitive to the actual rates of return earned by those accounts.

The cohort results for Model 3 are generally similar to Model 2. However, median monthly benefits for those choosing individual accounts are higher

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than the benefit level under the tax increase benchmark for the 1970 and 1985 cohorts. This result is likely because of Model 3's feature of a mandatory extra 1 percent contribution into the individual accounts for those who choose to participate. Further results on Model 3 can be found in Appendix I.

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## Implementing and Administering Reforms

Each of the models would establish a governing board to administer the individual accounts, including the choice of available funds and providing financial information to individuals. While the Commission had the benefit of prior thinking on these issues, many implementation issues remain, particularly in ensuring the transparency of the new system and educating the public to avoid any gaps in expectations. For example, an education program would be necessary to explain the changes in the benefit structure, model features like the benefit offset and how accounts would be split in the event of divorce. Education and investor information is also important as the system expands and increases the range of investment selection. Questions about the harmonization of such features with state laws regarding divorce and annuities also remain an issue.

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## Concluding Observations

The use of our criteria to evaluate approaches to Social Security reform highlights the trade-offs that exist between efforts to achieve sustainable solvency and to maintain adequate retirement income for current and future beneficiaries. These trade-offs can be described as differences in the extent and nature of the risks for individuals and the nation as a whole. For example, under certain individual account approaches, including those developed by the Commission, some financial risk is shifted to individuals and households to the extent that individual account income is expected to provide a major source of income in retirement.

At the same time, the defined benefit under the current Social Security system is also uncertain. The primary risk is that a significant funding gap exists between currently scheduled and funded benefits which, although it will not occur for a number of years, is significant and will grow over time. Other risks stem from uncertainty in, for example, future levels of productivity growth, real wage growth, and demographics. Congress has revised Social Security many times in the past, and future Congresses could decide to revise benefits in ways that leave those affected little time to adjust. As Congress deliberates approaches to Social Security, the national debate also needs to include discussion of the various types of risk implicit in each approach and in the timing of reform.

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Public education and information will be key to implementing any changes in Social Security and especially so if individuals must make choices that affect their future benefits. Since the Commission options were published, there has been limited explanatory debate. As Congress and the President consider actions to be taken, it will be important as well to consider how such actions can be clearly communicated to and understood by the American people.

Finally, any Social Security reform proposal must also be looked at in the context of the nation's overall long-range fiscal imbalances. As our long-term budget simulations show,<sup>10</sup> difficult choices will be required of policymakers to reconcile a large and growing gap between projected revenues and spending resulting primarily from known demographic trends and rising health care costs.

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## Agency Comments and Our Evaluation

We provided SSA an opportunity to comment on the draft report. The agency provided us with written comments, which appear in Appendix II. SSA acknowledged the comprehensiveness of our analysis of the Commission's proposals. The agency also concurs with our reform criterion of achieving sustainable solvency and with our report's overall observations and conclusions. SSA's comments and suggestions can be grouped into a few general categories.

GAO Benchmarks and Their Relationship to Sustainable Solvency - The agency commends our use of multiple benchmarks with which to compare alternative proposals. However, they note that our definition of sustainable solvency differs from that used by SSA in assessing trust fund financial status. In addition, although they note that our benchmarks are solvent over the 75-year projection period commonly used by SSA's Office of the Chief Actuary in its preparation of the annual trustees report, they do not achieve sustainable solvency<sup>11</sup>. SSA expresses a concern that unless carefully annotated, the comparisons made in our report could be misunderstood. Finally, SSA also suggests the use of several alternative

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<sup>10</sup>See, for example, U.S. General Accounting Office, *Budget Issues: Long-Term Fiscal Challenges*, [GAO-02-467T](#) (Washington, D. C. : Feb, 27, 2002) and *Social Security: Long-Term Financing Shortfall Drives Need for Reform*, [GAO-02-845T](#) (Washington, D. C.: Jun. 19, 2002).

<sup>11</sup>In response to another agency suggestion, we have also clarified our definition of sustainable solvency in the report.

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benchmarks, of which one would provide additional revenue to pay for currently scheduled benefits.

We agree with SSA that sustainable solvency is an important objective; indeed it is one of our key criteria with which we suggest that policymakers evaluate alternative reforms. SSA correctly points out that GAO's benchmarks do not achieve sustainable solvency beyond the 75-year period. We believe our standard is a more encompassing one. SSA's definition relies on analyzing trends in annual balances and trust fund ratios near the end of the simulation period. Consequently the definition needs to be supplemented, for example, in cases where proposals use general revenue transfers or other unspecified sources of revenue that automatically rise and fall to maintain annual balance or a certain trust fund ratio. In addition, SSA's definition does not directly consider the resources needed to fund individual accounts. Our standard includes other measures in an effort to gain a more complete perspective of a proposal's likely effects on the program, the federal budget, and the economy.

We share SSA's emphasis on the importance of careful and complete annotation. The report explicitly addresses the issue of sustainable solvency and states that the comparison benchmarks used, while solvent over the 75-year projection period, are not solvent beyond that period. Given SSA's concerns, we have revised our report to clarify our analyses, where appropriate, to minimize the potential for misinterpretation or misunderstanding.

Regarding SSA's suggestion about the use of alternative benchmarks, we already use a benchmark that provides additional revenue to pay currently scheduled benefits. Our other benchmark maintains current tax rates, phasing in benefit reductions over a 20-year period. In our view, the set of benchmarks used provide a fair and objective measuring stick with which to compare alternative proposals, particularly the many proposals that introduce reform elements over a number of years. Both of the benchmarks are explicitly fully funded and in their design we worked closely with Social Security's Office of the Chief Actuary to calibrate them to ensure their solvency over the 75-year period.

Additional Analysis – Many of SSA's comments suggest additional or more detailed analyses of some of our findings. For example, SSA suggested additional analyses of the characteristics of those beneficiaries who fare better or worse under each of the Commission's models, further distributional analyses on groups of beneficiaries who claim benefits at ages other than 65 and that we conduct analyses on rates of participation

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other than the polar cases of 0 percent and 100 percent individual account participation. The agency also suggested that substantial analysis on implementation and administration issues is necessary, given the complexity of administering the commission's models. Although we tried to address most of the critical issues given our limited time and resources, we agree with SSA that many of their suggested analyses could provide additional useful insights in understanding the distributional implications of adopting the Commission's proposals.

Distributional Analysis - SSA expressed a number of concerns about the SSASIM-GEMINI simulation model that we use to conduct our distributional analysis of benefits. One concern addresses future cohorts' benefit levels reported in our draft. In this regard, we were already reviewing the level of benefits received by the 1985 cohort and the highest quintile of that cohort with outside experts, and our subsequent analysis suggests findings that are more consistent with SSA's observations: we have made these changes to the report.

Some of SSA's concerns also appear to result from confusion over the structure, design and limitations of the SSASIM-GEMINI model. We have included some additional documentation in the report that we believe will help both the layperson as well as a more technical audience understand the model more easily. We note that while ancillary benefits can be calculated through the model and are included in our analysis, we utilize the model to focus on the individual beneficiary and not the household as the unit of analysis. The model also includes marriage and divorce rates and their implication for earnings. These marriage and divorce rates and other key parameters are expressed by probability rules that drive the lifetime dynamics of the synthetic population. These rules are not heuristically generated but are validated through a comparison with data from the Social Security Administration and the Current Population Survey, among others. We also note that in certain of instances, for example in specifying the calculation of annuities as well as the specification of rates of return used in the modeling, we consulted with SSA's Office of the Chief Actuary in an effort to reflect their projection methodology to extent that it was feasible.

Measures of Debt - SSA notes that unfunded obligations may be considered a kind of implicit debt and should be considered in the analysis. In analyzing reform plans, however, the key fiscal and economic point is the ability of the government and society to afford the commitments when they come due. Our analysis addresses this key point

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by looking at the level and trends over 75 years in deficits, cash needs, and GDP consumed by the program.

Technical Comments – SSA also provided technical and other clarifying comments about the minimum benefit provision, our characterization of stochastic simulation as well as other minor aspects of the report, which we incorporated as appropriate.

We are sending copies of this report to the Honorable Larry E. Craig, Ranking Minority Member, Senate Special Committee on Aging, Senator Max S. Baucus, Chairman, Senate Committee on Finance, Senator Charles E. Grassley, Ranking Minority Member, Senate Committee on Finance, the Honorable William M. Thomas, Chairman, and the Honorable Charles B. Rangel, Ranking Minority Member, House Committee on Ways and Means, the Honorable E. Clay Shaw, Chairman, and the Honorable Bob Matsui, Ranking Minority Member, Subcommittee on Social Security, House Committee on Ways and Means, and the Honorable Jo Ann B. Barnhart, Commissioner, Social Security Administration. We will also make copies available to others on request. In addition, the report is available at no charge on GAO's Web site at <http://www.gao.gov>.

If you or your staffs have any questions about this report, please contact Barbara D. Bovbjerg, Director, Education, Workforce, and Income Security Issues, on (202) 512-7215, or Susan Irving, Director, Strategic Issues, on (202) 512-9142.

A handwritten signature in black ink, appearing to read "D. M. Walker", with a long horizontal line extending to the right.

David M. Walker  
Comptroller General  
of the United States

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# Appendix I: Analysis of Reform Models

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## **Analysis of Reform Models Developed by the President's Commission to Strengthen Social Security**

January 2003

## Objectives

- Evaluation of reform models put forward by the President's Commission to Strengthen Social Security.
- The evaluation uses the three basic criteria GAO has developed that provide policymakers with a framework for assessing reform plans:
  - Financing Sustainable Solvency
  - Balancing Adequacy and Equity in the Benefits Structure
  - Implementing and Administering Reforms

## Evaluating Social Security Reform Proposals

- Comprehensive proposals can be evaluated against three basic criteria.
- Reform proposals should be evaluated as packages that strike a balance among individual reform elements and important interactive effects.
- Some proposals will fare better or worse than other proposals under each criterion.
- Overall evaluation of each proposal depends on the weight individual policymakers place on each criterion.

## **The President's Charge to the Commission to Strengthen Social Security**

To develop reform plans that strengthen Social Security and increase its fiscal sustainability while meeting these principles:

- No changes to benefits for retirees or near-retirees.
- Dedication of entire Social Security surplus to Social Security.
- No increase in Social Security payroll taxes.
- No government investment of Social Security funds in the stock market.
- Preservation of disability and survivor components.
- Inclusion of individually controlled voluntary individual retirement accounts.

## Overview of Commission Reform Models

- The Commission developed three reform models, each of which represents a different approach to including a voluntary individual account component in Social Security.
- Model 1 does not change the defined benefit and does not restore solvency; Models 2 and 3 restore solvency through a combination of changes in the initial benefit calculation, general revenue transfers, and/or benefit offsets for those who choose to participate in the individual account option.
- Account contribution amounts, benefit offset in exchange for account participation, and calculation of an individual's initial benefit differ among the three models.
- All models share a common framework for administering accounts.

## **Individual Accounts: Framework Common to All Commission Models**

- Voluntary individual accounts in exchange for reduction in Social Security defined portion of benefit. This benefit offset is linked to account contributions, not actual account balance.
- Governing Board to administer individual accounts structured along Thrift Savings Plan (TSP) or Federal Reserve Board model.
- Two-tier investment framework:
  - Initially, balance must be invested through TSP-like system with several fund choices; later, if balance is above a threshold, account may be invested in a range of qualified private sector funds.
  - Annual option to change allocation.

## **Individual Accounts: Framework Common to All Commission Models**

- Account access:
  - Account may be left to heirs if owner dies before retirement.
  - No withdrawals before retirement (for disabled, before normal retirement age).<sup>1</sup>
  - At retirement, conversion to phased withdrawals or annuity. Above a specified threshold, balance may be taken as a lump sum.

<sup>1</sup>The Commission's report stated that due to the complex and sensitive issues involved, time did not permit the development of specific recommendations for DI. Accordingly, the Commission recommended the President address DI through a separate policy process.

## **Individual Accounts: Framework Common to All Commission Models**

- **Annuities:**
  - For married workers, joint and two-thirds survivor annuity.<sup>1</sup>
  - Several types of annuities to be made available, including inflation-indexed annuities and annuities permitting bequest if owner dies before a specified time.
  
- **Spousal protections:**
  - Account balance acquired during the marriage divided equally at divorce.
  - Balances acquired before marriage not shared at time of divorce.

<sup>1</sup>Or alternative arrangement, agreed to by both spouses, consistent with the principle that total benefit income will be sufficient to keep both spouses above the poverty line in retirement.

## GAO's Methodology

- Financing Sustainable Solvency
  - GAO's long-term economic model was used to help assess the potential fiscal and economic impacts of Social Security reform proposals.
  - Estimates of reform models' costs and income are those made by the Office of the Chief Actuary, Social Security Administration.
- Balancing Adequacy and Equity
  - The GEMINI model, a dynamic microsimulation model,<sup>1</sup> was used to analyze the 1955, 1970, and 1985 birth cohorts to enable comparison of results over time as reform models are fully implemented.
- Implementing and Administering Reforms
  - Qualitative analysis based on GAO's issued and ongoing body of work on Social Security reform was used.

<sup>1</sup> GEMINI is useful for analyzing the lifetime implications of Social Security policies for a large sample of people born in the same year and can simulate different reform features, including individual accounts with an offset, for their effects on the level and distribution of benefits. GEMINI was used to analyze Models 2 and 3 both with 0 and 100 percent participation in the individual account features of the proposals.

## Benchmarks

GAO's analysis uses three benchmarks:

- Benefit reduction maintains current payroll tax rates and assumes a gradual reduction in Social Security benefits beginning with those reaching age 62 in 2005 and continuing for the next 30 years.
- Tax increase<sup>1</sup> assumes that the combined employer-employee payroll tax rate is increased by 0.34 percent for DI and 1.56 percent for OASI beginning in 2002 in order to pay scheduled benefits.
- Baseline extended is a fiscal policy path that assumes payment in full of all scheduled Social Security benefits throughout the 75-year period and no other changes in current policies. In this analysis, it uses the 2001 Trustees intermediate economic assumptions, consistent with SSA scoring of reform models.

<sup>1</sup>The benefit reduction and tax increase benchmarks were developed by GAO with technical input from SSA's Office of the Chief Actuary. Both use the 2001 Trustees intermediate economic assumptions. Both restore 75-year actuarial balance to Social Security, but are not solvent beyond this period.

## Benchmarks

- All three benchmarks are used in analyzing sustainable solvency. From the perspective of sustainable solvency, the baseline extended differs from the tax increase benchmark. The tax increase benchmark assumes payroll tax financing of all scheduled benefits whereas the baseline extended benchmark assumes all scheduled benefits will be paid but does not specify any new financing.
- There is no difference between the tax increase and baseline extended benchmarks in analyzing benefit levels, since only the financing of benefits differs, not the actual benefit levels. Therefore only the benefit reduction and tax increase benchmarks are used in analyzing benefit adequacy.
- Benchmarks are to be viewed as illustrative, polar cases or bounds for changes within the current system. Other benchmarks could be devised with different tax and/or benefit adjustments that would perform the same function.

## Scope

- Briefing focuses on Model 2, with results for Model 3 presented in the appendix.<sup>1</sup>
- The Commission’s models include a voluntary individual account option. In our analysis we looked at the two bounds of possible outcomes—universal participation (100%) in the account option, or no participation (0%). In analyzing benefit levels, we refer to these outcomes as “with” and “without” accounts.

<sup>1</sup>Models 2 and 3 restore Social Security solvency; Model 1 does not and accordingly is not the focus of GAO’s analysis.

## Model 2

- Voluntary individual account contribution of 4 percent of taxable payroll up to \$1,000 annually in exchange for benefit reduction.<sup>1</sup>
- For all those age 62 in 2009 or younger, defined benefits reduced from currently scheduled by indexing initial benefit to prices rather than wages.
- Enhanced spousal survival benefit beginning in 2009.
  - Increase in widow(er) benefit up to 75 percent of combined spousal benefit (up to average benefit levels).
- A new enhanced benefit for full-time “minimum-wage” workers who work more than 20 years.<sup>2</sup>
  - Accelerated growth in initial benefits from 2009 to 2018.
  - By 2018, a minimum wage worker with 30 years of program coverage would receive an inflation-indexed benefit equal to 120 percent of poverty level.
- To the extent that there is participation in individual accounts, financing through general revenue transfers will be needed. If participation were universal, transfers would be needed for about three decades.

<sup>1</sup>Maximum contribution amount indexed annually to wage growth. Benefit reduction based on amount of account contributions compounded at a real interest rate of 2 percent.

<sup>2</sup>The minimum wage is the current Fair Labor Standards Act minimum of \$5.15 an hour but is assumed to grow with the Social Security average wage index.

## Sustainable Solvency

- While achieving solvency for the OASDI Trust Funds is important, the concept of sustainable solvency goes beyond 75-year actuarial balance.
- Sustainable solvency includes reforming the Social Security program in such a way as to avoid the need to periodically revisit actuarial imbalances of the OASDI Trust Funds. For example, a rising or level trust fund ratio at the end of the 75-year period can be an indicator of future program solvency.
- However, trust fund ratios can give an incomplete picture. They do not provide information about the effect of program spending on the federal budget or the economy. In addition, trust fund ratios can be affected by timing of tax and benefit adjustments and use of general revenues.
- Sustainable solvency also includes assessing the effects of proposed program changes on the federal budget and on the economy.
- Reforms that reduce pressures on the federal budget and reduce the size of the economy that will be absorbed in the future by the Social Security system can lead to sustainable solvency.

## Financing Sustainable Solvency

This criterion evaluates the extent to which the proposal achieves sustainable solvency, including how the proposal would affect the economy and the federal budget.

### To what extent does the proposal:

- Reduce future budgetary pressures?
- Reduce debt held by the public?
- Reduce the cost of the Social Security system as a percentage of GDP?
- Reduce the percentage of federal revenues consumed by the Social Security system?
- Increase national saving?
- Restore 75-year actuarial balance and create a stable system?
- Raise payroll taxes, draw on general revenues, and/or use Social Security trust fund surpluses to finance changes?
- Create contingent liabilities?
- Include “safety valves” to control future program growth?

