A Multidisciplinary Review of Research on the Distributional Effects of Raising Social Security's Early Entitlement Age

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Abstract

When estimating potential adversity caused by an increase in the early entitlement age (EEA), findings from both the EEA literature and the broader public health literature do not suggest that the Social Security–covered worker population can be easily separated into two groups— an unaffected or low-risk group and an easily identifiable vulnerable or high-risk group. This evidence appears largely supportive of the conclusions reached by the retired-worker benefit's original designers and may suggest implementation difficulties for proposals that seek to raise the EEA, while protecting groups deemed by the proposers to be adversely affected by that increase. Because the risks insured against by the retired-worker benefit are not limited to an easily iden- tifiable segment of the population, the universality of Old-Age Insurance under current law may better match the underlying exposure to risk in the insured population than a targeted or needs- based alternative.

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Introduction

The breadth and depth of the Old-Age, Survivors, and Disability Insurance (OASDI, or Social Security) program implies that any attempt to review the Social Security literature in an article format must be limited. This paper focuses on the Old-Age Insurance (OAI, or the retired-worker benefit) portion of OASDI, although some of the literature reviewed touches on interactions between Disability Insurance (DI) and OAI. The OAI (retired-worker) benefit can be thought of as the foundation upon which the spouse, survivors, and disability insurance pieces of Social Security are built.[1]

Within the OAI framework, the paper more specifically reviews literature that can be used to help evaluate proposals to increase the retired-worker beneficiary's early entitlement age (EEA), which is currently age 62.[2] Many of these proposals seek to identify workers who would be unable to work past age 62 and include provisions intended to relieve the hardship or vulnerability thought to be imposed on those workers by the EEA increase.

This paper reviews the relevant social science literature using a multidisciplinary approach to capture the interaction between social insurance philosophy and empiricism that exists in that literature. As Thompson (1983, 1436) notes, "in part, differences in opinion about either the need for or the desirable direction for Social Security reform result from differences in opinion about the conceptual framework most appropriate for analyzing the effect of the Social Security system." In this paper, I focus on two contrasting frameworks for evaluating current law or changes to current law: (1) the welfare or tax-transfer framework and (2) the insurance framework. This review indicates that different approaches to identifying the risks insured against by the EEA provision appear to correlate with these different frameworks.

In this review, I first discuss proposals to raise the EEA and the differing analytical frameworks used to evaluate those proposals. Next, I review the EEA literature, followed by the relevant health literature. I conclude with a discussion of what the results of empirical studies from both of those literatures tell us about the analytical frameworks used to evaluate proposed increases in the EEA. For readers unfamiliar with the arguments made by proponents of

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[1] The OAI retired-worker benefit is the original benefit included in the 1935 Social Security Act and is a primary benefit, which means that it is paid based on a worker's own earnings record. The spouse benefit, added to the program in the 1939 amendments, is considered an old-age benefit, but it is an auxiliary benefit that is paid on the earnings record of the primary (or highest) earner in a couple. See http://www.socialsecurity.gov/pubs/EN-05-10035.pdf for details. This paper uses OAI as shorthand for OAI retired-worker benefits, or OAI primary benefits—the original 1935 benefits upon which all other pieces of OASDI are built.

[2] Although this paper does not focus on downstream effects on widow(er) benefits from a primary earner's claim of retired-worker benefits, it should be noted that when a primary earner claims retired-worker benefits early, his or her spouse's widow(er) benefits will be reduced. See http://www.socialsecurity.gov/pubs/EN-05-10147.pdf for details. Occasionally, proposals that increase the EEA will also increase the age-50 eligibility age for disabled widow(er) benefits and the age-60 early eligibility age for aged widow(er) benefits (see http://www.socialsecurity.gov/oact/solvency/Warshawsky_20080917.pdf). These provisions are not included in this paper's discussion.

EEA increases, see Appendix A. For those unfamiliar with the insurance perspective and how it contrasts with the tax-transfer or welfare perspective, Appendix B provides some historical background.

Proposals to Raise the EEA

The *2014 Social Security Trustees Report* projects that the reserves of the OASI Trust Fund will be insufficient to fully pay current-law scheduled benefits beginning in 2034. An increase in Social Security's EEA is sometimes included as part of a package of proposed changes to Social Security law that are intended to avoid that projected OASI Fund shortfall. More specifically, legislative proposals to increase the EEA most frequently occur in tandem with proposals to increase the full retirement age (FRA), although policy analysts also sometimes advocate for an EEA increase in isolation.

The authors of the 2010 Fiscal Commission report provide a recent example of this approach. In that report, they proposed gradually increasing the FRA from age 67 to 69 and the EEA from age 62 to 64 (recommendation 5.4) and directed[3] Social Security to design a "hardship exemption for those who cannot work past 62 but who do not qualify for disability benefits" (recommendation 5.5).[4]

In proposals that raise both the EEA and FRA, the cost savings to the OASI Trust Fund, relative to current law is achieved through the proposed increase in the FRA, with no contribution coming from the EEA increase.[5] Because retired-worker benefits are actuarially reduced for early retirement under current law, on average, the trade-off between claiming earlier or later involves a trade-off between choosing to receive a smaller benefit for a longer period of time or choosing to receive a larger benefit for a shorter period. The result, on the aggregate level, is roughly a wash for the OASI Trust Fund in terms of cost.

Although OASI Trust Fund cost is not usually considered to be at issue, proposals to raise the EEA have persisted over time, dating from at least the 1982 Amendments to the Social Security Act, when a change in the FRA was last enacted (scheduled to fully phase in at age 67 for workers reaching age 62 in 2022 or later), but when the EEA was left at age 62. This review focuses on difficulties associated with evaluating the distributional effects of an increase in the EEA, not

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[3] The majority of the fiscal commissioners were members of the House and Senate in 2010. However, the hardship exemption directive to the Social Security Administration is not binding because the Fiscal Commission report did not receive enough votes to be approved by the Commission.

[4] Recommendation 5.5 also proposes "allow[ing] Social Security beneficiaries to collect half of their benefits as early as age 62, and the other half at a later age." Unlike the hardship exemption proposal, this proposal seems intended to apply to all fully insured beneficiaries. To my knowledge, there is not a large body of literature evaluating this type of proposal, and this part of recommendation 5.5 is not a focus of this review.