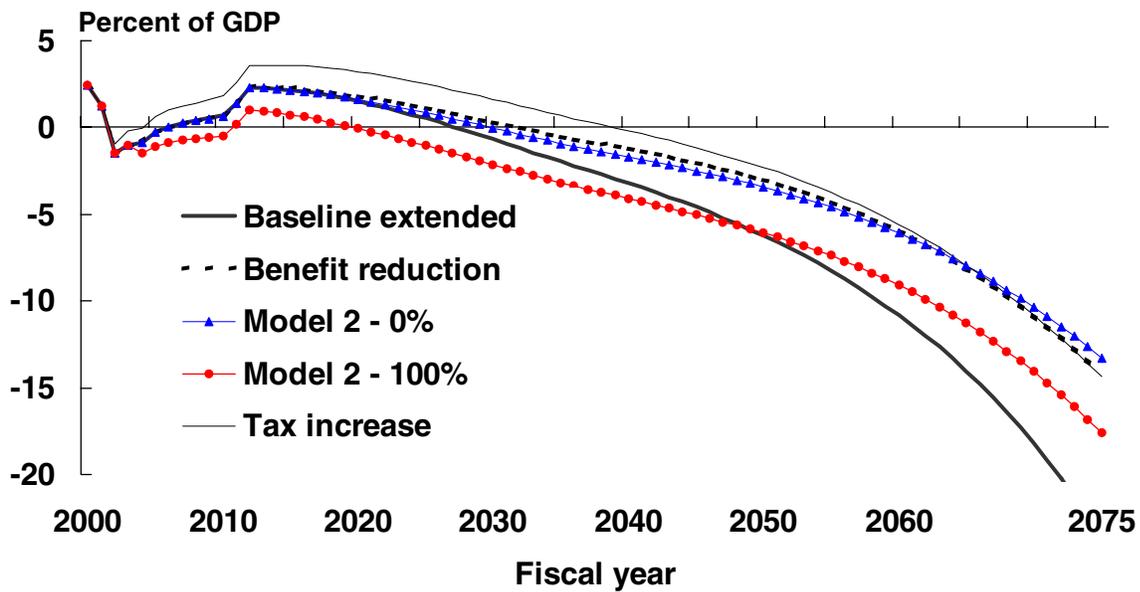
## Model 2

# Financing Sustainable Solvency

Figure 1

- Compared to the baseline extended, Model 2 with universal participation (Model 2 - 100%) in the individual accounts (IA) option results in larger unified deficits as a share of GDP through the 2040s, thereafter unified deficits are progressively lower.
- Model 2 with no participation (Model 2 - 0%) in IAs results in higher unified surpluses and lower unified deficits beginning around 2015 through the end of the simulation period compared to baseline extended.
- Greater participation in IAs results in lower surpluses/higher deficits over the simulation period.
- Throughout the simulation period, unified surpluses are considerably lower and unified deficits are considerably higher under Model 2-100% than under the tax increase benchmark and, to a lesser extent, the benefit reduction benchmark.
- Through the 2060s, the fiscal outlook under Model 2-0% is quite similar to the outlook under the benefit reduction benchmark but compared to the tax increase benchmark, unified surpluses are lower and unified deficits are higher over the same time frame.

### Figure 1: Model 2 Unified Surpluses and Deficits as a Share of GDP



Source: GAO analysis.

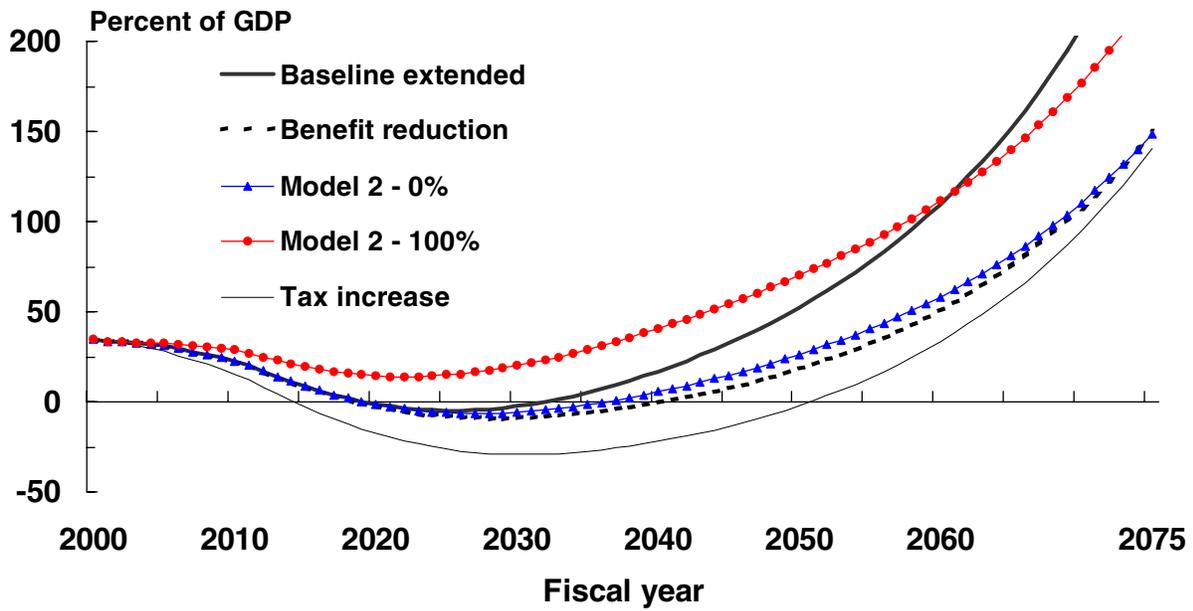
## Model 2

# Financing Sustainable Solvency

Figure 2

- Compared to the baseline extended, net debt held by the public as a share of GDP is higher under Model 2-100% until about 2060; thereafter, debt held by the public is lower.
- Under Model 2-0%, net debt held by the public is lower beginning about 2020 through the end of the simulation period.
- Greater participation in the IAs results in higher net debt held by the public throughout the simulation period.
- Throughout the simulation period, net debt held by the public under Model 2-100% is considerably higher than the tax increase benchmark and, to a lesser extent, the benefit reduction benchmark.
- Net debt held by the public under Model 2-0% is slightly higher than under the benefit reduction benchmark and much higher than under the tax increase benchmark until the end of the simulation period.

### Figure 2: Model 2 Debt Held by the Public as a Share of GDP



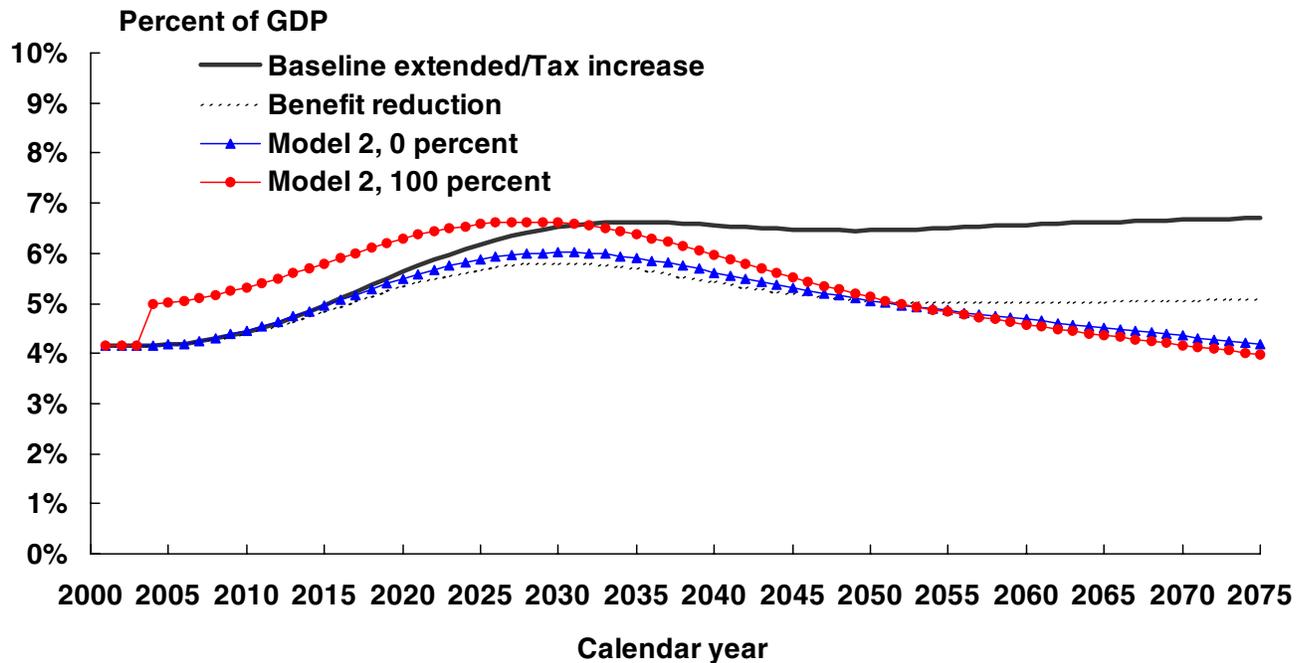
Source: GAO analysis.

## Model 2 Financing Sustainable Solvency

Figure 3:

- The government's cash requirement includes the amount of cash required to pay defined benefits and redirect payroll taxes to individual accounts. Under Model 2-100%, the government's cash requirement would be greater than under both the baseline extended and tax increase benchmarks in the near term—by about 20 percent in 2010. Beginning in the 2030s, less cash would be required for Model 2-100% than the baseline extended and tax increase benchmarks. In 2075, Model 2-100% would require about 40 percent less cash than the baseline extended and tax increase benchmarks.
- The cash requirement for Model 2-0% would be the same or less than the baseline extended/tax increase benchmarks throughout the period. In 2075, Model 2-0% would require less cash—nearly 40 percent—than both the baseline extended and tax increase benchmarks.
- The government's cash requirement for Model 2 would be greater than the benefit reduction benchmark until the 2050s. In 2075, Model 2 cash requirements would be about 20 percent lower than the benefit reduction benchmark.
- In the near term, the greater the individual account participation, the more cash required. Over the long term, however, greater individual account participation would reduce the government's cash requirements.

### Figure 3: Model 2 Government Cash Requirements



Source: GAO analysis of data from the Office of the Chief Actuary, SSA. Benefit amounts shown for the baseline extended and tax increase benchmarks are scheduled benefits as estimated by the actuaries. All estimates are based on the Trustees' 2001 intermediate assumptions.

Note: Includes cash for defined benefits paid out under the traditional system and redirect of payroll taxes to individual accounts.

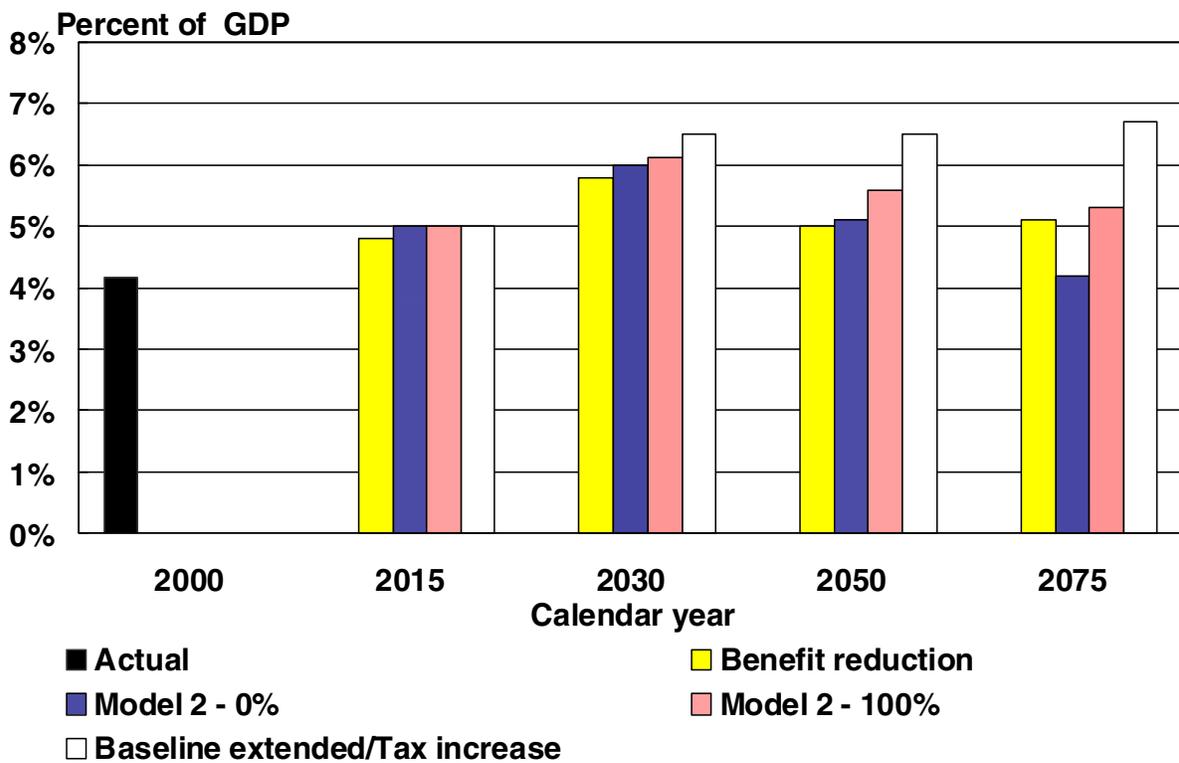
## Model 2

# Financing Sustainable Solvency

Figure 4:

- In 2015, total benefit payments (Social Security benefits plus individual account disbursements) as a share of GDP under Model 2 would be about the same as under the baseline extended or tax increase benchmark and slightly higher than the benefit reduction benchmark.
- In 2030, total benefit payments as a share of GDP under model 2 would be somewhat (6-8 percent) lower than under the baseline extended and tax increase benchmark but somewhat higher (4-5 percent) compared with the benefit reduction benchmark.
- In 2075, total benefit payments as a share of GDP under Model 2-100% would be about one fifth lower than under the baseline extended or tax increase benchmark but somewhat (4 percent) higher than under the benefit reduction benchmark. The difference in total benefit payments between Model 2-100% and Model 2-0% becomes pronounced over time, with payments under Model 2-0% more than a third lower than the baseline extended or tax increase benchmark by 2075.

## Figure 4: Model 2 Combined Social Security and Individual Account Disbursements as a Share of GDP



Source: GAO analysis of data from the Office of the Chief Actuary, SSA. Benefit amounts shown for baseline extended and tax increase benchmarks are scheduled benefits as estimated by the actuaries. All estimates are based on the Trustees' 2001 intermediate assumptions.

## Model 2

# Financing Sustainable Solvency

- Under Model 2, national saving would increase primarily due to the improved fiscal position of the government resulting from the proposed benefit reductions. The redirection of payroll taxes under the IA option, would increase private saving and decrease government saving with no net effect on national saving.<sup>1</sup>
- Model 2 restores 75-year actuarial balance with either no participation or universal participation in the IA option. The trust fund ratio would be rising at the end of the 75-year period under both Model 2-0% and Model 2-100%.
- Model 2-0% requires no additional revenue. IAs are financed as a redirection of payroll taxes. General revenue transfers would be used to keep the OASDI trust funds solvent under Model 2-100%.
- Model 2 does not create any new contingent liabilities. Individuals bear the risk of IA investment performance.
- Model 2 contains no new “safety valves” to control future program growth.

<sup>1</sup>Analysis limited to first order effects on saving. Effects on saving behavior in response to specific reform provisions are not considered given the lack of expert consensus.

## Balancing Adequacy and Equity

This criterion evaluates the balance struck between the twin goals of income adequacy (level and certainty of benefits) and individual equity (rates of return on individual contributions).

**To what extent does the proposal:**

- Change scheduled benefits for current and future retirees?
- Maintain benefits for low-income workers who are most reliant on Social Security?
- Maintain benefits for the disabled, dependents, and survivors?
- Ensure that those who contribute receive benefits?
- Provide higher replacement rates for lower income earners?
- Expand individual choice and control over program contributions?
- Increase returns on investment?
- Improve intergenerational equity?

## **Balancing Adequacy and Equity: GAO Analysis**

- We evaluate the adequacy and equity criterion for Model 2 in comparison with GAO benchmarks through analyses of
  - Median monthly benefits for the 1955, 1970 and 1985 birth cohorts.
  - Median monthly benefits by benefit quintile.
  - Distribution of benefits within each cohort.

## **Balancing Adequacy and Equity- Specific Provisions Affecting Benefits**

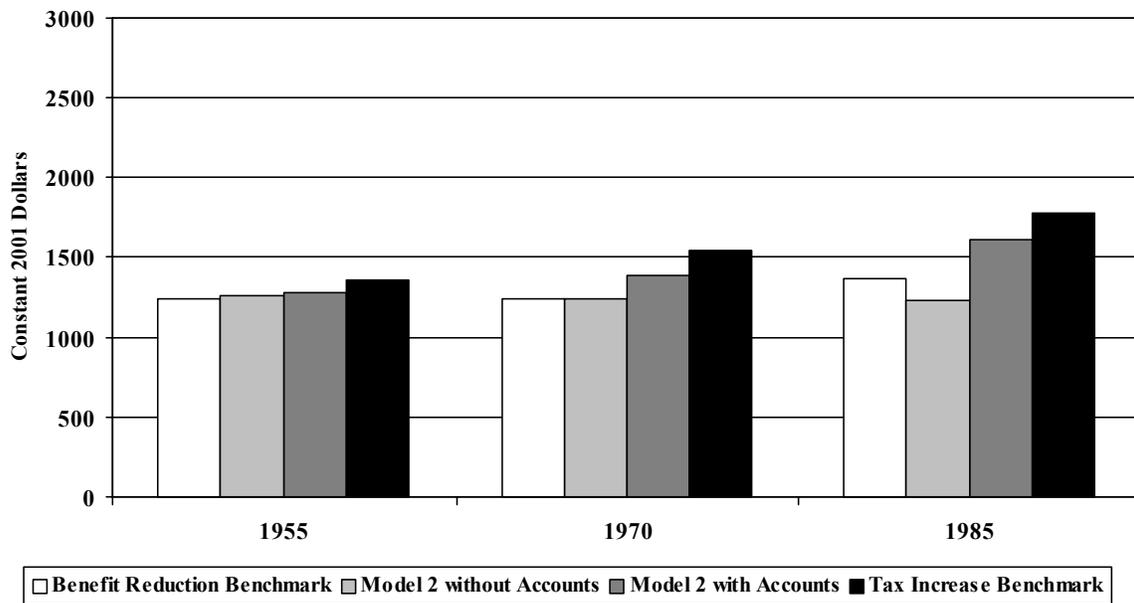
### Model 2

- Maintains current benefit structure for current and near retirees.
- Reduces OASDI defined benefits for new retirees, survivors, dependents, and disabled workers starting in 2009 by altering the benefit formula.
  - Slows growth in benefits by reducing PIA formula factors by real wage growth. This essentially increases benefits levels across generations according to price growth (absolute terms) rather than wage growth (relative terms).
  - For those who participate in the individual accounts, there is a further offset based on the hypothetical account accumulation, where contributions accrue at a real rate of 2 percent.
- Increases benefits for certain widow(er)s and low-income earners.
- PIA formula factor reductions and the benefit offset disproportionately decreases replacement rates. However, minimum benefit guarantees increase replacement rates for workers who qualify. Therefore, overall progressivity of the system is unclear given these provisions and the uncertainty of market returns, the magnitude of participation, and the characteristics of future participants.

## Overview of Model 2 Cohort Results

- Across cohorts, median monthly benefits are higher than the benefit reduction benchmark for persons who participate in an individual account (see Figure 6).
- However, benefit levels received without accounts fall below the benefit reduction benchmark over time. This is due to the timing and structure of the benefit reductions under both the without accounts scenario and the benefit reduction benchmark (see Figure 6).
- The gap in benefits between the without accounts scenario and the tax increase benchmark and with accounts scenario grows across cohorts (see Figure 6).

**Figure 6: Model 2 Cohort Analysis – Median Monthly Benefits by Cohort**



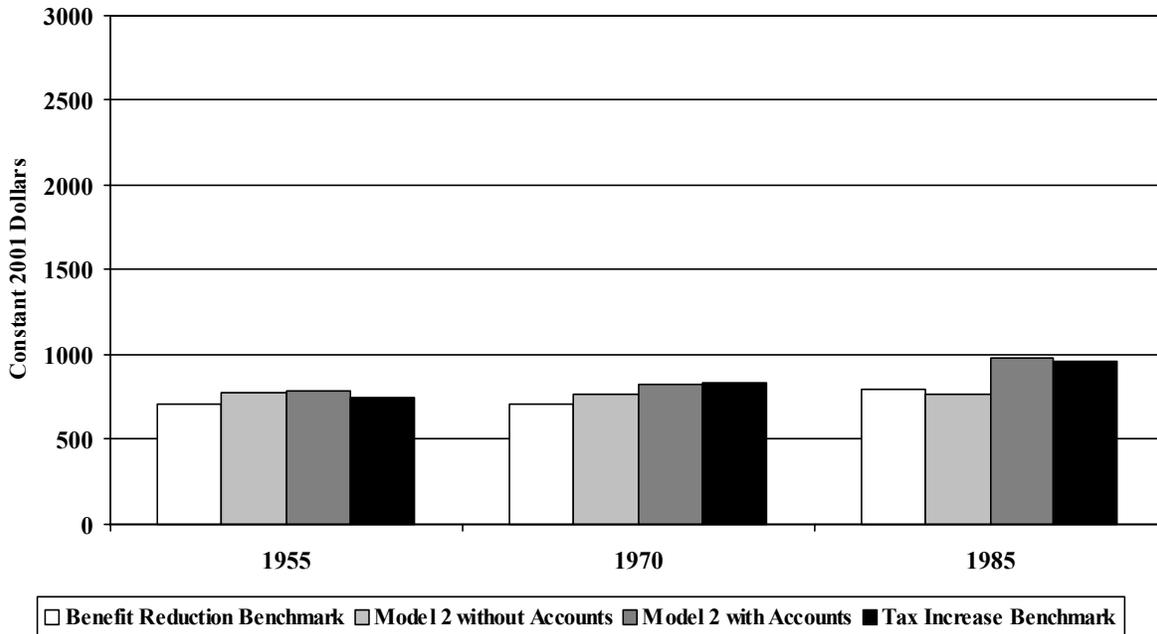
Source: GAO’s analysis using the GEMINI model.

Note: Median monthly benefits at age 67 for all beneficiaries. Estimates based on 1955, 1970, and 1985 birth cohorts assuming retired workers retire at age 65, uncertain asset returns and inflation, and full annuitization of account balance at retirement age. “With accounts” implies all individuals in the cohort participate in the individual accounts.

## Overview of Model 2 Quintile Analysis: Lowest and Highest Quintiles by Cohort

- Median monthly benefits for the 1955 and 1970 cohorts are maintained above the benefit reduction benchmark for the lowest quintile regardless of participation in individual accounts, likely due to the enhanced benefit for full-time “minimum wage” workers (see Figure 7).
- However, participation in the individual accounts may provide a benefit level even higher than the enhanced benefit for the lowest quintile since, over time, fewer workers will receive this enhanced benefit as wages are assumed to outpace inflation in the future.
- Comparing median monthly benefits across cohorts in the lowest and highest quintiles indicates that the enhanced benefit for full-time “minimum wage” workers and individual accounts maintain benefits above the tax increase benchmark only for those in the lowest quintile in the 1955 and 1985 birth cohorts (see Figures 7 and 8).

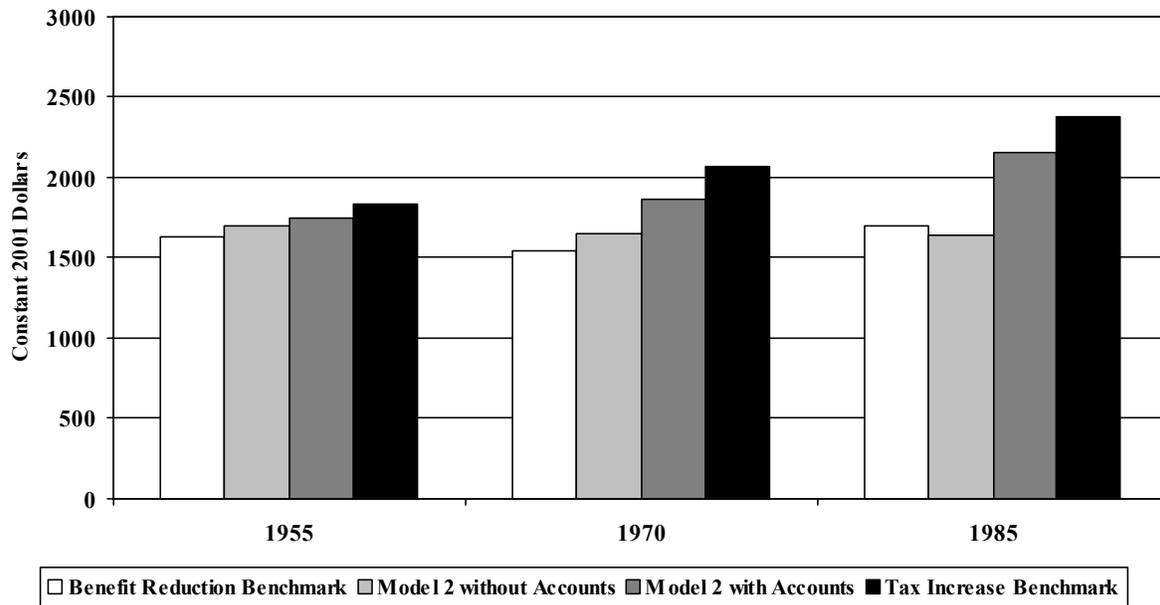
**Figure 7: Model 2 Quintile Analysis – Median Monthly Benefits by Cohort for the Lowest Quintile**



Source: GAO’s analysis using the GEMINI model.

Note: Estimates based on the 1955, 1970, and 1985 birth cohorts assuming retired workers retire at age 65, uncertain asset returns and inflation, and full annuitization of account balance at retirement age. “With accounts” implies all individuals in the cohort participate in the individual accounts. Quintiles are based on the distribution of benefits at age 67 under tax increase benchmark.

**Figure 8: Model 2 Quintile Analysis – Median Monthly Benefits by Cohort for the Highest Quintile**



Source: GAO’s analysis using the GEMINI model.

Note: Estimates based on the 1955, 1970, and 1985 birth cohorts assuming retired workers retire at age 65, uncertain asset returns and inflation, and full annuitization of account balance at retirement age. “With accounts” implies all individuals in the cohort participate in the individual accounts. Quintiles are based on the distribution of benefits at age 67 under tax increase benchmark.

## Balancing Adequacy and Equity: Effects of Models on Total Distribution of Initial Benefits

- Each model has individuals who “gain” and “lose”. Those who gain are either
  - those who participated in a individual account and received a benefit above the reduced defined benefit, or
  - those whose change in benefits exceed the relevant benchmarks.
- Other factors which may have an effect on benefit outcomes:
  - Effect of minimum benefit provision
  - Uncertainty (variation) in rates of return earned on accounts<sup>1</sup>
  - Changes in benefit status over time<sup>2</sup>
  - Annuity pricing<sup>3</sup>
- How people fare under Model 2 is a function of their
  - cohort
  - quintile
  - choice of participation in private account
  - risk and rate of return on individual account, and
  - benchmark comparison.

<sup>1</sup>Account yields must be greater than the level specified for the benefit offset to generate larger benefits.

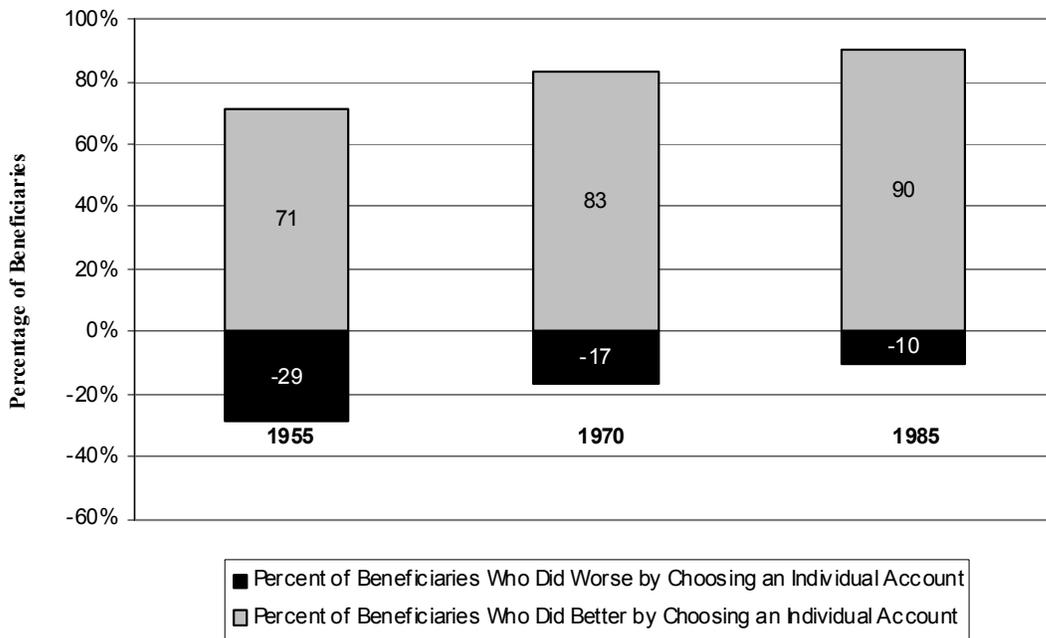
<sup>2</sup>OASDI eligible beneficiaries such as those who become disabled before retirement age, divorced spouses, or a disabled dependent may be especially affected since account availability may be hindered and length of time spent contributing to the account may be reduced.

<sup>3</sup>Upon annuitization, the price of the annuity, which fluctuates with interest rates, would reduce the monthly benefit amount received from the individual account. In general, the higher the annuity price the greater the benefit reduction.

## **Model 2 Distributional Analysis: Distributional Effects Comparing 100 Percent Participation Against Zero Percent Participation**

- The risk of participating decreases across cohorts when comparing scenarios with accounts and without accounts, primarily because of the lengthening of the investment horizon. For example, 71 percent of the 1955 cohort would gain by choosing an individual account, as did 83 and 90 percent of the 1970 and 1985 cohorts (see Figure 9).
- Of those who gained, the median gain was \$32 per month in 2001 dollars for the 1955 cohort, while the median loss was about \$11 per month among those who did not gain. For the 1970 and 1985 cohorts, the median gain was \$147 and \$397 per month in 2001 dollars, while the median loss was \$33 and \$57, respectively.

**Figure 9: Model 2 Distributional Analysis – Performance of Individual Accounts Under 100 Percent Participation Scenario by Cohort**



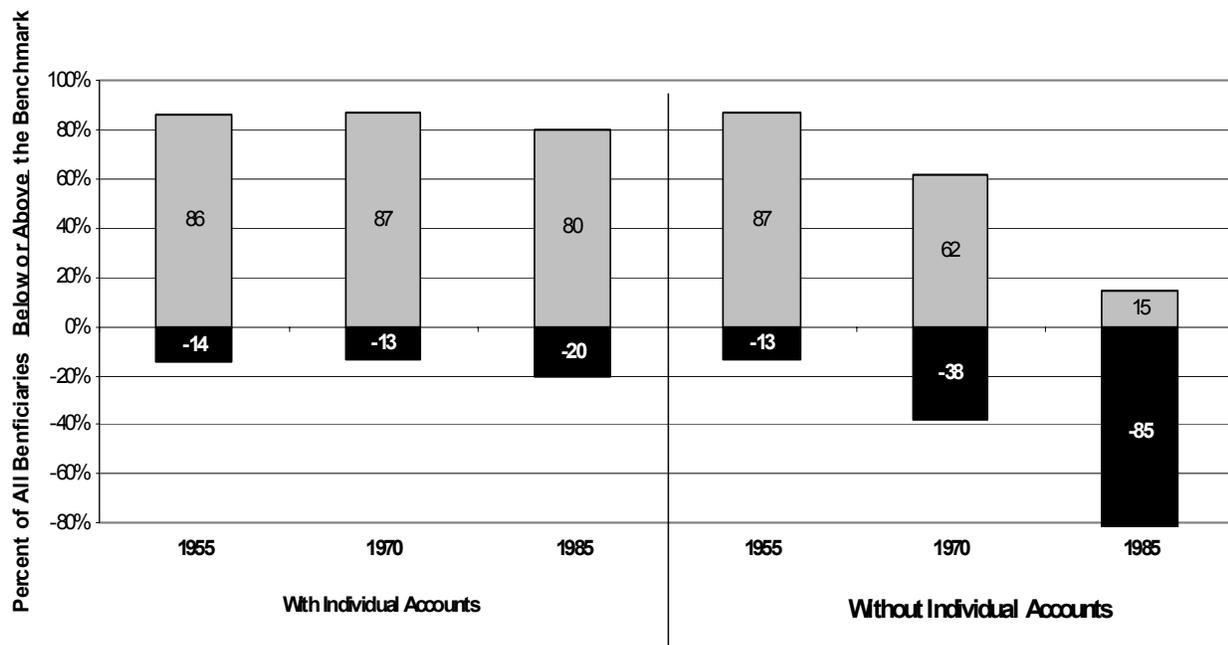
Source: GAO’s analysis using the GEMINI model.

Note: For example, in 1955 if 100 percent of beneficiaries participated in individual accounts, 71 percent did better by choosing the accounts and 29 percent would have done better by not choosing the accounts. Estimates based on 1955, 1970, and 1985 birth cohorts assuming retired workers retire at age 65, full annuitization of account balance at retirement age. Uncertain asset returns and inflation are also assumed, where the mean nominal rates of return used for the individual accounts are 6.3% for Treasuries, 6.8% for corporate bonds, and 10% for equities.

## **Model 2 Distributional Analysis: Distributional Effects of Model 2 in Comparison with Benefit Reduction Benchmark**

- Regardless of whether an account is chosen, a number of people fare better when compared to the benefit reduction benchmark. This is primarily because the benefit reduction benchmark's PIA formula reductions are initially deeper than Model 2 PIA reductions (see Figure 10).
- A majority of persons with accounts fare better than the benefit reduction benchmark and this majority decreases from 87 to 80 percent across cohorts. In contrast, the number of people without accounts who fare better than the benefit reduction benchmark declines from 87 to 15 percent across cohorts.
- A minority of persons (13 to 20 percent) with accounts fare worse than the benefit reduction benchmark, as do 13 to 85 percent of persons without individual accounts (see figure 10).