[5] A 1-year increase in the FRA is roughly equivalent to a 7 percent across-the-board reduction in benefits (Ruffing and Van de Water 2011, Box 1).

on the reasons for considering the increase itself. For a brief summary of common arguments given by proponents of an EEA increase, see Appendix A.

Analytical Approaches to Evaluating a Proposed EEA Increase

Empirically, it is very difficult to quantify the distributional effects of raising Social Security's EEA. Unlike an FRA increase, which reduces benefits but does not preclude retirees from receiving them, an EEA increase completely eliminates benefits between age 62 and the proposed higher EEA.

The option of claiming benefits at the EEA, even for a worker who does not subsequently choose to exercise that option, can be thought of as a kind of insurance against experiencing poor health or a labor market shock prior to reaching the FRA. Ideally, a distributional estimate would include proposed changes to the value of that option, relative to current law. However, as a practical matter, social scientists do not have any straightforward way to measure insurance value because they cannot observe the risk aversion of workers. An additional difficulty is that while researchers can observe workers' current and past work and benefit claiming behavior, they cannot observe the counterfactual—how workers would have fared had the EEA been higher than its current-law age of 62.

Most of the EEA literature adopts a hardship-threshold approach to the distributional analysis of a proposed increase. I use the term "hardship-threshold model" in this paper to describe the common research practice of first designating a criteria or a set of worker characteristics that the researcher believes is most likely to indicate potential hardship or an "inability to work." Once "hardship" is defined, the researcher then proceeds to estimate how many insured workers are likely to meet those criteria by separating the fully insured population into a group estimated to be at risk of hardship and a group thought not to be at risk. This analytical technique seems to mirror the common practice among policy designers of combining a proposed increase in the EEA with special provisions that are intended to mitigate hardship for people deemed to be adversely affected by that increase.

Both the empirical analyses of these EEA proposals and the proposals themselves appear to be influenced by a view held by many Social Security analysts that OAI is a tax-transfer program[6]

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[6] Pechman, Aaron, and Taussig (1968, 56) describe this view when they write, "….there is a sharp disagreement about the proper level and structure of benefits, largely because many people think of social security as a form of insurance. In practice—as well as in principle—social security is a mechanism for transferring financial resources from the working generation to those who cannot work because of age, disability, or dependency status. Evaluation of alternative means of shaping the course of the program requires consideration by policymakers and the public alike of the idea that social security is a tax-transfer system and not an insurance system."

of which the primary goal is (or should be) to prevent (or alleviate) poverty.[7] For ease of exposition, I refer to this view as a welfare view, although it should be noted that many analysts hold a more nuanced view, and actually refer to Social Security as a mixed system.[8]

As discussed in Appendix B, the welfare view contrasts with the stated legislative intent of OAI's designers. The perceived failure of state welfare programs in place at the time exerted a strong influence on the design of Social Security's retired-worker benefit. In fact, the benefit's designers stated that only a universal, contributory insurance program that did *not* require determination of need on the part of program administrators could prevent hardship and insure workers against the hazards and vicissitudes of life. A key conclusion that arose out of the designers' examination of various approaches to the problem of economic insecurity and their experience in state government was that *all* workers were at risk, rather than just an unfortunate minority. While there are modern proponents of this insurance view of Social Security who exhibit philosophical continuity with the program's original designers (for example, Myers 1993; Altman 2013), in the EEA literature, the insurance framework appears to be somewhat rarely applied.

Although analysts such as Thompson (1983) have discussed how these differing analytical frameworks can influence Social Security analyses, one point that is sometimes overlooked is that the analytical frameworks themselves can be tested against the data. In other words, we can examine the literature to see if an easily identifiable threshold or agreed upon definition of *hardship* has emerged from the empirical data. Has an easily identifiable way to separate the fully insured-worker population into two groups—those who are at risk of hardship and those who are not—emerged? The less this target population can be readily identified, the less confident we can be that the welfare framework has empirical support. If an analytical framework is at odds with the distribution of risk observable in the fully insured population, then policies resulting from that framework may find difficulty in achieving their desired goals.

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[7] Thompson (1983, 1436–1438, 1462) makes a similar point about analytical frameworks when discussing the broader question of reform to the OASDI system. He describes the three main conceptual frameworks used as the "insurance model," the "tax-transfer model," and the "annuity-welfare model" of Social Security. Thompson (ibid., 1435–1438) describes the insurance model as a life-cycle-based approach that focuses on "the pooling among workers of the risk of earnings loss because of retirement, disability, or death." He describes the tax-transfer model as focused exclusively on current-period transfers so "the revenue and expenditure sides of Social Security are evaluated separately." He describes the annuity-welfare model as one in which the "benefit structure is decomposed into a social-adequacy component and an individual-equity component." The tax-transfer model is applied to the adequacy component, and the annuity component is analyzed as a nonredistributive forced savings or private pension plan (ibid). The author further notes that in the annuity-welfare model, the "higher benefit-tax ratio afforded to low-wage workers is viewed as redistribution," but in the insurance model, that ratio is viewed as "life cycle insurance offered to all workers" upon entry to the labor force (ibid, 1438).

[8] For example, Stiglitz (1986, 282) writes, "Social Security is a combination of a (forced) retirement savings program, an insurance program, and a redistribution program." Redistribution is a term sometimes used by economists as another word for "transfer."

For example, in support of their hardship exemption provision, the authors of the 2010 Fiscal Commission report wrote, "A recent RAND analysis reported that 19 percent of early retirees claimed a work-limiting health condition that would have limited their ability to continue in the paid labor force. To protect this population, the Commission proposal sets aside adequate resources to fund a hardship exemption for up to 20 percent of retirees."[9]

The success of a targeted hardship-exemption provision of this type depends crucially on the extent to which there is an easily identifiable way to separate the fully insured-worker population into two groups: (1) the up to 20 percent, and (2) the remaining 80 percent. In addition, the 20 percent allowance requires a large degree of certainty about the size of that group over the 75-year forecast window of the *Social Security Trustees Report*. The more range and uncertainty around that estimate, the less confidence we can have in the cost estimates for targeted provisions of this type.[10]

In addition to using consensus or lack thereof in the empirical EEA literature as a test of the welfare framework, one can also more directly test that framework by evaluating the statistical validity of the hardship-threshold model. Adopting a welfare framework before embarking on a statistical analysis can cause one to reject an insurance framework without actually testing that framework against the data. This could occur, for example, if one did not look for differences among insured workers above the specified hardship threshold, but merely assumed all workers were at equal risk above that threshold. On the other hand, an empirical test of the insurance perspective can accept the hardship-threshold model should it be found to match the data; one would simply observe homogeneity in risk (or no risk) above a small, identifiable group of beneficiaries. This type of test against the hardship-threshold model—referred to as a gradient model in this paper—is commonly used in the public health literature. Accordingly, some of the relevant public health literature is included in this review.