**Figure 10: Model 2 Distributional Analysis – Distribution of Benefits by Cohort and Account Participation Compared to the Benefit Reduction Benchmark**



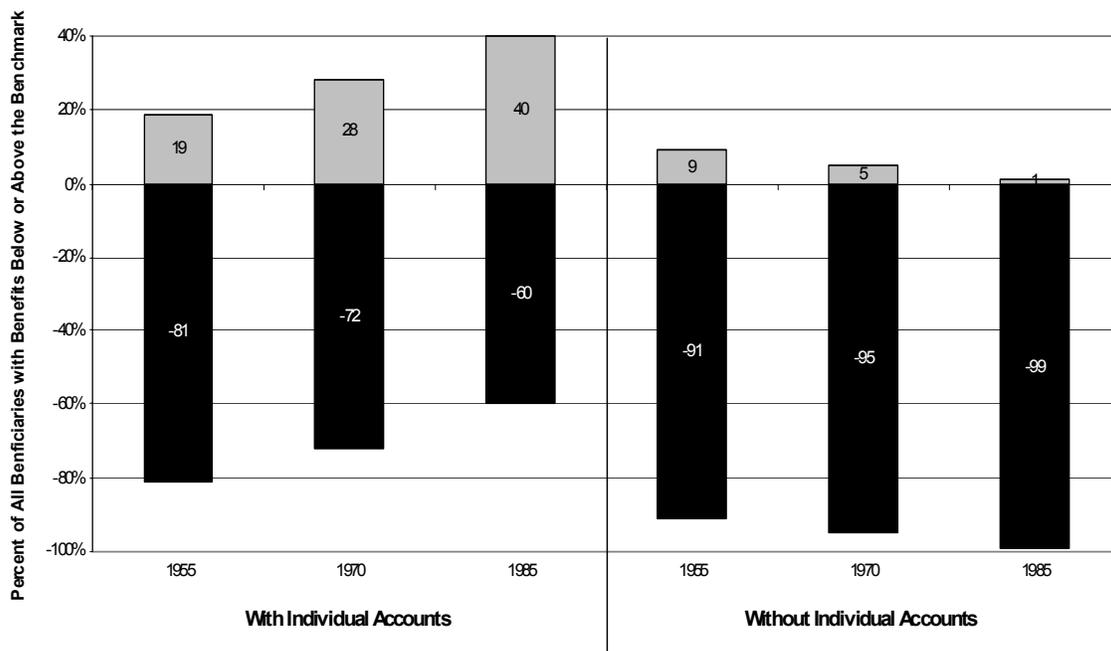
Source: GAO’s analysis using the GEMINI model.

Note: Monthly benefit level at age 67 is compared to the benefit level under the benchmark to determine if individuals are above or below the benchmark. Estimates based on 1955, 1970, and 1985 birth cohorts assuming retired workers retire at age 65, full annuitization of account balance at retirement age. Uncertain asset returns and inflation are also assumed, where the mean nominal rates of return used for the individual accounts are 6.3% for Treasuries, 6.8% for corporate bonds, and 10% for equities. “With accounts” implies all individuals in the cohort participate in the individual accounts.

## **Model 2 Distributional Analysis: Distributional Effects of Model 2 in Comparison with Tax Increase Benchmark**

- Across cohorts:
  - A number of people with accounts fare better than the tax increase benchmark and this number increases (19 to 40 percent) across cohorts (see Figure 11).
  - A minority of people without accounts fare better than the tax increase benchmark and this minority declines over time (9 to 1 percent).

**Figure 11: Model 2 Distributional Analysis – Distribution of Benefits by Cohort and Account Participation Compared to the Tax Increase Benchmark**



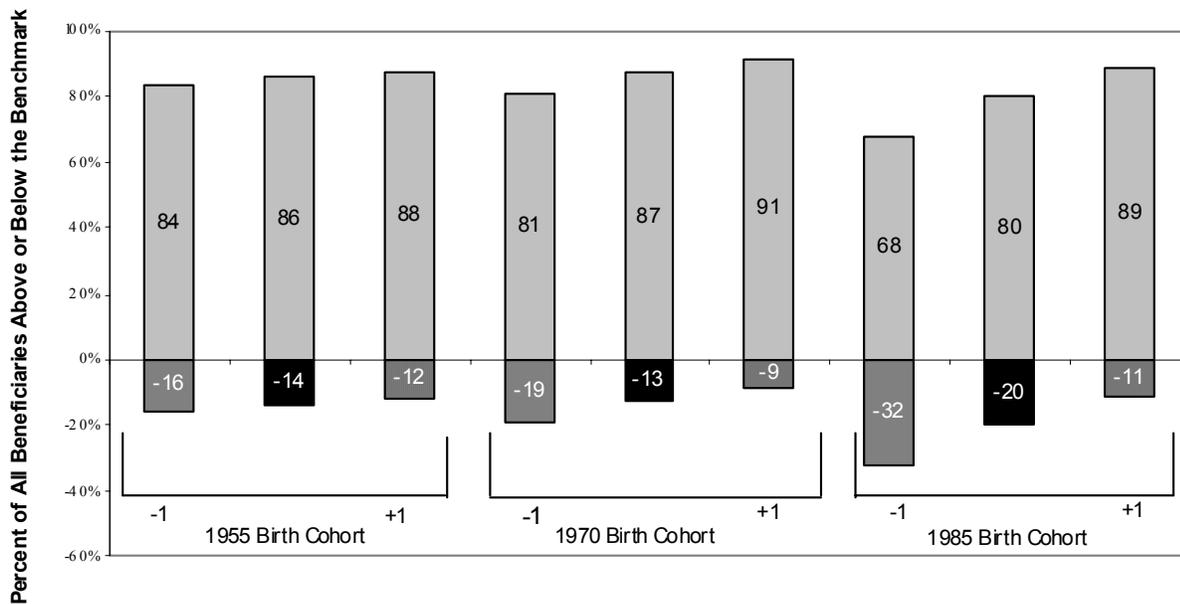
Source: GAO’s analysis using the GEMINI model.

Note: Monthly benefit level at age 67 is compared to the benefit level under the benchmark to determine if individuals are above or below the benchmark. Estimates based on 1955, 1970, and 1985 birth cohorts assuming retired workers retire at age 65, full annuitization of account balance at retirement age. Uncertain asset returns and inflation are also assumed, where the mean nominal rates of return used for the individual accounts are 6.3% for Treasuries, 6.8% for corporate bonds, and 10% for equities. “With accounts” implies all individuals in the cohort participate in the individual accounts.

## **Model 2 Sensitivity Analysis, Varying the Real Rate of Return – Account Participation vs. Benchmarks by Cohort**

- Although varying the rates of return does not alter the findings substantially for older cohorts, the effects of varying the real rate of return by plus or minus 1 percent increases over time.
  - Compared to the benefit reduction benchmark, the 1955 cohort has a  $\pm 2\%$  change in its distribution from a  $\pm 1\%$  change in the real rate of return, whereas the 1985 cohort has about a  $\pm 11\%$  change in its distribution (see Figure 12).
  - Compared to the tax increase benchmark, the 1955 cohort has approximately a  $\pm 3\%$  change in its distribution from a  $\pm 1\%$  change in the real rate of return, whereas the 1985 cohort has about a  $\pm 15\%$  change in its distribution (see Figure 13).

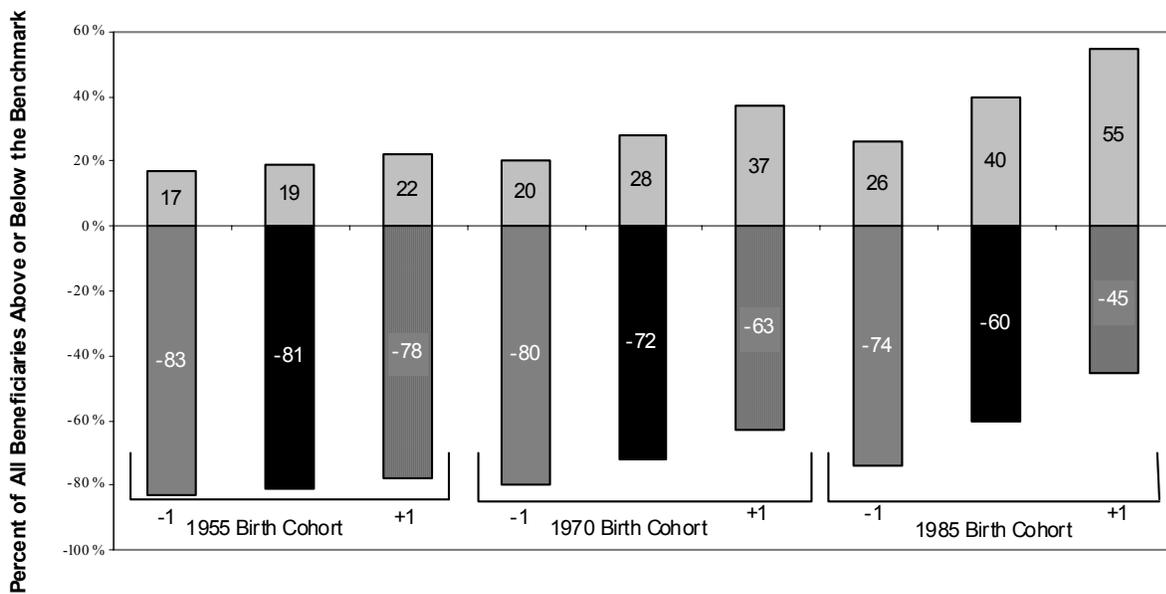
**Figure 12: Model 2 Sensitivity Analysis - Distribution of Benefits by Cohort Compared to Benefit Reduction Benchmark, Varying Real Rates of Return by Plus 1 and Minus 1 Percent**



Source: GAO’s analysis using the GEMINI model.

Note: Monthly benefit level at age 67 is compared to the benefit level under the benchmark to determine if individuals are above or below the benchmark. Estimates based on 1955, 1970, and 1985 birth cohorts assuming retired workers retire at age 65, full annuitization of account balance at retirement age. Uncertain asset returns and inflation are also assumed, where the mean nominal rates of return used for the individual accounts are 6.3% for Treasuries, 6.8% for corporate bonds, and 10% for equities.

**Figure 13: Model 2 Sensitivity Analysis - Distribution of Benefits by Cohort Compared to Tax Increase Benchmark, Varying Real Rates of Return by Plus 1 and Minus 1 Percent**



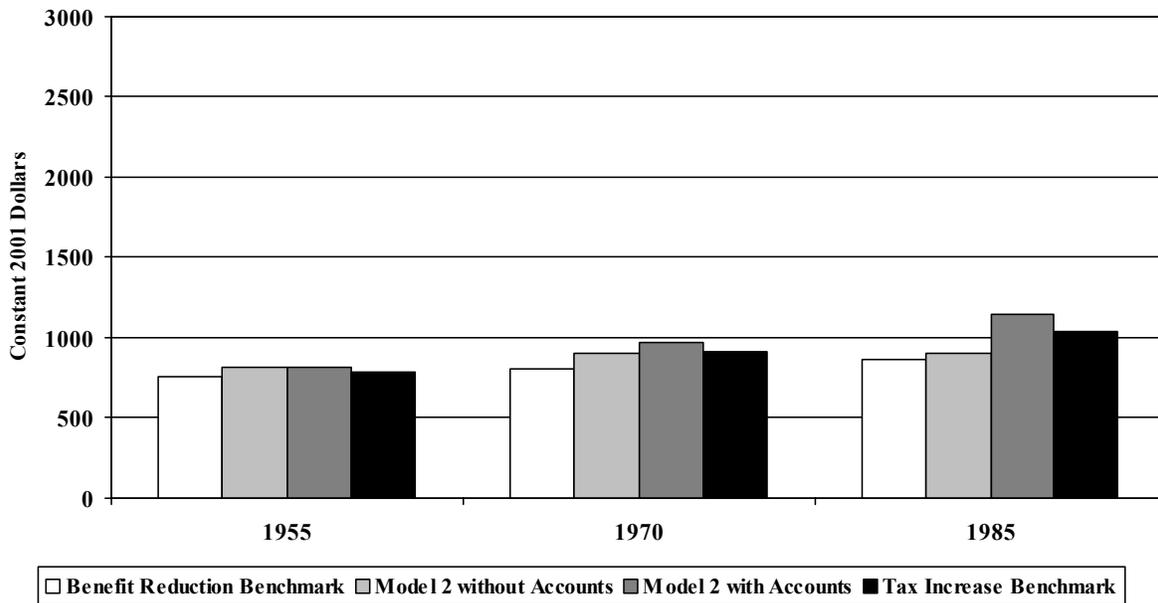
Source: GAO's analysis using the GEMINI model.

Note: Monthly benefit level at age 67 is compared to the benefit level under the benchmark to determine if individuals are above or below the benchmark. Estimates based on 1955, 1970, and 1985 birth cohorts assuming retired workers retire at age 65, full annuitization of account balance at retirement age. Uncertain asset returns and inflation are also assumed, where the mean nominal rates of return used for the individual accounts are 6.3% for Treasuries, 6.8% for corporate bonds, and 10% for equities.

## Overview of Model 2 Disabled Worker Quintile Analysis – Lowest and Highest Quintile by Cohort

- Median monthly benefits are maintained above the benefit reduction benchmark for the lowest quintile regardless of participation in individual accounts, likely due to the enhanced benefit for full-time “minimum wage” workers (see Figure 14).
  - This enhanced benefit could apply to low-earning disabled workers who work most of their career prior to becoming disabled. In our sample the average age of disability onset is 55.
- Participation in the individual accounts is also important for disabled workers, especially those in the later cohorts and in the upper quintiles (see Figures 14 and 15). However, the earlier a disabled worker becomes disabled the fewer years they contribute to their account and the smaller is their account balance.
- Since disabled workers do not have access to their accounts until conversion to retired worker benefits at the normal retirement age (NRA), benefit levels before conversion would be in line with benefit levels for those without individual accounts.
- Benefit levels for disabled workers may be higher than those of retired workers since disabled workers are entitled to benefits at earlier ages, thus the reductions in their PIA factors would be smaller. This may create an incentive for older workers to apply for disability benefits.

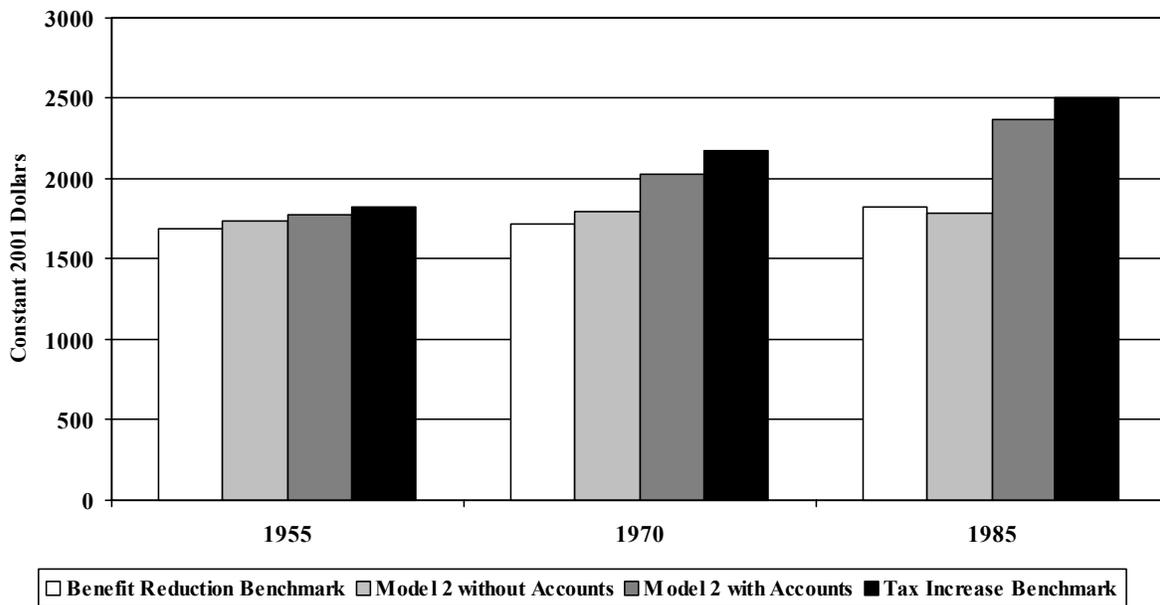
**Figure 14: Model 2 Quintile Analysis – Median Monthly Benefits by Cohort for Disabled Workers in the Lowest Quintile**



Source: GAO’s analysis using the GEMINI model.

Note: Median monthly benefits at age 67 for disabled workers. Estimates based on 1955, 1970, and 1985 birth cohorts assuming uncertain asset returns and inflation, and full annuitization of account balance at retirement age. “With accounts” implies all individuals in the cohort participate in the individual accounts. Quintiles are based on the distribution of benefits at age 67 under tax increase benchmark.

**Figure 15: Model 2 Quintile Analysis - Median Monthly Benefits by Cohort for Disabled Workers in the Highest Quintile**



Source: GAO’s analysis using the GEMINI model.

Note: Median monthly benefits at age 67 for disabled workers. Estimates based on 1955, 1970, and 1985 birth cohorts assuming uncertain asset returns and inflation, and full annuitization of account balance at retirement age. “With accounts” implies all individuals in the cohort participate in the individual accounts. Quintiles are based on the distribution of benefits at age 67 under tax increase benchmark.

## **Balancing Adequacy and Equity-Overall Equity**

### Model 2

- Provides workers some investment choice and control, subject to certain limitations. This might enable individuals to earn a higher rate of return on their contributions with an increased measure of risk, primarily that the return expected may not be realized.
- May improve intergenerational equity through the move to advanced funding of Social Security and the inheritance feature of individual accounts.
- Make determining the rate of return difficult as the link between contributions and benefits becomes unclear due to general revenue transfers. Thus, we did not quantitatively assess the equity effects of the models.

## Implementing and Administering Reforms

This criterion evaluates how readily such changes could be implemented, administered, and explained to the public.

### **To what extent does the proposal:**

- Provide reasonable timing and funds for implementation and result in reasonable administrative costs?
- Allow the general public to readily understand its financing structure and increase public confidence?
- Allow the general public to readily understand the benefit structure and avoid expectation gaps?
- Limit the potential for politically motivated investing?

## Implementing and Administering Reforms

- Funding for the transition from a pay-as-you-go system to a partially funded system would be handled by transfers from the General Fund of the Treasury and could be repaid when the trust funds experience cash flow surpluses.
- An education program will be necessary to explain the changes in the benefit structure and to avoid expectation gaps.
  - Benefit offset feature, financing structure of the system may be difficult to explain, which increases the importance of an education program.
- An education program will also be necessary to inform OASDI eligible workers on making sound investment decisions regarding diversification, risk, and participation.
- The Commission did not explicitly address the costs of an education program.
- It is unclear how the Commission's proposed account splitting at divorce would fit into divorce law.