A third way to test the welfare framework is to investigate whether there is heterogeneity of risk *within* worker subcategories. For example, Waldron (2004) found that men in the top

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[9] Somewhat similarly, in reference to the EEA, Steuerle (2005) notes in Congressional testimony, "An increase in the retirement age can be combined with other provisions that help, rather than hurt, groups with shorter life expectancies."

[10] This discussion of cost estimates refers to the general discussion of the hardship exemption that is found in the National Commission on Fiscal Responsibility and Reform (2010) report. However, the Social Security Administration's Office of the Chief Actuary—in a letter responding to the Commission cochairs' request on December 1, 2010—did provide estimates for a "hardship exemption" provision containing more detail than what was mentioned in the National Commission on Fiscal Responsibility and Reform report. The actuarial memorandum reads, "The Commission intends to limit the increase in the EEA and NRA for those who would find continued work most difficult after attaining age 62. One viable approach for accomplishing this would be to limit the increase in retirement ages for low earners with long careers prior to reaching age 62. This approach is included in the specification of this provision." For details of this provision, see http://www.socialsecurity.gov/OACT /solvency/FiscalCommission_20101201.pdf.

quartile of the lifetime earnings distribution who claimed benefits at age 62 were more likely to die sooner than men claiming later, even men claiming later at lower lifetime earnings quartiles. In other words, even workers in the top quartile of the lifetime earnings distribution were not homogenous with regard to mortality risk. The public health literature will generally not examine differences in mortality or health within population subgroups, but will rather report *averages* for *each* subgroup.

From this perspective, even research looking at the entire distribution of risk over subgroups spanning the whole population will miss variations in risk within each subgroup. That point applies to any category used to identify an at-risk worker. For example, if workers in physically demanding jobs are deemed deserving of special protection or provision or have a higher correlation with poor health measures, there could be workers in desk jobs who are actually worse off than the average worker in a physically demanding job. Conversely, there could be workers in physically demanding jobs at the upper tail of the health distribution—that is, much healthier than the average worker not in a physically demanding job.

This review does not attempt to examine the distribution of risk within subcategories of workers. Although subcategory risk estimations are fairly rare in Social Security research, the outcome of such studies may be of value to risk-adverse covered workers and could potentially lend support to the universality principle of current-law OAI.[11] In other words, a targeted proposal would work best if identifiable at-risk groups were observed to be almost identical *within* each group, with each covered worker fitting clearly into distinct, well-marked categories (and with little overlap between those categories as well).[12] Conversely, the more heterogeneity in the population subgroups, the more a targeted approach would be expected to fail to achieve its goal.[13] Research in progress that examines working and claiming patterns by lifetime earnings decile may help address this question.

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[11] Note that all workers are charged the same OASDI tax rate, but under hardship-exemption proposals, workers who would not meet a hardship criteria such as being in physically demanding jobs and/or having low lifetime earnings, but who are as bad off or worse off than those who meet those criteria would be denied benefits for which they have contributed. Presumably, hardship determinations for the retired-worker benefit would be subject to appeal in a manner similar to DI benefits, potentially raising administrative costs for the OASI program.

[12] As discussed later, because workers may change jobs over a career and the benefit formula averages the top 35 years of earnings, an additional problem would arise for workers who have experience in both physically demanding and nonphysically demanding jobs at different stages of their career. A targeted approach seems most likely to be administratively successful if workers embark on a fixed life path with a fixed set of demographic and labor market characteristics at age 18 and do not deviate.

[13] In an example of research generally not included in EEA analyses, researchers who study earnings variance sometimes study both within and between education-category variance in earnings amounts. These studies may help inform policymakers on the value of the wage/insurance aspects of OAI, but they are not included here.

As discussed, the most common framework used to evaluate proposed changes in the EEA is the welfare framework. Under this framework, the analyst usually applies a hardship-threshold model by tabulating the percentage of survey respondents who self-report poor (or fair) health or a work-limiting health condition and/or score below a threshold of hardship.[14] A central issue such studies attempt to address is whether a fully insured individual would be able to work past age 62 if the EEA were to be increased. Implicitly, these studies often seek to evaluate whether an individual would fall below a predetermined level of material deprivation if the EEA were to be raised. Thus, many of these studies include financial variables in their measure of hardship, under the assumption that individuals who cannot work past age 62 but who have assets or private pension income can spend down those assets and/or live off their private pension income until reaching the new EEA.

Although hardship must be defined by the researcher prior to analysis in these studies, there is no standard definition of hardship. The use of the hardship concept thus introduces a large element of subjectivity into many EEA analyses.

EEA Hardship Estimates

One response to the problem of defining hardship has been for researchers to include a range of hardship estimates in their studies. When researchers choose to apply single-point estimates, those estimates tend to be at the low end of the reported range of the literature.

Using a combination of health and financial variables, Kingson and Arsenault (2000) found that the number of age-62 Social Security retired-worker benefit claimers who could be at risk of hardship if the EEA was increased ranged from 3 to 52 percent, depending on the definition of risk chosen by the analyst. Similarly, Smith (1999) found that the percentage of age-62 claimers at risk of hardship ranged from 10 to 33 percent, depending on the definition of hardship chosen. Kingson and Brown (2009) found that from 1.5 to 37.4 percent of workers claiming benefits at age 62 or 63 would be at risk of hardship, depending on the definition of risk used by the analyst.

Under one definition of risk (poor self-reported health and total reliance on Social Security for pension income), Burkhauser, Couch, and Phillips (1996) found that less than 3 percent of men claiming at age 62 would experience hardship.[15] RAND (2002) found that 20 percent of workers

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[14] The threshold measure is defined by the analyst through the tabulation of survey responses to a variety of variables. The following discussion refers to studies that are limited to observable empirical data.

[15] The Burkhauser, Couch, and Phillips (1996) study had fewer men claiming at age 62 (by about 20 percentage points) in their data set than were observed to claim in Social Security administrative data (Waldron 2001). In addition, Olson (1999) found that because of lags in the Social Security Administration's (SSA's) entitlement process, workers may have claimed benefits at age 62, but may not have received them by the time of the Health and Retirement Study interview. Those workers would not have been placed in the age-62 claiming category in the Burkhauser, Couch, and Phillips (1996) study, even if they had actually claimed benefits at age 62 according to SSA records.

had a health condition that limited work, and 5 percent would meet a stricter hardship measure consisting of poor health, absence of a private pension and a physically demanding job.

Munnell and others (2004) defined the potentially at-risk group of workers as the group that claimed retired-worker benefits at age 62 or 63 and received 80 percent or more of their income from Social Security. The authors estimated that about 25 percent of their Health and Retirement Survey (HRS) sample members aged 51–61 in 1992 fell into their potentially at-risk category. Of that group, the authors determined that 26.3 percent of men and 33.5 percent of women would not have been able to work past age 62.[16] Out of the unable-to-work group, Munnell and others considered workers at risk of hardship to be those who would have fallen into poverty without access to a Social Security retired-worker benefit at age 62. Overall, these authors found that about 4 percent of all aged-62 individuals would have met this definition of hardship.

A couple of papers have approached the EEA issue by trying to estimate how many workers claiming retired-worker benefits would have been potentially eligible for DI benefits. This review is focused on OAI, but interactions between OAI and DI are important within the larger OASDI system. Leonesio, Vaughan, and Wixon (2000) found that for Social Security retired-worker beneficiaries aged 62–64, about 50 percent had a health problem, 22 percent met a modified Census Bureau definition of "severely disabled," and 12 percent met a stricter definition of disability simulated to match the Social Security Administration's (SSA's) definition. Using a disability-status measure of risk and a propensity scoring system, Bound and Waidmann (2010) found that about 18 percent of male beneficiaries who claimed retired-worker benefits at age 62 were potentially eligible for Social Security disabled-worker benefits.[17]

Sensitivity of Hardship Estimates to the Age Span Used to Define Early Claimers

In the preceding discussion, the definitions of early retired-worker claimants used by researchers vary from age 62, to age 62–63, to age 62–64. Waldron (2001, 2002) found that the percentage of workers estimated to be at risk can be affected by the claiming ages that the researcher includes in his or her "early" retired-worker category.[18]

For example, when examining workers for whom the FRA was age 65, Waldron (2002) found that men claiming benefits at exactly age 62 had significantly higher mortality risk than men claiming at ages 62 and 3 months through age 64, that men claiming at ages 62 and 3 months

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[16] Inability to work was based on a regression that estimated the probability of being employed in the Health and Retirement Study, using a variety of independent variables such as education, health, and job characteristics.

[17] Bound and Waidmann (2010) also found that the average man in this group was in similar or worse health than the average DI beneficiary and was similar in income, wealth, and demographic characteristics. That result is similar to Kingson (1982) who found that workers who withdrew early from the labor force, reported a work-limiting health condition, and did not receive DI benefits had higher death rates than did DI beneficiaries.

[18] A worker claiming retired-worker benefits at any age from 62 to the FRA can be considered an early retiree.

through 62 and 11 months had higher risk of death than men claiming at age 63 or 64, and that men claiming at age 63 were at higher risk of death than men claiming at age 64. These results suggest that if older early claimers are combined with workers who claim as soon as possible, the percentage of the early claiming population that is found to be at risk may be attenuated by healthier age-63 and age-64 claimers. Conversely, if less healthy age-63 and age-64 claimers are included in the reference variable with age-65 claimers, then the contrast between age-62 claimers and others will be attenuated. Because many surveys do not have a large enough sample size for detailed examinations of the fully insured population, differing definitions of who is an early claimant (that is, in the numerator) and who is in the denominator can add additional variance to hardship estimates provided to policymakers.

A Physically Demanding Job as a Hardship Criterion

Some EEA studies consider work performed in a physically demanding job to be a hardship criterion. This approach may have been influenced by Congress's 1983 mandate to SSA that the agency study the implications of the phased-in increases in the FRA that were passed into law in the 1983 Social Security Amendments for workers in physically demanding jobs and/or in poor health (SSA 1986). More recently, as mentioned earlier, the authors of the 2010 Fiscal Commission report directed SSA to design a "hardship exemption for those who cannot work past 62 but who do not qualify for disability benefits" using "relevant factors such as the physical demands of labor and lifetime earnings."

As SSA (1986, 6) notes, "Conceptually, 'physically demanding job' or 'ill health' can be defined in several ways. Congress had no one definition in mind nor does a consensus exist in the research community." In SSA's (1986) report, it found that 16.6 percent of newly retired beneficiaries self-reported an inability to work, 18.5 percent self-reported either a total inability to work or a partial inability to work and had worked in a job with heavy strength requirements, and 29.9 percent self-reported either a partial inability to work and had worked in a job with medium strength requirements or were classified into the more narrow hardship categories described earlier.

With regard to a physically demanding job classification scheme, SSA (1986, 9) further notes, "there is no consensus among experts about which measure is best or what score or sum of job characteristics makes a job 'physically demanding' and what does not." An additional wrinkle discussed by SSA (ibid.) involves which job one should use to assign a worker to a job classification category (possibilities include the most recent job held or the longest-held job), keeping in

mind that Social Security pays benefits based on the top 35 years of Social Security–covered earnings, *not* the last job held *or* the longest-held job.[19]

With regard to job characteristics, Yelin (1986, 645) used a sampling frame that included (disproportionately) both working individuals with activity limitations in the 1976 Health Interview Survey and individuals who had applied for Social Security disability benefits. Controlling for occupation and education, the author found that individuals with discretion over activities and the pace of the job were almost twice as likely to be working as those with low levels of discretion. Hypothetically, job discretion could vary both within occupation by employer and between occupations.[20] While the focus of policymakers tends to be on physical demands, Yelin also found that high levels of psychological demand reduced the chance that an individual would be working and that there was an interaction effect between low job discretion and high psychological demands. Independent of occupation, being a member of a labor union was also positively correlated with the likelihood of working. Although Yelin's sampling frame is not representative of the fully insured population and is skewed toward persons with activity limitations and disabilities, the importance of job characteristics, independent of occupation, may suggest additional complexity for analysts attempting to determine which workers could be at risk of hardship should the EEA be increased.