## Implementing and Administering Reforms

- The proposal establishes a Governing Board to administer the individual accounts, which is intended to limit the potential for politically motivated investing. The board's duties include the choice of available funds and providing financial information to individuals.
- The design of the voluntary individual account feature places an additional administrative burden on the SSA. Specifically, the hypothetical account, benefit offset, inheritance feature, and account splitting at divorce would create additional responsibilities for SSA.
- There is not enough information to estimate administrative costs. Such costs are affected by the level of participation in the individual accounts. However, the Commission believes that individual accounts can be administered at a low cost since they envision the system being structured similar to the TSP.
- There is not enough information to address how annuities and annuity pricing will be handled; therefore, we used the same assumptions as the SSA Actuaries and did not quantitatively analyze their effect on benefit levels.

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**Appendix I:**  
**Analysis of Model 3 and  
Methodology**

## Financing Sustainable Solvency Interpreting Long-term Simulations

- Long-term simulations provide illustrations--not precise forecasts--of the relative fiscal and economic outcomes associated with alternative policy paths.
- Long-term simulations are useful for comparing the potential outcomes of alternative policies within a common economic framework over the long term.
  - Recognizing the inherent uncertainties of long-term simulations, we have generally chosen conservative assumptions, such as holding interest rates and total factor productivity growth constant. Variations in these assumptions generally would not affect the relative outcomes of alternative policies.
  - The model simulates the interrelationships between the budget and the economy over the long term and does not reflect their interaction during short-term business cycles.
- Long-term simulations are not predictions of what will happen in the future. In reality, policymakers likely would take action before the occurrence of the negative out-year fiscal and economic consequences reflected in some simulated fiscal policy paths.

## **Financing Sustainable Solvency Social Security Reform Proposals in the Model**

- Reform proposal cost and income estimates are from SSA's Office of the Chief Actuary.
  - For each proposal, the OASDI cost estimate reflects all proposed reforms affecting benefits. These include changes in the index used to adjust initial benefit levels, benefit reductions meant to offset individual accounts, and other proposed changes.
  - For each proposal, the OASDI income estimate reflects such elements as transfers from the general fund to the trust funds and amounts redirected from the payroll tax used to establish individual accounts.

## Fiscal Model Assumption Summary

Model inputs	Assumptions
Social Security spending (OASDI)	2001 Social Security Trustees' intermediate projections
Medicare spending (HI and SMI)	2001 Medicare Trustees' intermediate assumption that per enrollee Medicare spending grows with GDP per capita plus 1 percentage point
Medicaid spending	CBO's July 2002 long-term assumption that per enrollee Medicaid spending grows with GDP per capita plus 1 percentage point
Other mandatory spending	CBO's August 2002 baseline through 2012; thereafter increases at the rate of economic growth (i.e., remains constant as a share of GDP)
Discretionary spending	CBO's August 2002 baseline through 2012, adjusted for the 2001 Social Security Trustees' inflation assumptions; thereafter increases at the rate of economic growth
Revenue	CBO's August 2002 baseline through 2012; thereafter remains constant at 20.5 percent of GDP (CBO's projection in 2012)
Nonfederal saving (percent of GDP): gross saving of the private sector and state and local government sector	Increases gradually over the first 10 years to 17.5 percent of GDP (the average nonfederal saving rate from 1992-2001)
Net foreign investment (percent of GDP)	Increases (or decreases) from 2002 share of GDP by one-third of any increase (or decrease) in gross national saving through 2012; thereafter increases (or decreases) from 2012 nominal dollar level by one-third of any increase (or decrease) in gross national saving
Labor: growth in hours worked	2001 Social Security Trustees' intermediate projections
Total factor productivity growth	Consistent with labor productivity growth in 2001 Social Security Trustees' intermediate projections
Inflation (GDP price index and CPI)	2001 Social Security Trustees' intermediate projections
Interest rate (average on the national debt)	CBO's August 2002 implied real average interest rate through 2011 adjusted for the 2001 Social Security Trustees' intermediate inflation assumptions; 6.3% thereafter

## Balancing Adequacy and Equity - Benchmarks

- Initial benefits from both models are compared with several benchmarks<sup>1</sup>:
  - The tax increase (maintain benefits) benchmark – increases the payroll tax once and immediately by the amount of the OASDI actuarial deficit as a percent of payroll so that benefits received under the current system can continue to be paid throughout the projection period. This spreads the tax burden evenly across generations. This can also be accomplished by general revenue transfers. For our analysis, we assumed that this would be implemented as a tax increase to maintain the relationship between contributions and benefits.
  - The benefit reduction (maintain taxes) benchmark reduces the formula factors by equal percentage point reductions (by 0.319 each year for 30 years) for those newly eligible in 2005, subjecting earnings across all segments of the PIA formula to the same reduction.
- It is expected that Model 3 should, on average, provide higher initial benefits than model 2 when compared to the benchmarks due to the required additional 1% contributions to the individual accounts for those who choose to participate.

<sup>1</sup>For additional information regarding the benchmarks, see U.S. General Accounting Office, *Social Security: Program's Role in Helping Ensure Income Adequacy*, GAO-02-62 (Washington, D.C.: Nov. 30, 2001).

## **Balancing Adequacy and Equity- Model Assumptions**

- Our unit of analysis for this report is individuals. Depending upon how households split account distributions, our results may over/understate some individuals' benefit levels. Since we were interested in the effect that reform has on certain birth cohorts, we chose to focus on individuals because household composition can vary across birth cohorts.
- Analysis was performed using microsimulation with stochastic elements, which included uncertain asset returns, inflation, wage growth, etc. These variables varied across time and individuals.
- The nominal mean rates of return used in the model for the individual accounts are 6.3% for Treasuries, 6.8% for corporate bonds, and 10% for equities. These assumptions are consistent with those used in the SSA Actuaries' scoring.
- All individuals are assumed to annuitize their entire account balance at retirement by purchasing a fixed annuity. Our procedure for annuitization is consistent with that utilized by the SSA Actuaries.
- Each individual in each of the cohorts retires at age 65. This can have implications for model 3 results since model 3 modifies the actuarial reduction and increment factors.
- Since access to accounts for disabled workers occurs at the NRA, benefit levels for all beneficiaries are reported at age 67.

## Model 3

- Voluntary individual accounts in exchange for benefit reduction.
  - An additional contribution equal to 1 percent of an individual's taxable payroll is required to participate, with partial subsidy for lower wage workers as a refundable tax credit.
  - Account contribution equal to 2.5 percent of payroll tax up to an annual maximum of \$1,000<sup>1</sup> redirected from payroll tax.
  - At retirement, reduction to defined benefit based on the amount of account contributions (not including the additional 1 percent contribution) compounded at a real interest rate of 2 ½ percent.

<sup>1</sup>Maximum contribution amount indexed annually to wage growth.

## Model 3

- Changes to defined benefits beginning in 2009:
  - Initial benefit reduced from currently scheduled by indexing to expected gains in life expectancy.
  - Initial benefits for upper income earners reduced: from 2009-2028, third highest bend point factor gradually reduced from 15 to 10 percent.
  - Initial benefits reduced for those who retire early and increased for those who delay retirement.

## Model 3

- A new enhanced benefit for full-time minimum wage<sup>1</sup> workers with more than 20 years of work
  - Accelerated growth in initial benefits from 2009-2018.
  - By 2018, a minimum wage worker with 30 years of program coverage would receive a benefit equal to 100 percent of poverty level; thereafter, benefits would be expected to increase about 0.5 percent per year faster than growth in the CPI and the poverty level.
- Enhanced spousal survival benefit
  - Increase in widow(er) benefit up to 75 percent of combined spousal benefit (up to average benefit levels).
- Additional financing from permanent dedicated revenue sources and general revenue transfers.

<sup>1</sup>The minimum wage is the current Fair Labor Standards Act minimum of \$5.15 an hour but is assumed to be grow with the Social Security average wage index.

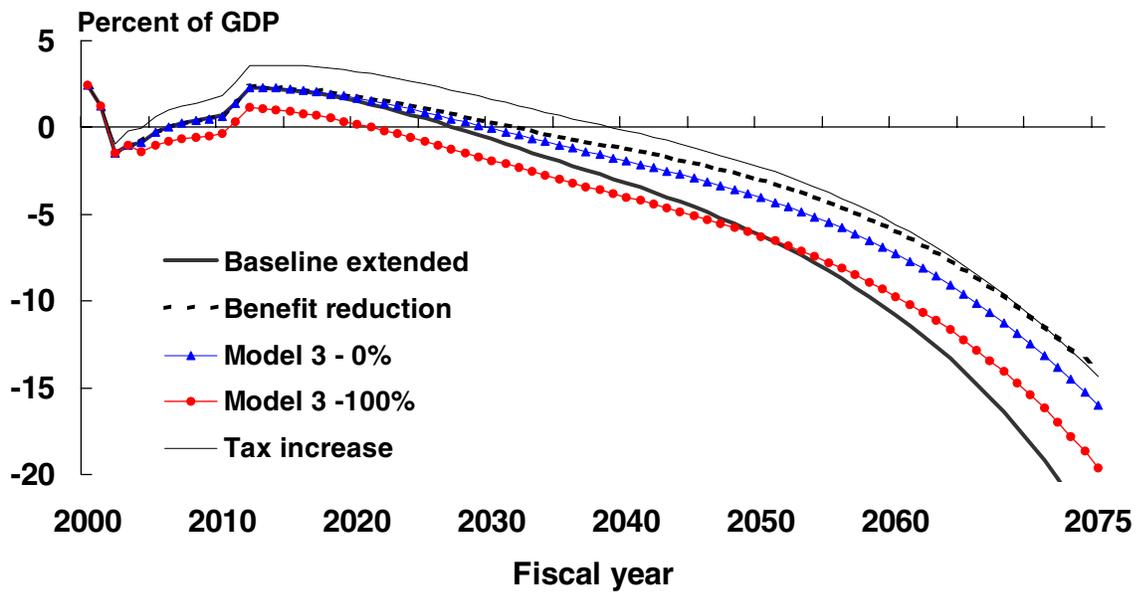
## Model 3

# Financing Sustainable Solvency

Figure A-1

- Compared to baseline extended, as a share of GDP unified surpluses are smaller and unified deficits are larger under Model 3-100% until the 2050s; thereafter, unified deficits are smaller.
- Under Model 3-0%, beginning around 2015, projected unified surpluses are higher and projected unified deficits are lower than under baseline extended throughout the simulation period.
- Greater participation in IAs results in lower surpluses/higher deficits over the simulation period.
- Throughout the simulation period, unified surpluses are considerably lower and unified deficits are considerably higher under Model 3-100% than under the tax increase benchmark and, to a lesser extent, the benefit reduction benchmark.
- Under Model 3-0%, unified surpluses are lower and unified deficits are higher than under the tax increase benchmark throughout the simulation period and beginning around 2010, unified surpluses are lower and unified deficits are higher than under the benefit reduction benchmark.

## Figure A-1: Model 3 Unified Surpluses and Deficits as a Share of GDP



Source: GAO analysis.

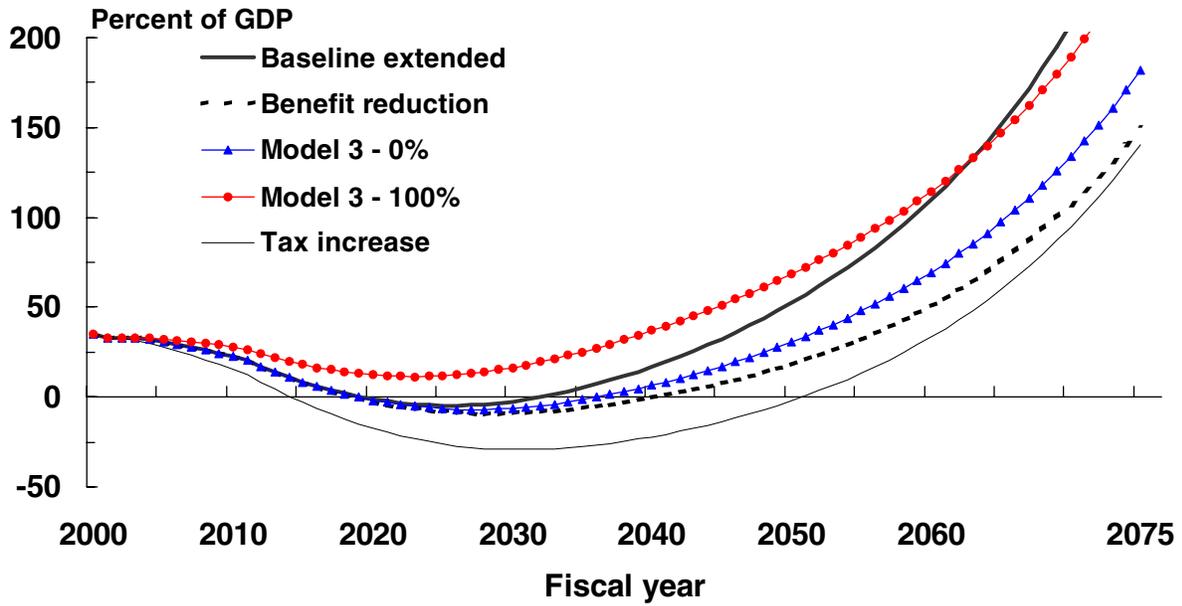
## Model 3

# Financing Sustainable Solvency

Figure A-2

- Compared to baseline extended, net debt held by the public as a share of GDP is higher under Model 3-100% until about 2060; thereafter, debt held by the public is lower.
- Under Model 3-0% net debt held by the public would be reduced compared to the baseline extended beginning about 2015 through the end of the simulation period.
- Greater participation in the IAs results in higher net debt held by the public throughout the simulation period.
- Throughout the simulation period, net debt held by the public under Model 3-100% is considerably higher than the tax increase benchmark and the benefit reduction benchmark.
- Net debt held by the public under Model 3-0% is higher than under the benefit reduction benchmark and much higher than under the tax increase benchmark through the end of the simulation period.

### Figure A-2: Model 3 Debt held by the Public as a Share of GDP



Source: GAO analysis.

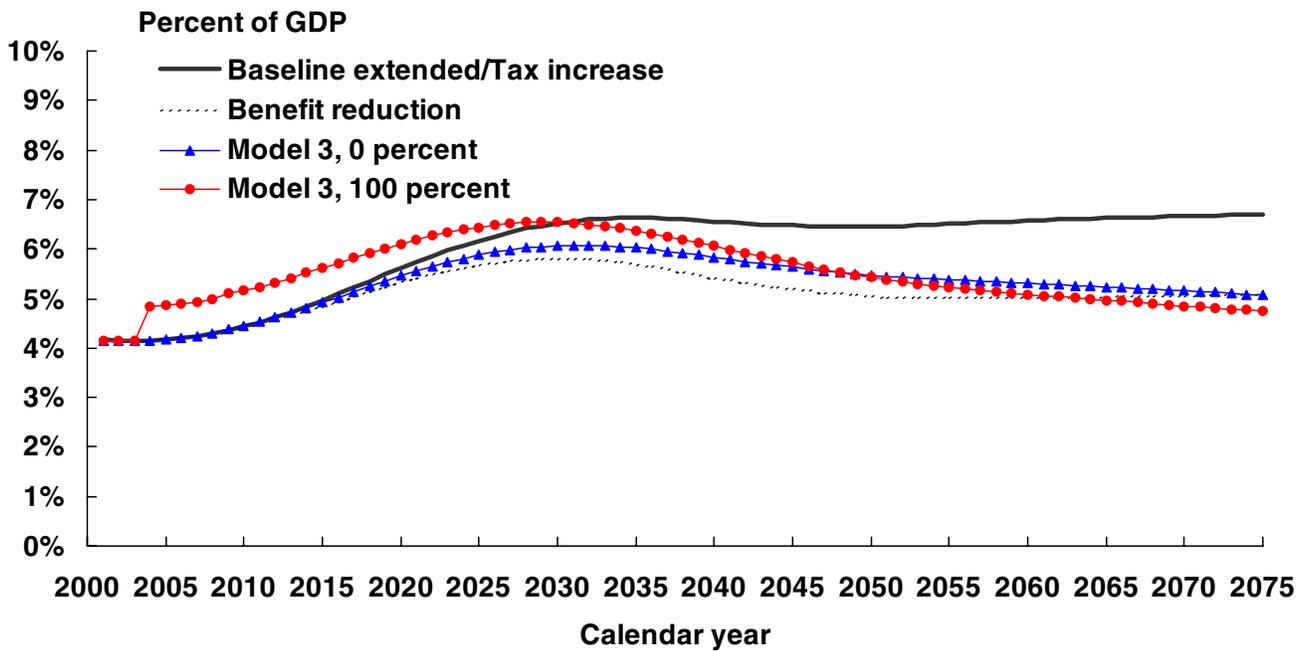
## Model 3

# Financing Sustainable Solvency

Figure A-3:

- The government's cash requirement includes the amount of cash required to pay defined benefits and redirect payroll taxes to individual accounts. Under Model 3-100%, the government's cash requirement would be greater than both the baseline extended and tax increase benchmarks in the near term—by more than 15 percent in 2010. Beginning in the 2030s, less cash would be required for Model 3-100% than the baseline extended and tax increase benchmarks. In 2075, Model 3-100% would require about 30 percent less cash than the baseline extended and tax increase benchmarks.
- The cash requirement for Model 3-0% would be slightly greater than both the baseline extended and tax increase benchmarks until after 2010. Thereafter, Model 3-0% would require less cash than both the baseline extended and tax increase benchmarks; in 2075, about 25 percent less cash would be required for Model 3-0%.
- The government's cash requirement for Model 3 would be greater than the benefit reduction benchmark for most of the simulation. In 2075, Model 3-0% would require about the same amount of cash as the benefit reduction benchmark and Model 3-100% would require over 5 percent less cash than the benefit reduction benchmark.
- In the near term, the greater the individual account participation, the more cash required. Over the long term, however, greater individual account participation would reduce the government's cash requirements.

### Figure A-3: Model 3 Government Cash Requirements



Source: GAO analysis of data from the Office of the Chief Actuary, SSA. Benefit amounts shown for baseline extended and tax increase benchmarks are scheduled benefits as estimated by the actuaries. All estimates are based on the Trustees' 2001 intermediate assumptions.

Note: Includes cash for defined benefits paid out under the traditional system and redirect of payroll taxes to individual accounts.