At least two more recent studies have used an even broader definition of physical demand than SSA (1986)—that of "any physical demand."[21] Under that broader measure, Johnson, Mermin, and Resseger (2007) found that about 46 percent of workers and 51.8 percent of men (at any age) were in jobs with any kind of physical demand. Rho (2010) found that 34.8 percent of workers of either sex who were aged 58 or older and 37 percent of male workers in the same age group were in jobs with any physical demand; 45.3 percent of workers of either sex who were aged 58 or older and 53.3 percent of male workers in the same age group were in jobs with either any physical demand or difficult working conditions (that is, cramped workspace; outdoor labor; or exposure to abnormal temperature, contaminants, noise, and so forth). By wage quintile, Rho (2010, Table 9) found that 63.1, 54.3, 46.5, 36.7, and 16.7 percent of men at ages 58–61 working in a job

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[19] SSA chose to use the last job held before retirement to assess the physical job demands of workers. However, one could imagine an argument being made, perhaps in a court of law under which an applicant is appealing a *hardship* determination, that the longest job held or some combined average of all jobs held had the most effect on his or her health and ability to work. Social Security taxable earnings from all Social Security–covered jobs held by a worker are eligible for inclusion in the average indexed monthly earnings (AIME) calculation, which feeds into an individual's retired-worker benefit amount, and the top 35 years of earnings are counted in the calculation of benefits.

[20] Among people with activity limitations, Yelin (1986, 644) finds that workers with high levels of job discretion were more than 20 times as likely to be working as those with low levels of discretion.

[21] The broader criteria include jobs that require standing. SSA (1986) used either heavy or medium strength requirements as their measure of physical demand. As SSA noted, its measure did not account for differences in strength ability by age or gender, or for physical hazard or environmental risks on the job (ibid., 9). According to SSA (ibid., 10), gender-based criteria for assessing physical demand did not exist.

with any physical demands were in the bottom, second, middle, fourth, and top wage quintile, respectively. Of note is that Rho found substantial proportions of men in physically demanding jobs in wage quintiles above those traditionally included in hardship measures.

Uncertainty and the Self-Reported Health Variable

The uncertainty around the appropriate definition of *hardship* to apply to a threshold point estimate found in the retirement policy literature is compounded by research examining the robustness of self-reported health measures (which are included as variables in many threshold models) to various types of measurement bias. A health variable, if objective, is subject to omitted variable bias, in that the specific health measure(s) observed may not fully measure the health stock of the individual. Such a variable(s) will probably underpredict health effects. A health variable, if self-reported, is more likely to capture a respondent's general health condition, but may be subject to reporting bias (Hernandez-Quevedo, Jones, and Rice 2004).

Exterkate and Lumsdaine (2011) described previous literature on reporting bias that found differences in self-reported health could vary by differences in optimism, attitude, survey question ordering and framing, and cultural factors. Because of problems with measurement bias on health variables, standard errors around a health estimate may not fully measure the uncertainty associated with the estimate.

Crossley and Kennedy (2002) exploited an Australian national health survey in which a self-reported health question was asked of a random subsample of respondents both before and after an additional set of health questions. The authors found that 28 percent of respondents changed their self-reported health status when asked about it twice in the same interview, and that the distribution of self-reported health status was different between respondents who were twice interviewed and those who were once interviewed. The tendency to revise responses varied by age, occupation, and income. Respondents who were younger, white collar, and with income in the top two quintiles were the least likely to revise their responses. The authors also found that both the mode of administration (written or verbal) and the sequence of previous questions affected self-reported health. As they noted, "measurement error will lead to inconsistent estimation of models in which self-assessed health appears as an explanatory variable (for example, a model of retirement)" (ibid., 653). Perhaps more importantly for policymakers, the authors found in simulations that this measurement error will lead to attenuation bias in estimates, or an underprediction of health effects.

Similarly, using the British Household Panel Survey, Hernandez-Quevedo, Jones, and Rice (2004) were able to exploit a type of natural experiment when a self-reported health variable was worded differently and used different response categories in wave 9 of the survey, as compared with both waves 1–8 and waves 10–11. They observed a statistically significant index shift at wave 9, meaning that the observed distribution of self-reported health was different at wave 9

than at waves 1–8 or waves 10–11. However, they found that this index shift did not vary with socioeconomic characteristics of the individual.[22]

Exterkate and Lumsdaine (2011) used the Survey of Health, Ageing, and Retirement in Europe to examine reporting bias because the survey asked respondents to evaluate their health twice, using two different sets of descriptors—the World Health Organization (WHO) standard and the U.S. Health and Retirement Survey standard—to define the five points on the self-reported health scale. Like the survey used in the Crossley and Kennedy (2002) study, the self-reported health question was asked both before and after an additional set of health questions. Among the subsample of individuals who had the possibility of answering the self-reported health question identically both before and after the additional set of health questions, the authors found that 35 percent did not. However, that result varied with the order of the questions. Among respondents who answered the WHO question first, 41.8 percent did not provide the same response to the U.S. question. Among those who answered the U.S. question first, 28.6 percent did not select the same response the second time. Like Hernandez-Quevedo, Jones, and Rice (2004), Exterkate and Lumsdaine (2011) found that the wording of the self-reported health question affected the distribution of the responses.[23]

Uncertainty About the Rate of Mortality Improvement Over Time

So far, we have seen variation in the EEA literature concerning the definition of hardship, of an early retiree, and of a physically demanding job. We have also seen variation in survey participants' self-reported ratings of their health depending on the ordering, wording, and scaling of the survey question. Another source of variation for analysts trying to assess the distributional effects of an EEA increase concerns the rate at which different socioeconomic groups have experienced health and mortality improvement over time (see Waldron [2007] and National Research Council [2011, chap. 9, 117-141] for a more extensive review of this literature).

More specifically, because proposed increases in the EEA will typically apply only to birth cohorts who have not yet reached age 62, researchers can either assume the observable characteristics of older birth cohorts will also apply to younger birth cohorts or try to observe the characteristics of younger birth cohorts and project how those characteristics will affect those cohort members' health and ability to work when they reach age 62. In either case, an evaluation of the

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[22] Hernandez-Quevedo, Jones, and Rice's results suggest that a relative or gradient measure of health by socioeconomic status may be more robust to reporting bias than a threshold measure because a threshold measure will capture index shifts, but a relative measure will not.

[23] The WHO version of the question used in the survey was symmetrical ("very good, good, fair, bad, very bad"), and the U.S. HRS version of the question used in the survey was asymmetrical ("excellent, very good, good, fair, poor"). The distribution of responses to the WHO version was asymmetrical, and the distribution of responses to the U.S. version was symmetrical. The U.S. version appears to tilt responses toward a more positive self-report. For example, 68.8 percent of respondents reported good or better health using the U.S. version versus 61.7 percent using the WHO version; on the other hand, 29.2 percent of respondents reported fair health using the WHO version versus 24.5 percent using the U.S. version (Exterkate and Lumsdaine 2011, Table 5).

distributional effects of a proposed increase in the EEA will need to include a projection assumption or judgment or a best guess about the future.

For these projection assumptions, the rate at which different socioeconomic groups have experienced health and mortality improvements over time can be especially important because some analysts have proposed linking or indexing increases in either the EEA or FRA to improvements in *average* life expectancy (1994–1996 Advisory Council on Social Security, options II and III; National Commission on Retirement Policy 1999; Aaron and Reischauer 2001; report of the National Commission on Fiscal Responsibility and Reform 2010; Committee for a Responsible Federal Budget 2010).

Waldron (2007) found that if differences in the rates of mortality improvement between the top and bottom half of the male lifetime-earnings distribution observed over the 1972–2001 period continue, men born in 1941 in the top half of the earnings distribution would be expected to live 5.8 years longer than men in the bottom half of the distribution, up from a difference of 1.2 years observed for men born in 1912. Because the difference in life expectancy between the top and bottom half of the earnings distribution has not been constant over time, an index to *average* longevity could have distributional consequences that are extremely difficult to predict or model ahead of time. The uncertainty surrounding this type of projection is magnified by the fact that the epidemiological and public health literature has generally not yet fully determined the causes of the widening of mortality differentials by socioeconomic status observed since the 1970s. Thus, there is no strong theoretical basis from which one can construct a projection of life expectancy by socioeconomic status.

This predictive difficulty is highlighted by Baker and Rosnick's (2010) work, which simulated possible distributional consequences of trends in differential mortality through a projection of Waldron's (2007) estimates. Specifically, Baker and Rosnick calculated future differences in life expectancy either under the assumption that differences in life expectancy remained constant at the level Waldron estimated for the 1941 birth cohort or under the assumption that differences in life expectancy continued to widen, following existing trends. At the scheduled FRA of 67 for the 1973 birth cohort, Baker and Rosnick projected that the difference in life expectancy at age 67 would be about 5.3 years under the constant assumption and 9 years under the widening assumption. Under a hypothetical retirement age of 70, the band of uncertainty was even wider, with a difference in life expectancy at age 70 of 5.1 years under the constant assumption and 10.7 years under the continuance of the past-trends assumption. In fact, under a hypothetical FRA of 70 and an assumption of widening inequality in life expectancy, Baker and Rosnick (2010, 3) predicted that a worker born in 1973 in the bottom half of the male earnings distribution would live 1 year less in retirement than their counterpart born in 1912, assuming the worker waited until the hypothetical new FRA of 70 to claim benefits.

An additional uncertainty concerning longevity indexes arises because differences in life expectancy by sex have not been constant over time. For example, the gap between male and female life expectancy generally rose until the 1970s, and then it declined modestly (Technical Panel on Assumption and Methods 2011, 56). Historically, life expectancy stagnated in the 1950s and 1960s for men while improving for women. Since the 1980s, life expectancy improvements have been stagnant for women, while for men they have advanced (ibid.). Preston, Glei, and Wilmoth (2010) attribute some of those differences in life expectancy improvements by sex to differences in the timing of rates of smoking by birth cohort and sex.

From the perspective of distributional estimates by birth cohort and sex, an index to *average* longevity cannot be constant across birth cohorts by sex if life expectancy is partially influenced by behaviors (such as smoking) that are not equal in their timing by sex. As described by the Technical Panel (2011), the delay between smoking behavior and subsequent mortality is two to three *decades*. Finally, the Technical Panel recommended increasing the range of life expectancy estimates between the low-cost and high-cost projections—from 7.7 to 10 years—to reflect "the high degree of uncertainty about future mortality trends and the lack of agreement among experts about such trends" (ibid., 55).

Some policy analysts appear to take the view that the complexities surrounding a longevity index are advantageous to policymakers. For example, MacGuineas (2007, 5) wrote:

> …politicians don't like to talk about tough choices. So when changing a program to improve its solvency, it can be useful to discuss bend points or longevity indexing—things most citizens don't understand. This may be easier than talking about things they do understand, like raising taxes or raising retirement ages. Transparency is clearly good budgeting practice but not generally politically pragmatic.

On the other hand, it is not clear that a policy analyst's understanding of a longevity indexing proposal is necessarily all that superior to the understanding of the general public. As the preceding discussion indicates, one conclusion that we can draw from the epidemiological and public health literature is that there is much more that we do not understand than there is that we do understand with regard to mortality differentials. As a result, technical experts face considerable uncertainty when trying to estimate the distributional impacts of longevity proposals that will be applied to birth cohorts that are not yet retired and that have not yet reached older ages. In other words, the complexities surrounding a longevity index are unclear not just to the average citizen; the implications that those complexities will have for future birth cohorts are likely to be unclear to the technical experts who advise policymakers as well. From this perspective, some proponents of longevity indices may imply more confidence in the expected outcome of their proposals than is warranted by a review of the mortality literature.

A Review of Relevant Public Health Literature

While the bulk of the public health literature does not directly address issues involving a proposed increase in the EEA, the literature does examine two types of risk in the underlying insured population—health and mortality—that one might expect to be relevant to a proposed benefit elimination at age 62.

Gradient Models in the Health Literature

The public health literature has a model that is conceptually similar to the EEA hardship-threshold model and that is often referred to as a "poverty-threshold model." A poverty-threshold model can be defined as one in which adverse health and mortality experience is limited to workers below a threshold, while above that threshold there are no differences in mortality or health experience. The alternative assumption—that mortality and health risk decline gradually with socioeconomic status, without a clear threshold above which the graded relationship between mortality and health and socioeconomic status disappears—is often referred to as a "gradient model."

Marmot (2004, 4) describes the threshold assumption as the idea that the "health gap is confined to poor health for the disadvantaged, 'them,' and good health for everybody else, 'us.'" He describes the alternative gradient model as implying, "wherever we are in the social hierarchy, our health is likely to be better than those below us and worse than those above us."