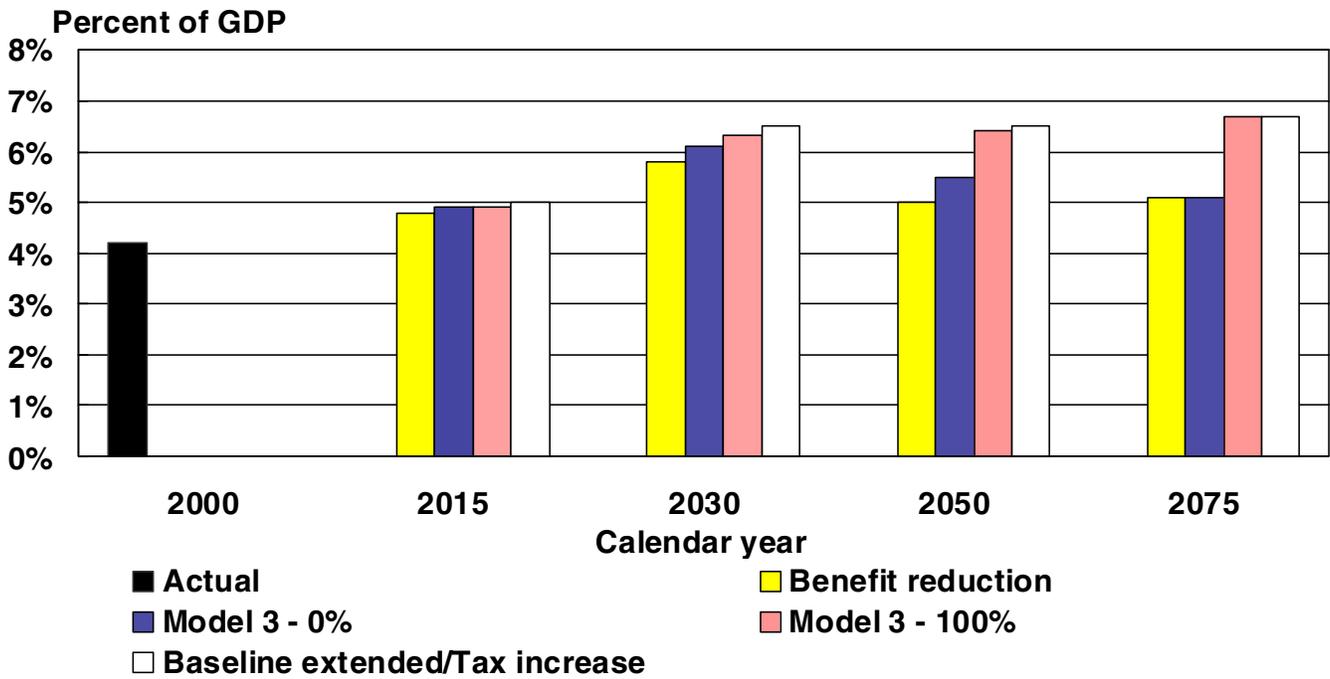
## Model 3

# Financing Sustainable Solvency

Figure A-4:

- In 2015, total benefit payments (Social Security benefits plus individual account disbursements) as a share of GDP under Model 3 would be slightly (1 percent) lower than under the baseline extended or tax increase benchmark and about 3 percent higher than the benefit reduction benchmark.
- In 2030, total benefit payments as a share of GDP under model 3-100% would be nearly 4 percent lower than under the baseline extended or tax increase benchmark but 8 percent higher compared to the benefit reduction benchmark. Under Model 3-0%, benefit payments would be about 7 percent lower than the baseline extended or tax increase benchmark but nearly 5 percent higher than the benefit reduction benchmark.
- In 2075, total benefit payments as a share of GDP under Model 3-100% would be the same as under the baseline extended or tax increase benchmark and nearly one-third higher than under the benefit reduction benchmark. By 2075, the difference in total benefit payments between Model 3-100% and Model 3-0% becomes pronounced with payments under Model 3-0% about the same as the benefit reduction benchmark but only three-fourths the level as under Model 3-100% or the baseline extended or tax increase benchmark.

### Figure A-4: Model 3 Combined Social Security and Individual Account Disbursements as a Share of GDP



Source: GAO analysis of data from the Office of the Chief Actuary, SSA. Benefit amounts shown for baseline extended and tax increase benchmarks are scheduled benefits as estimated by the actuaries. All estimates are based on the Trustees' 2001 intermediate assumptions.

## Model 3

# Financing Sustainable Solvency

- National saving would increase primarily due to the improved fiscal position of the government resulting from the proposed benefit reductions. The redirection of payroll taxes under the IA option would increase private saving and decrease government saving with no net effect on national saving. The required 1 percent additional contribution would result in an increase in personal saving, although the progressive subsidy would reduce government saving and reduce any net increase in national saving.<sup>1</sup>
- Restores 75-year actuarial balance with either no participation or universal participation in the IA option. Trust fund ratio at the end of the 75-year period is declining by about 3 percent a year under Model 3-0% but rising under Model 3-100% by about 8 percent a year.
- Requires new dedicated revenue from an unspecified source. The IAs are financed as a redirect of payroll taxes. In addition to the new dedicated revenue, Model 3-100% requires general revenue transfers to keep the OASDI trust fund solvent.
- Does not create any new contingent liability. Individual bears risk of personal account investment performance.
- Indexing initial benefits to increases in life expectancy and updating the indexation every 10 years to reflect actual increases could help guard against unanticipated growth in lifetime benefits.

<sup>1</sup>Analysis limited to first order effects on saving. Effects on saving behavior in response to specific reform provisions are not considered given the lack of expert consensus.

## Balancing Adequacy and Equity- Distributional Effect of Specific Provisions

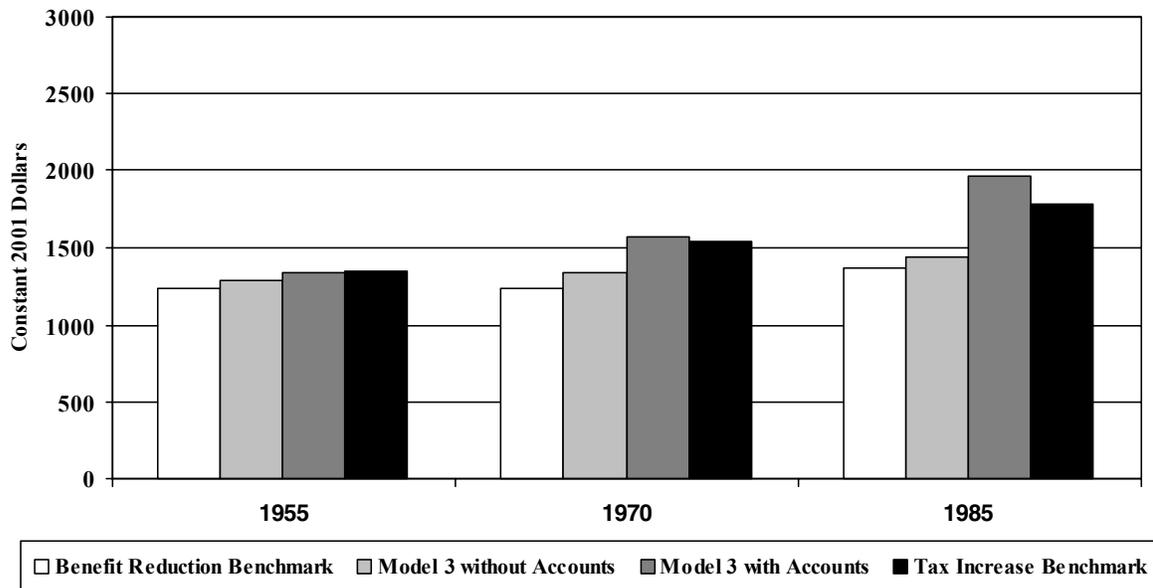
### Model 3

- Maintain current benefit structure for current and near retirees.
- Reduces OASDI defined benefits for new retirees, survivors, dependents, and disabled workers starting in 2009.
  - Benefits are reduced due to indexing initial benefit calculations to longevity rather than wages.
  - Gradually reduces the third PIA formula factor.
  - For those who participate in the individual accounts, there is a further offset based on the hypothetical account accumulation, where contributions accrue at a real rate of 2.5 percent.
  - Increases the actuarial reduction for early retirement.
- Increases benefits for certain beneficiaries: some widow(er)s, low-income earners, and increases the delayed retirement credit starting in 2010.
- PIA formula factor reductions and the benefit offset disproportionately decrease replacement rates. However, minimum benefit guarantees increase replacement rates for workers who qualify. Therefore, overall progressivity of the system is unclear given these provisions and the uncertainty of market returns, the magnitude of participation, and the characteristics of future participants.

## Overview of Model 3 Cohort Results

- Across cohorts, median monthly benefits are higher than the benefit reduction benchmark regardless of participation in individual accounts (see Figure A-5).
- The gap in benefits between the without accounts scenario and the tax increase benchmark and with accounts scenario grows across cohorts (see Figure A-5).

**Figure A-5: Model 3 Cohort Analysis – Median Monthly Benefits by Cohort**



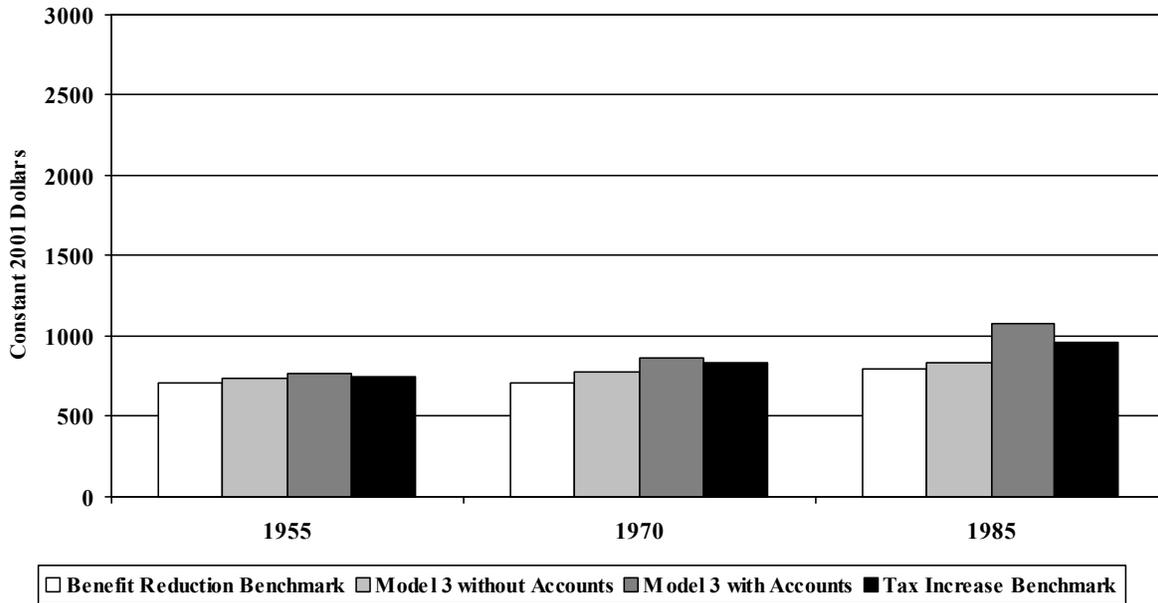
Source: GAO’s analysis using the GEMINI model.

Note: Median monthly benefits at age 67 for all beneficiaries. Estimates based on 1955, 1970, and 1985 birth cohorts assuming retired workers retire at age 65, uncertain asset returns and inflation, and full annuitization of account balance at retirement age. “With accounts” implies all individuals in the cohort participate in the individual accounts.

## Overview of Model 3 Quintile Analysis: Lowest and Highest Quintiles by Cohort

- Median monthly benefits are maintained above the benefit reduction benchmark for the lowest quintile regardless of participation in individual accounts, likely due to the enhanced benefit for full-time “minimum wage” workers (see Figure A-6).
- However, participation in the individual accounts may provide a benefit level even higher than the enhanced benefit for the lowest quintile since, over time, fewer workers will receive this enhanced benefit as wages are assumed to outpace inflation in the future (see figure A-6).
- Comparing median monthly benefits across cohorts in the lowest and highest quintiles indicates that the enhanced benefit for full-time “minimum wage” workers and individual accounts maintain benefits above the tax increase benchmark only for those in the lowest quintile and the later cohorts in the highest quintile (see Figures A-6 and A-7).

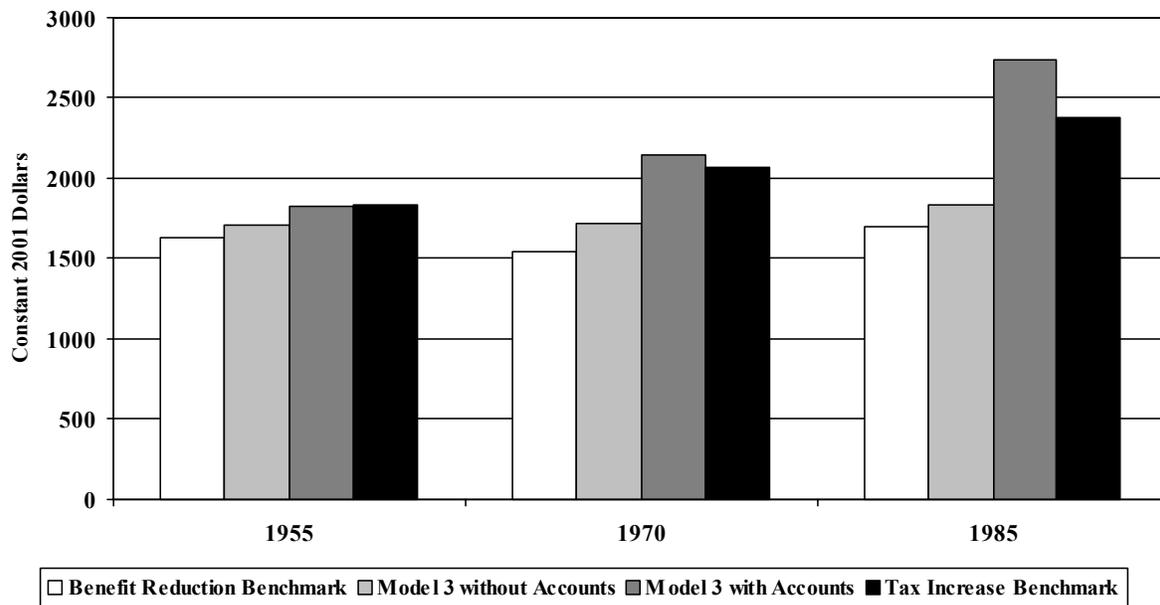
**Figure A-6: Model 3 Quintile Analysis – Median Monthly Benefits by Cohort for the Lowest Quintile**



Source: GAO’s analysis using the GEMINI model.

Note: Estimates based on the 1955, 1970, and 1985 birth cohorts assuming retired workers retire at age 65, uncertain asset returns and inflation, and full annuitization of account balance at retirement age. “With accounts” implies all individuals in the cohort participate in the individual accounts. Quintiles are based on the distribution of benefits at age 67 under tax increase benchmark.

**Figure A-7: Model 3 Quintile Analysis – Median Monthly Benefits by Cohort for the Highest Quintile**



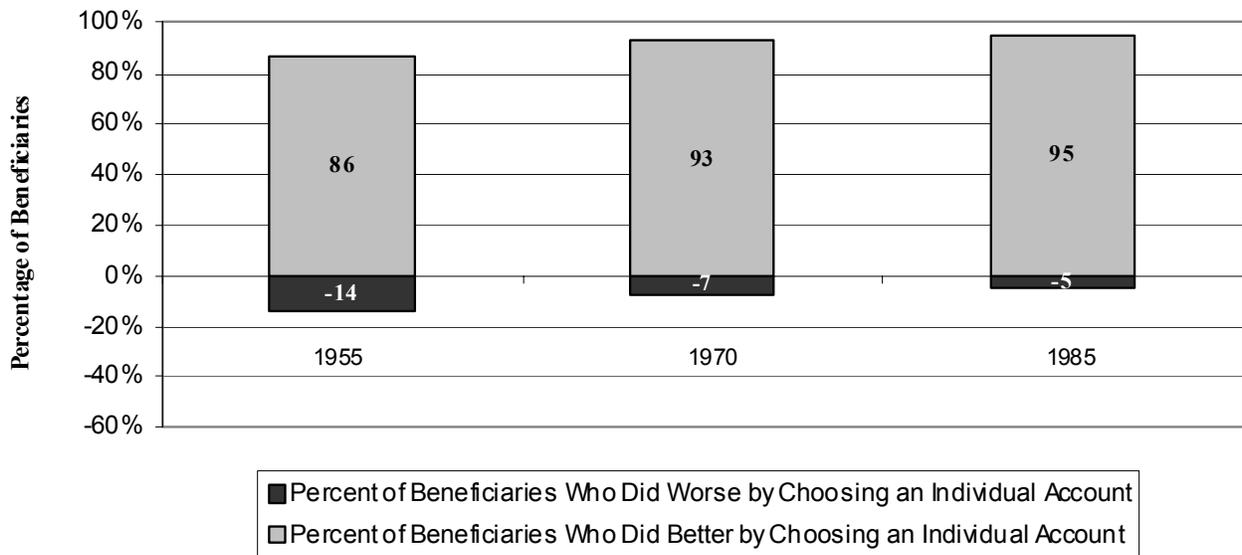
Source: GAO’s analysis using the GEMINI model.

Note: Estimates based on the 1955, 1970, and 1985 birth cohorts assuming retired workers retire at age 65, uncertain asset returns and inflation, and full annuitization of account balance at retirement age. “With accounts” implies all individuals in the cohort participate in the individual accounts. Quintiles are based on the distribution of benefits at age 67 under tax increase benchmark.