The public health literature began moving toward gradient models with the publication of results from the Whitehall Study by Marmot, Shipley, and Rose (1984), which found a correlation between occupational grade and health and mortality. (The higher the occupational grade, the better the health and the lower the mortality). In part, the Whitehall Study wielded such influence on the field because the data allowed the authors to cleanly test the gradient hypothesis. (The original Whitehall population consisted of men employed by the British civil service, all of which were above the poverty line and had access to health care).[24]

Since the Whitehall Study, the public health literature has increasingly tested and rejected a poverty- or hardship-threshold approach to measuring differences in health and mortality within the population. Presently, the public health literature largely specifies (and accepts) models in which health and mortality are modeled as a gradient, with differences in health and mortality occurring at each rung of the socioeconomic ladder (Adler and Stewart 2010).

Although the literature on mortality and health differentials is extremely large (see Adler and Stewart [2010] and Marmot [2004] for a review), the number of papers providing estimates of mortality and health gradients at older ages is smaller and research providing estimates of mortality and health gradients throughout the entire income distribution at older ages is even smaller still.

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[24] Kitagawa and Hauser (1973) specified a gradient model on U.S. data, but were unable to perform as strong a test of the gradient hypothesis because their data were more limited.

The data available to adequately estimate mortality differentials at older ages are limited, and data that do exist are not always publicly available because of confidentiality and disclosure concerns.

Gradient Studies Using Public Pension System Data

Studies in wealthy, developed Organisation for Economic Co-operation and Development (OECD) countries testing mortality gradients along the entire earnings distribution at older ages using lifetime or "permanent" earnings measures have often relied on administrative data from national pension systems. Such pension system data combine career earnings data from an individual's working years with mortality data from an individual's retirement years.

One strength of these types of analyses is that there is typically a gap between the career earnings measure and the ages over which death is observed, which eliminates the problem of a sudden health shock to earnings that would both place an individual in a low socioeconomic category (even if he or she had been a high earner prior to the shock) and increase the risk of death. In addition, even without a large gap between the last year of earnings and the observation of the first year of death, mathematically, a sudden 1-year shock to a high earner would not have so great an impact on a career-average earnings measure that a high earner would drop into the low lifetime earner category. Because a lifetime earnings measure will capture the influence of chronic poor health on hours worked and employment, such a measure may also have predictive power through the ability to capture causal effects running from both health to earnings and from earnings to health.

An additional advantage of these types of analyses is that the gradient model allows the empirical data itself to select the homogeneity threshold. In other words, if an EEA hardship-exemption proposal specifies a low lifetime earnings level as synonymous with hardship, these types of studies can tell us whether there are differences in mortality risk *above* that low earnings level.

In the United States, Duleep (1986) was one of the first researchers to exploit the use of Social Security administrative earnings and death data to estimate mortality differentials by income, although her focus was mainly on ages younger than 65.[25] In a later article, Duleep (1989, 349) suggested using Social Security administrative data to measure mortality rates over time using "constant income percentiles rather than constant income categories." Using a mix of capped and uncapped Social Security earnings data matched to the Survey of Income and Program

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[25] The Duleep study, in turn, was preceded by studies by Caldwell and Diamond (1979) and Rosen and Taubman (1979). Duleep (1986) notes that those studies lacked a major source of death data that was included in her 1986 work. The two 1979 studies present estimates at ages 65 plus, but the setup of the analyses with regard to the age at observation of the earnings and construction of the earnings categories precludes direct comparison with this work. More recently, Duggan, Gillingham, and Greenlees (2007) used the Continuous Work History Sample (CWHS)—which contained capped taxable earnings data and lump sum earnings data from 1937 to 1950—and found that mortality was negatively related to lifetime earnings (the lower the lifetime earnings, the higher the mortality risk) among Social Security retired-worker beneficiaries. However, those authors do not explicitly test the shape of the relationship between lifetime earnings and mortality, so their results are not directly comparable to those found here.

Participation (SIPP), Cristia (2007) found some evidence of a mortality gradient by lifetime earnings quintile at ages 50–64 (the standard errors are large enough for the confidence intervals to cross, but the parameter estimates indicate a gradient); however, in an unusual result, the author found less evidence of a gradient between the bottom three deciles than between the top two quintiles at ages 65–75.

The companion piece to this review, Waldron (2013), built further on the percentile technique suggested in Duleep (1989), by exploiting the availability of longitudinal earnings data over the Social Security taxable maximum beginning in 1982. Using that data, Waldron tested for mortality differences throughout the entire earnings distribution, free of any possible biasing effects caused by the capping of data at the Social Security taxable maximum. Because the taxable maximum has changed over time, analyses that use capped (or imputed) earnings data will have problems estimating mortality differences accurately at the upper end of the career earnings distribution.

Waldron (2013) found no evidence that the male population was homogenous with respect to mortality risk above a low level of earnings. Instead, the point above which the male population became statistically indistinguishable with respect to mortality risk at ages 63–71 ranged from the top 5 to the top 20 percent of the male lifetime-earnings distribution (ibid., 2).

Waldron's (2013) results showed a clear gradient between mortality risk and position in the relative lifetime earnings distribution. For example, men aged 63–66 in decile 1 were 1.98 times (98 percent) more likely to die than men in decile 2, 2.6 times (160 percent) more likely to die than men in decile 5, and 4.91 times (391 percent) more likely to die than men in decile 10 (ibid., Table 1). Men in decile 5 were no more likely to die than men in decile 6, but 1.89 times more likely to die than men in decile 10. Men in decile 8 were 1.21 times more likely to die than men in decile 9 and 1.47 times more likely to die than men in decile 10. Men in decile 9 were 1.22 times more likely to die than men in decile 10 (although, in sensitivity tests of a restricted sample, decile 9 lost significance, so that, conservatively, the top 20 percent of the lifetime earnings distribution was statistically indistinguishable in mortality risk at ages 63–66).

In terms of EEA proposals, the estimates in Waldron (2013) imply that, on average, a policy change related to health and mortality differences among fully insured male workers could affect the top lifetime earnings decile the least, with adverse effects increasing as one moves down the earnings distribution, with the bottom decile being the most severely affected by the change.