## **Model 3 Distributional Analysis: Distributional Effects Comparing 100 Percent Participation Against Zero Percent Participation**

- The risk of participating decreases across cohorts when comparing scenarios with accounts and without accounts, primarily because of the lengthening of the investment horizon. For example, 86 percent of the 1955 cohort would gain by choosing an individual account, as did 93 and 95 percent of the 1970 and 1985 cohorts (see Figure A-8).
- Of those who gained, the median gain was \$50 per month in 2001 dollars for the 1955 cohort, while the median loss was about \$4 per month among those who did not gain. For the 1970 and 1985 cohorts, the median gain was \$223 and \$540 per month in 2001 dollars, while the median loss was \$25 and \$51, respectively.

**Figure A-8: Model 3 Distributional Analysis - Performance of Individual Accounts Under 100 Percent Participation Scenario by Cohort**



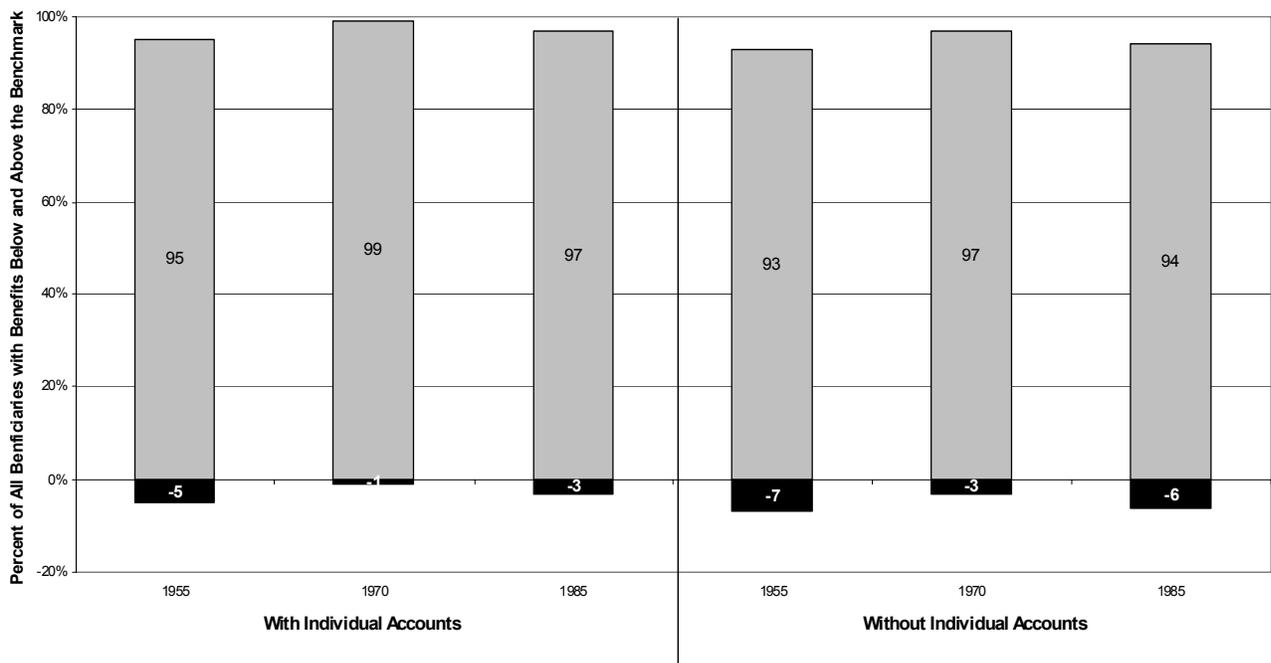
Source: GAO's analysis using the GEMINI model.

Note: For example, in 1955 if 100 percent of beneficiaries participated in individual accounts, 86 percent did better by choosing the accounts and 14 percent would have done better by not choosing the accounts. Estimates based on 1955, 1970, and 1985 birth cohorts assuming retired workers retire at age 65, full annuitization of account balance at retirement age. Uncertain asset returns and inflation are also assumed, where the mean nominal rates of return used for the individual accounts are 6.3% for Treasuries, 6.8% for corporate bonds, and 10% for equities.

### **Model 3 Distributional Analysis: Distributional Effects of Model 3 in Comparison with Benefit Reduction Benchmark**

- Regardless of whether an account is chosen, a number of people fare better when compared to the benefit reduction benchmark. This is primarily because the benchmark's PIA formula reductions are initially deeper than Model 3 PIA reductions and the additional 1% contribution (see Figure A-9).
- A majority of persons with accounts fare better than the benefit reduction benchmark and this majority ranges from 95 to 99 percent across cohorts. In contrast, the number of people without accounts who fare better than the benefit reduction benchmark ranges from 93 to 97 percent across cohorts.
- A minority of persons (1 to 5 percent) with accounts fare worse than the benefit reduction benchmark, as do 3 to 7 percent of persons without individual accounts (see figure A-9).

**Figure A-9: Model 3 Distributional Analysis – Distribution of Benefits by Cohort and Account Participation Compared to the Benefit Reduction Benchmark**



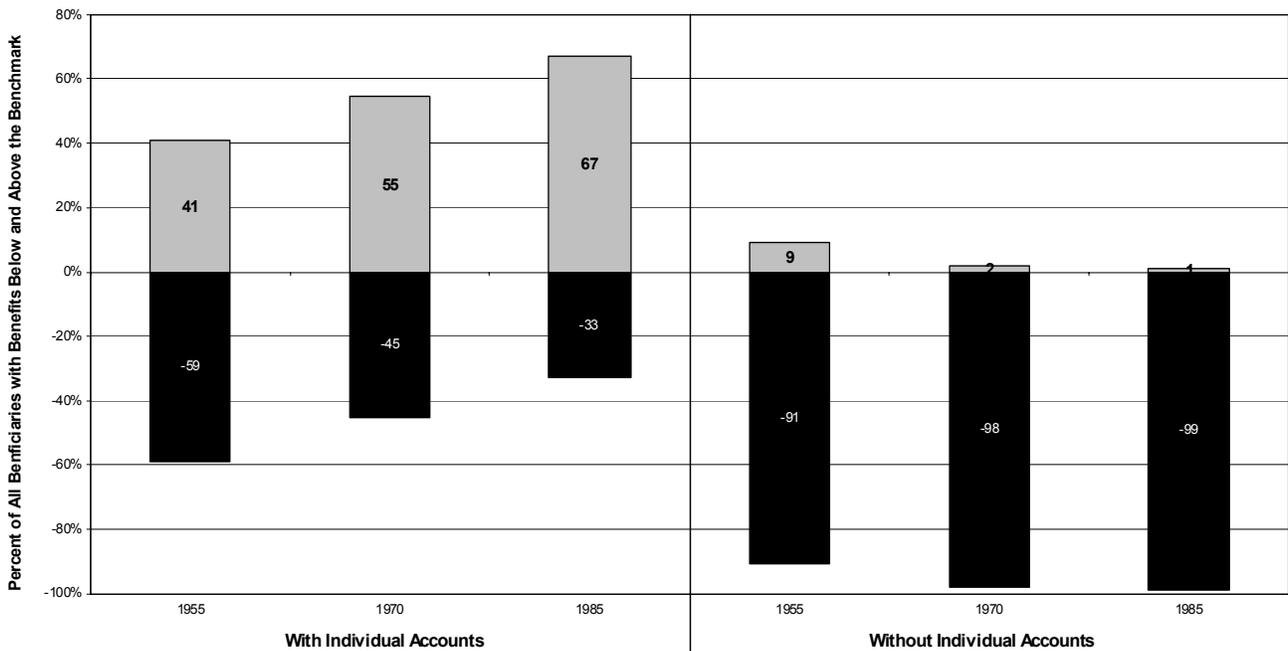
Source: GAO’s analysis using the GEMINI model.

Note: Monthly benefit level at age 67 is compared to the benefit level under the benchmark to determine if individuals are above or below the benchmark. Estimates based on 1955, 1970, and 1985 birth cohorts assuming retired workers retire at age 65, full annuitization of account balance at retirement age. Uncertain asset returns and inflation are also assumed, where the mean nominal rates of return used for the individual accounts are 6.3% for Treasuries, 6.8% for corporate bonds, and 10% for equities. “With accounts” implies all individuals in the cohort participate in the individual accounts.

### **Model 3 Distributional Analysis: Distributional Effects of Model 3 in Comparison with Tax Increase Benchmark**

- Across cohorts:
  - Except for the 1955 cohort, a majority of people with accounts fare better than the tax increase benchmark and this number increases (41 to 67 percent) across cohorts (see Figure A-10).
  - A minority of people without accounts fare better than the tax increase benchmark and this minority declines (9 to 1 percent) over time (see Figure A-10).

**Figure A-10: Model 3 Distributional Analysis – Distribution of Benefits by Cohort and Account Participation Compared to the Tax Increase Benchmark**



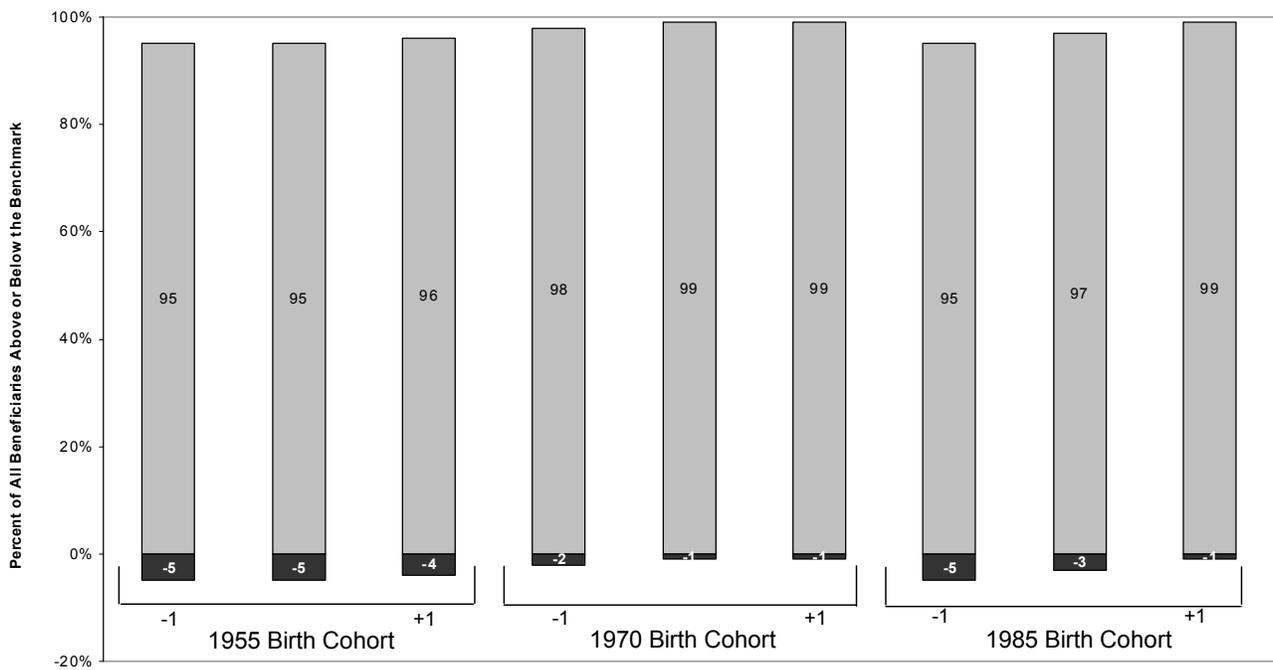
Source: GAO’s analysis using the GEMINI model.

Note: Monthly benefit level at age 67 is compared to the benefit level under the benchmark to determine if individuals are above or below the benchmark. Estimates based on 1955, 1970, and 1985 birth cohorts assuming retired workers retire at age 65, full annuitization of account balance at retirement age. Uncertain asset returns and inflation are also assumed, where the mean nominal rates of return used for the individual accounts are 6.3% for Treasuries, 6.8% for corporate bonds, and 10% for equities. “With accounts” implies all individuals in the cohort participate in the individual accounts.

## **Model 3 Sensitivity Analysis, Varying the Real Rate of Return – Account Participation vs. Benchmarks by Cohort**

- Although varying the rates of return does not alter the findings considerably for older cohorts, the effects of varying the real rate of return by plus or minus 1 percent increases over time. The increased volatility is likely due to the additional 1% contribution.
  - Compared to the benefit reduction benchmark, the 1955 cohort has about a  $\pm 1\%$  change in its distribution, whereas the 1985 cohort has about a  $\pm 2\%$  change in its distribution (see figure A-11).
  - Compared to the tax increase benchmark, the 1955 cohort has approximately a  $\pm 5\%$  change in its distribution, whereas the 1985 cohort has approximately a  $\pm 14\%$  change in its distribution (see Figure A-12).

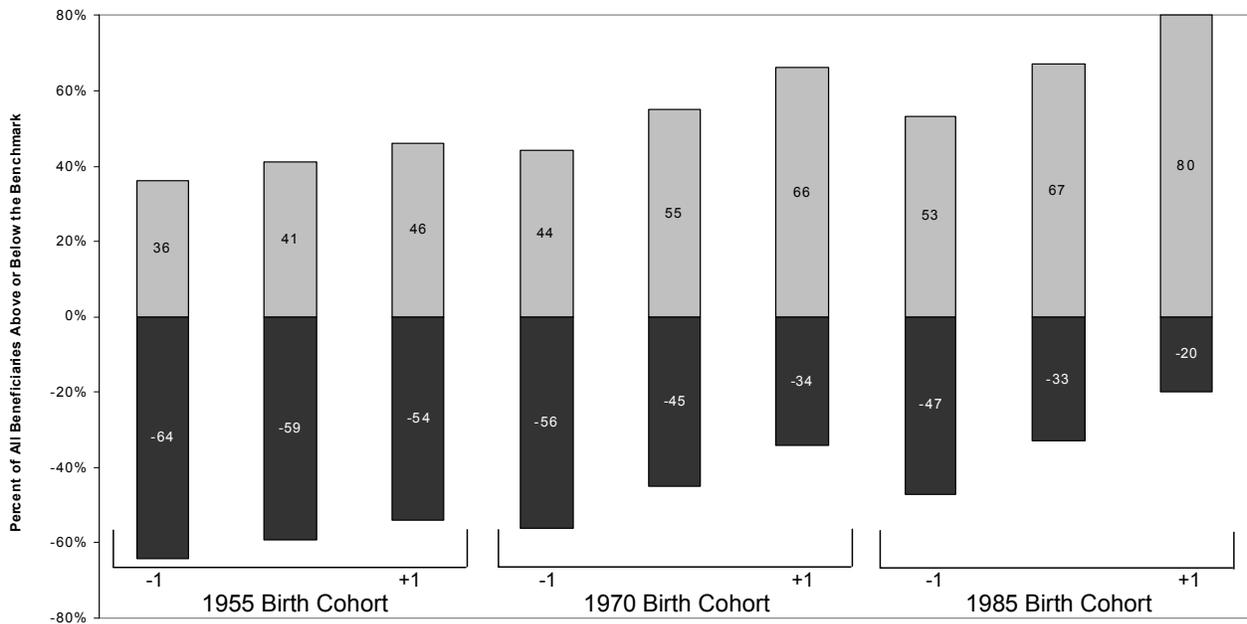
**Figure A-11: Model 3 Sensitivity Analysis - Distribution of Benefits by Cohort Compared to Benefit Reduction Benchmark, Varying Real Rates of Return by Plus 1 and Minus 1 Percent**



Source: GAO's analysis using the GEMINI model.

Note: Monthly benefit level at age 67 is compared to the benefit level under the benchmark to determine if individuals are above or below the benchmark. Estimates based on 1955, 1970, and 1985 birth cohorts assuming retired workers retire at age 65, full annuitization of account balance at retirement age. Uncertain asset returns and inflation are also assumed, where the mean nominal rates of return used for the individual accounts are 6.3% for Treasuries, 6.8% for corporate bonds, and 10% for equities.

**Figure A-12: Model 3 Sensitivity Analysis - Distribution of Benefits by Cohort Compared to Tax Increase Benchmark, Varying Real Rates of Return by Plus 1 and Minus 1 Percent**



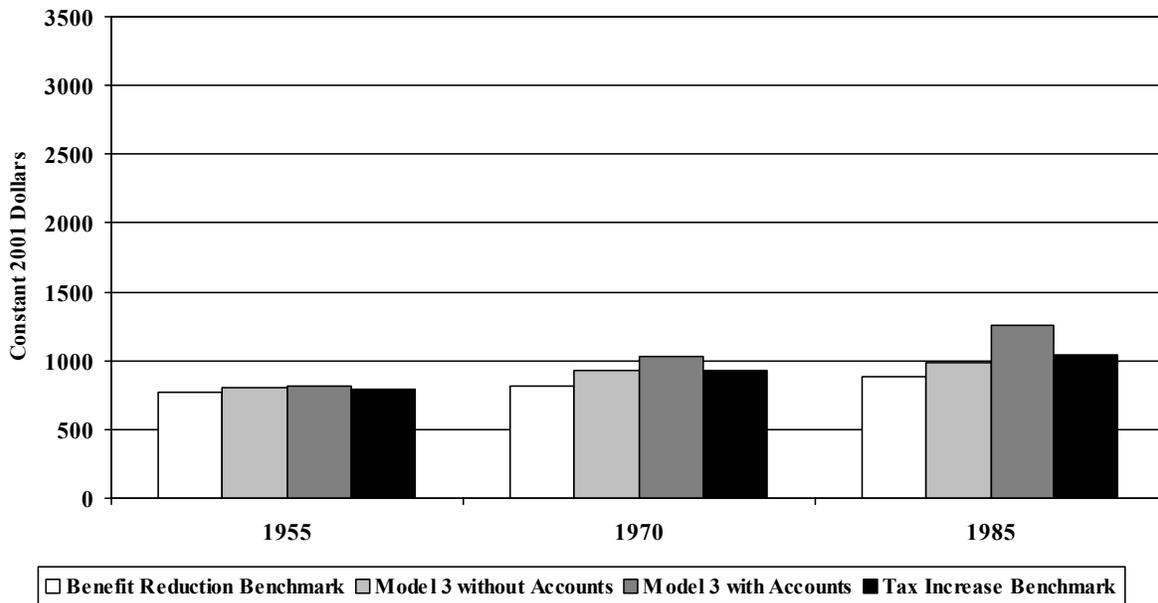
Source: GAO's analysis using the GEMINI model.

Note: Monthly benefit level at age 67 is compared to the benefit level under the benchmark to determine if individuals are above or below the benchmark. Estimates based on 1955, 1970, and 1985 birth cohorts assuming retired workers retire at age 65, full annuitization of account balance at retirement age. Uncertain asset returns and inflation are also assumed, where the mean nominal rates of return used for the individual accounts are 6.3% for Treasuries, 6.8% for corporate bonds, and 10% for equities.

## **Overview of Model 3 Disabled Worker Quintile Analysis – Lowest and Highest Quintile by Cohort**

- Median monthly benefits are maintained above the benefit reduction benchmark for the lowest quintile regardless of participation in individual accounts likely due to the enhanced benefit for full-time “minimum wage” workers (see Figure A-13).
  - This enhanced benefit could apply to low-earning disabled workers who work most of their career prior to becoming disabled. In our sample the average age of disability onset is 55.
- Participation in the individual accounts is also important for disabled workers, especially those in the later cohorts and in the upper quintiles. However, the earlier a disabled worker becomes disabled the fewer years they contribute to their account and the smaller is their account balance (see Figures A-13 and A-14).
- Since disabled workers do not have access to their accounts until conversion to retired worker benefits at the NRA, benefit levels before conversion would be in line with benefit levels for those without individual accounts.
- Benefit levels for disabled workers may be higher than those of retired workers since disabled workers are entitled to benefits at earlier ages, thus the reductions in their PIA factors would be smaller. This may create an incentive for older workers to apply for disability benefits.

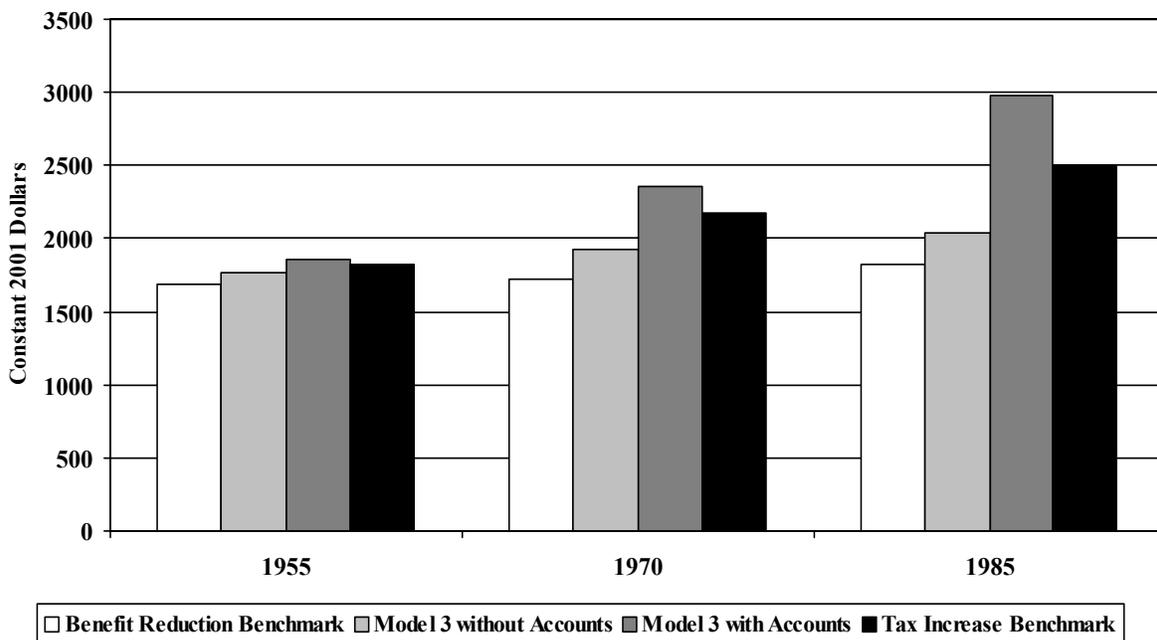
**Figure A-13: Model 3 Quintile Analysis – Median Monthly Benefits by Cohort for Disabled Workers in the Lowest Quintile**



Source: GAO’s analysis using the GEMINI model.

Note: Median monthly benefits at age 67 for disabled workers. Estimates based on 1955, 1970, and 1985 birth cohorts assuming uncertain asset returns and inflation, and full annuitization of account balance at retirement age. “With accounts” implies all individuals in the cohort participate in the individual accounts. Quintiles are based on the distribution of benefits at age 67 under tax increase benchmark.

**Figure A-14: Model 3 Quintile Analysis – Median Monthly Benefits by Cohort for Disabled Workers in the Highest Quintile**



Source: GAO’s analysis using the GEMINI model.

Note: Median monthly benefits at age 67 for disabled workers. Estimates based on 1955, 1970, and 1985 birth cohorts assuming uncertain asset returns and inflation, and full annuitization of account balance at retirement age. “With accounts” implies all individuals in the cohort participate in the individual accounts. Quintiles are based on the distribution of benefits at age 67 under tax increase benchmark.

## Balancing Adequacy and Equity-Overall Equity

### Model 3

- Provide workers some investment choice and control, subject to certain limitations. This might enable individuals to earn a higher rate of return on their contributions with an increased measure of risk, primarily that the return expected may not be realized.
- May improve intergenerational equity through the move to advanced funding of Social Security and the inheritance feature of individual accounts.
- Make determining the rate of return difficult as the link between contributions and benefits becomes unclear due to general revenue transfers. Thus, we did not quantitatively assess the equity effects of the models.

## Implementing and Administering Reforms

- Funding for the transition from a pay-as-you-go system to a partially funded system would be handled by transfers from the General Fund of the Treasury and could be repaid when the trust funds experience cash flow surpluses.
- An education program will be necessary to explain the changes in the benefit structure and to avoid expectation gaps.
  - Benefit offset feature, financing structure of the system may be difficult to explain, which increases the importance of an education program.
- An education program will also be necessary to inform OASDI eligible workers on making sound investment decisions regarding diversification, risk, and participation.
- The Commission did not explicitly address the costs of an education program.
- It is unclear how the Commission's proposed account splitting at divorce would fit into divorce law.

## Implementing and Administering Reforms

- The proposal establishes a Governing Board to administer the individual accounts, which is intended to limit the potential for politically motivated investing. The board's duties include the choice of available funds and providing financial information to individuals.
- The design of the voluntary individual account feature places an additional administrative burden on the SSA. Specifically, the hypothetical account, benefit offset, inheritance feature, and account splitting at divorce would create additional responsibilities for SSA.
- There is not enough information to estimate administrative costs. Such costs are affected by the level of participation in the individual accounts. However, the Commission believes that individual accounts can be administered at a low cost since they envision the system being structured similar to the TSP.
- There is not enough information to address how annuities and annuity pricing will be handled; therefore, we used the same assumptions as the SSA Actuaries and did not quantitatively analyze their effect on benefit levels.

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# Appendix II: Comments from the Social Security Administration

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## SOCIAL SECURITY

The Commissioner

January 10, 2003

Ms. Barbara D. Bovbjerg  
Director  
Education, Workforce, and  
Income Security Issues  
U.S. General Accounting Office  
Washington, D.C. 20548

Dear Ms. Bovbjerg:

Thank you for the opportunity to review and comment on the preliminary draft report "Social Security Reform: Analysis of Reform Models Developed by the President's Commission to Strengthen Social Security (GAO-03-310). Our comments on your report are enclosed. Staff questions may be directed to Alice Wade, Deputy Chief Actuary for Long-Range Estimates. Ms. Wade can be reached by phone at 410-965-3002 or by email at [Alice.H.Wade@ssa.gov](mailto:Alice.H.Wade@ssa.gov).

Sincerely,

Jo Anne B. Barnhart

Enclosure

SOCIAL SECURITY ADMINISTRATION BALTIMORE MD 21235-0001

**COMMENTS ON THE GENERAL ACCOUNTING OFFICE (GAO) REPORT “SOCIAL SECURITY REFORM: ANALYSIS OF REFORM MODELS DEVELOPED BY THE PRESIDENT’S COMMISSION TO STRENGTHEN SOCIAL SECURITY” (GAO-03-310)**

We appreciate the opportunity to review and comment on the draft report. The General Accounting Office has undertaken a comprehensive analysis of the reform models developed by the President’s Commission to Strengthen Social Security. Major comments are provided first, followed by a listing of technical comments. We agree with the Comptroller General that achieving sustainable solvency is an extremely important goal. In fact, it is one of the four key goals in Social Security’s new strategic plan.

Social Security also agrees with the three concluding observations in your transmittal letter to Senator Breaux. They are: (1) trade offs exist between efforts to achieve sustainable solvency and to maintain adequate retirement income for current and future beneficiaries; (2) public education and information will be key to implementing any changes in Social Security and this is especially so if individuals must make choices that affect their future benefits; and (3) any reform proposal must also be looked at in the context of the Nation’s overall long-range fiscal projections.

**Benchmarks**

The analysis by GAO compares Models 2 and 3 with three separate benchmarks. We commend the development of standard benchmarks for comparison with proposed reforms. We are also developing such benchmarks. Although the benchmarks used by GAO all assure solvency for the next 75 years, they do not achieve “sustainable solvency.” Therefore, comparing the Commission’s Models 2 and 3, which do achieve “sustainable solvency,” to benchmarks that do not may be misleading. This sustainability difference should be better highlighted, whenever there is a comparison of an “unsustainable” benchmark and a sustainable Model. In particular, as the figures may be used on a stand-alone basis, they should be annotated accordingly.

As an example of the difference between sustainable and unsustainable solvency, Social Security’s 2002 Performance and Accountability Report includes a graph that shows that on a net present value basis the cumulative shortfall of taxes to pay scheduled benefits over the 75-year period is \$3.3 trillion. This graph shows that the cumulative shortfall is increasing as we approach the end of the 75-year period, and would continue to grow thereafter. In contrast, Model 2, assuming 67 percent participation, was projected by our actuaries (based on 2001 assumptions) to have a small cumulative trust fund surplus of 0.4 trillion dollars for the 75-year period. This cumulative trust fund surplus was growing at the end of the 75-year period.

SSA recognizes the importance of using consistent benchmarks, such as the ones used by GAO, but notes that they are based on arbitrary potential changes to Social Security.

Perhaps the primary benchmark to be considered would reflect what would actually happen in the absence of reform. Our understanding in this case is that benefits would have to be reduced to what is payable with scheduled tax rates once the trust funds are exhausted. An additional important benchmark would provide additional revenue to permit payment of current law scheduled benefits.

**Measures of Debt**

In comparing benchmarks and plans, the analysis considers changes in Federal debt held by the public. It should also consider reductions in Social Security's unfunded obligations. Unfunded obligations may be considered a kind of implicit debt.

**Winners and Losers**

The analysis of those who would do better or worse by choosing an individual account raises many questions. If it represents an analysis of how many people in a given cohort would do better or worse, what generates the variation in returns? The more important question is the impact on a typical beneficiary. For example, the extent to which typical members of a cohort will gain or lose, given the expected investment returns. There should be more analysis as to who the people are who do better or worse under the Commission model (i.e., differences between men and women, among survivors, divorced, single, married, and between high earners and average earners).

**Participation Rates**

The analysis would benefit from assuming the most plausible rate of participation in individual accounts, instead of analyzing just the extremes of zero and 100 percent participation. Although the rate of participation cannot be predicted with certainty, an analysis of the incentives contained in a plan and the experience of comparable plans allow for making a reasonable assumption, which was done in the Commission's analysis of its models. For example, illustrations provided by our actuaries focused on a 67 percent participation report. Additional insight into the participation rates may be gained from the Government Employee Thrift Savings Plan. At a minimum, you should better highlight that the zero and 100 percent participation rate cases represent only the extremes.

**Age at Retirement**

The analysis focuses on retirees who start to draw benefits at age 65 and yet claims to provide representative distributional analysis. Most beneficiaries claim benefits at an earlier age. Considering the distribution of actual ages at which people claim benefits is particularly important in analyzing the full distributional consequences of the Commission's models, especially Model 3 which changes the incentives for early retirement.

#### Distributional Analysis - Accuracy

We have concerns about the accuracy of the distributional analysis shown in figures 9, 10, 11, A-8, A-9, and A-10. To be truly representative, the sample of individuals born in the selected years must include records for all who might potentially be eligible for any benefit--workers, spouses, and widow(er)s. What controls are in place to ensure that the sample represents the intended future projection of individuals and their family formations? It is particularly striking that the GAO model appears to show very little growth in earnings in the lowest quintile and substantially above average growth in the highest quintile. These and other results should be carefully reviewed before drawing any firm conclusions from the analysis. In addition, we have concerns that the modeling accurately reflects dual entitlement and the low earner and widow enhancement provisions under the Commission model. Such modeling requires accurate representation of the full distribution of spousal earnings records in marriages and divorces.

For example, individual workers from the 1985 birth cohort who retire at age 65 would have higher retired-worker benefits under the tax increase benchmark than under Model 2 without individual accounts. The only beneficiaries from this cohort who would have a higher benefit under Model 2 are (1) those who have been disabled-worker beneficiaries for many years and had very consistent low earnings before becoming disabled, and (2) widow(er)s who had fairly low career-average earnings and a spouse with a similar career-average earnings level. However, figure 11 suggests that from this cohort, 28 percent fare better under Model 2 without individual accounts. In discussing this orally, GAO staff indicated that this analysis includes all kinds of beneficiaries (disabled, survivors) from these cohorts and comparisons were made as of age 67 for all beneficiaries. We still do not believe that the disabled workers with very low earnings and relatively long service and the survivors where husbands and wives have similar low earnings histories could account for such a substantial proportion of this cohort at age 67.

#### Distributional Analysis - Documentation

The report provides little information about the model that is used for the distributional analysis. The report should provide a brief summary about the Gemini model. Specifically, the report should indicate the number of individuals in the data sample and how they and the model are constructed. Finally, the report should also indicate the strengths and limitations of the model.

We would suggest providing more documentation in the appendix to describe the analysis and changing the footnotes on the figures to better reflect the analysis presented. Not enough description of the analysis is provided to verify the general results shown in the figures. Clarification should be made to address the following:

- Analysis includes all types of beneficiaries (retired workers, disabled workers, spouses, survivors) from the cohort that are receiving benefits at age 67. However, footnotes on the figures state that *estimates are based on 1955, 1970, and 1985 birth cohorts retiring at age 65*, implying that the comparisons are made for retired workers only.

- How investment earnings on individual account accumulations vary among individuals within a cohort.
- A clear indication of how actual and offset annuities are determined should be added. In particular, the interest rate assumed for the actual annuity needs to be specified as does the nature of the annuity (i.e. fixed versus variable). We note that the Commission used both but primarily focused on the variable annuity.

#### **Implementing and Administering Reforms and Assessing Administrative Costs**

As noted, there are significant issues related to administering the Commission models. The Commission used a 30 basis points (0.3 %) cost for the administration of personal accounts based on work done by our Actuary and Policy groups and the potentially extremely large size of funds being invested. Given the complexity of administering the models and the charge from the requestor of this report, it will be necessary to do substantial analysis of implementing and administering personal accounts and of refining the estimates of administrative costs over time.

#### **Stochastic Simulation**

It is not clear what role stochastic simulation plays in the overall results presented, if any. The only reference to stochastic modeling in the report was the following statement on page 55: *Analysis was performed using stochastic simulation, which included certain asset returns, mortality, inflation, wage growth, etc.* However, no probabilities, means or variances for these variables or for the overall results are given. In particular, no distributions on the medians of the quintiles are presented in the report. If true stochastic variation has been modeled, then a clear indication of how it is being illustrated should be included. If, on the other hand, no results specific to stochastic distributions are being presented, then references to stochastic simulation should be omitted.

#### **Benefit Levels**

Figures 8 and 15 show benefit levels for the 1985 cohort (in 2001 constant dollars) as high as \$4,000. For this cohort, present-law scheduled individual benefits are projected to reach only about \$3,000 (in constant 2001 dollars). Thus, these high reported benefit amounts seem to imply that benefits for an individual worker may include payment of any auxiliary benefits from the individual's account (such as spouse benefit in the case on a one-earner couple). However, Figure 6 shows median benefits that are more in line with benefits for the individual only. Footnotes at the bottom of all figures seem to indicate that benefits are for individuals at age 67, assuming all retired-worker beneficiaries retire at age 65. Additional documentation in the appendix states that the unit of analysis is individuals and that this unit of analysis is chosen because household composition varies across birth cohorts. The results lack sufficient explanation and there appears to be inconsistency in the presentations. These issues should be addressed.

**Baseline extended benchmark**

On page 10, the baseline extended benchmark is defined as a *fiscal policy path that assumes payment in full of all scheduled Social Security benefits throughout the 75-year period and no other changes in current policies*. If benefits are to be paid in full, current policies are expected to require change, and this should be indicated. For example, this baseline could be described as present law modified to allow borrowing to permit full payment of scheduled benefits.

**Minimum benefit**

Many references are made throughout the report to a “minimum benefit” provision. A minimum benefit usually refers to a specified minimum dollar level. In the description of this provision on page 13 for Model 2, the minimum unreduced (for retirement before normal retirement age) benefit is defined as 120 percent of poverty. However, very few individuals would actually meet the conditions required to get this “minimum benefit” and many more individuals would get increased benefits that are not equal to 120 percent of poverty. A reference more accurate than *minimum benefit* would be *enhanced benefit for low earners*.

**Sustainable Solvency**

GAO's definition of sustainable solvency is different than what has been referred to as sustainable solvency in the Trustees Report. To avoid confusion, we suggest that this be at least noted. The Trustees Report has for several years defined sustainable solvency to require an expected trust fund ratio that is consistently positive and is stable or rising at the end of the 75-year period. GAO has included additional criteria in its definition, directly related to Social Security solvency. One of these additional criteria is a reduction in the currently scheduled cost of the OASDI program as a percent of GDP (which is currently projected to rise to 6.7 percent at the end of the 75-year projection period). Another criterion is a reduction in the amount of debt held by the public from that projected to result from a modification of present law to allow borrowing to pay scheduled benefits.

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