The confidence interval estimates shown in Waldron (2013) provide additional information that would apply to a hardship-exemption proposal that considers lifetime earnings as a criterion. For example, Waldron found that at ages 63–66, even though the risk of death for men in decile 2 is significantly higher than the risk of death for those in decile 4, the point estimate for decile 4 (1.17) is within the confidence interval on the estimate of the odds of death for men in decile 2 versus decile 3 (0.90–1.21). That means that there is a statistical chance that men in decile 4 are

equal in health and longevity risk to men in decile 3. In other words, because men in deciles 2 and 3 are indistinguishable, there is a chance that a proposal designed to apply to the bottom 20 percent of the male lifetime-earnings distribution could be off by 20 percentage points and actually apply to the bottom 40 percent. Waldron (ibid., 24) also found that a hardship exemption "could potentially shield more advantaged women, while failing to shield less advantaged men." This result could occur because, on average, women have the lowest earnings and hours worked, but are the longest-lived workers.

Studies most closely related to the Waldron (2013) analysis include those by Wolfson and others (1993) on the national Canada Pension Plan (CPP) data and Shkolnikov and others (2008) on the national German pension system data. The measure of socioeconomic status used was earnings at ages 45–64 in the case of Wolfson and others (1993) and a measure roughly corresponding to earnings over an entire working lifetime in the case of Shkolnikov and others (2008).

In describing the shape of the relationship between mortality risk and earnings with deaths observed at ages 65–70, Wolfson and others (1993, S175) noted that their results are "not consistent with a 'threshold' relationship where poverty is associated with poorer health and longevity, but that above some low income level, income and health are independent." Instead, they found that men in the 10th through 82nd percentiles of the earnings distribution experienced lower longevity at ages 65–70 than those in the top 18 percent of the earnings distribution, but that the gap between the other percentiles and the top was larger at the lower percentiles than at the higher percentiles.[26]

Shkolnikov and others (2008) divided the male earnings distribution into quintiles and observed that a mortality gradient persisted from the 20th through 80th percentile of the earnings distribution beginning at age 65 and remained significant at ages 80 plus.[27] While the age standardized mortality ratio at ages 65 plus was 1.6 for quintile 2 versus quintile 5, the difference between quintile 4 and quintile 5 was still a statistically significant 1.24.

The persistence of mortality gradients in the upper portions of the earnings distribution in the Canadian and German pension data matches British data from the Whitehall Study—a sample of male British civil servants—in which the British civil service employment grade at ages 40–69 was found to predict mortality risk 25 years later (van Rossum and others 2000). In addition, although 81 percent of a Whitehall follow-up sample had been in the middle grades versus 7 percent in the

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[26] Wolfson and others (1993) found that the bottom earnings percentile (the bottom 9 percent of the earnings distribution) did not follow this pattern; mortality risk for that group was lower than it was for the higher earnings percentile groups. The authors stated that individuals in this group may have had unobservable (non-CPP contributable) income. The results from Wolfson and others (1993) described in this paper are based on a conservative interpretation of Figure 2 in their article (ibid., S172). In the text of their article, those authors stated that they observed, "higher income males experienced lower mortality all the way up to the top 2 percent of the population" (ibid., S171); however, that result does not appear to be explicitly depicted in Figure 2.

[27] Quintile 1 experienced lower mortality risk than quintile 2, but the authors' noted that this was due to low observed earnings and high unobserved earnings for many men in this category whose lifetime earnings were only partially covered under the German pension system (that is—civil servants, et cetera).

high employment grades at ages 40–69, Breeze and others (2001) found that men in the middle employment grades had a statistically significant risk of poor health and poor physical performance, roughly 30 years later, when compared with those in the high grades. As Marmot and Brunner (2005) write, "although early life determinants, life-course factors, and current circumstances all have effects on disease risk in older age, the preeminent determinants observed in the [Whitehall II] cohort are adult socioeconomic position and work-based determinants from mid-life."[28]

Health Gradients at Older Ages

Similar studies estimating health gradients at older ages appear largely consistent with the findings of researchers estimating mortality gradients with national pension system data. For example, Minkler, Fuller-Thompson, and Guralnik (2006, 699) found that at ages 55–84, the odds of reporting a functional limitation declined with increasing income, but were still significantly higher than the odds for the wealthiest respondents.[29] In their study, people at 600–699 percent of the poverty level had significantly higher odds of a functional limitation than those at 700 percent of the poverty level. The authors noted, "with almost 85 percent of Americans who are 55 years of age or older living at an income level under 700 percent of the poverty line, this is not simply an issue of very poor people having a disadvantage in health outcomes. Rather, higher risk is demonstrated across a very large proportion of the older population, as compared with the most advantaged" (702).

Paralleling the finding in the mortality literature that morality gradients have widened by socioeconomic status over time, Shoeni and others (2005) found that while the percentage of the population at age 70 with any disability declined at all socioeconomic levels in the 1982–2002 period, declines were greatest for the most educated and those with the highest income. The authors also found that activities of daily living (ADL) disability increased over the period for workers in the lowest education category and for workers in the lowest income quartile.

In an older study, House and others (1994) found that in 1986, differences in functional limitation were small at ages 25–34 and ages 75 plus and reached their greatest levels of disparity at ages 55–64. Those authors also found a *gradient* by education level, with persons with 16 plus years of education having the least number of functional limitations, those with 12–15 years in the middle, and those with 11 or fewer years at the bottom.

When House, Lantz, and Herd (2005, 24) did a follow up to the House and others (1994) study, they found, "educational disparities in the compression of functional limitations have increased

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[28] The Whitehall II study sample included women.

[29] Gradients were largest at ages 55–64 and disappeared at ages above 85. The authors speculated that this disappearance could result from selective mortality operating below age 85 and/or the exclusion of residents of nursing homes in the survey data. The income results are not immune from the problem of reverse causation, because the income measure is not distanced from the functional limitation measure. However, the authors found similar results by education level, which would not be contaminated by a sudden health shock.

dramatically in early to middle old age, owing to a massive improvement of the health of higher-educated persons aged 70–84 in 2001/2002 compared with those 70–84 in 1986, with no evidence of any such change in this same age cohort at lower education levels." In their work, higher education refers to 16 plus years of education, which represents a *minority* of the fully insured population. The authors noted, "these results suggest that much, and perhaps, almost all, of the improvement in the health and functional status at older ages that has been observed in the total population by multiple researchers since the late 1980s is a function of changes in the college-educated portions of that population, with a resulting fourfold increase in the disparities between this group and those of lower education" (ibid.).

Conclusion

A review of the literature indicates that the question of how many workers would be adversely affected by an increase in the EEA does not have a simple answer. Instead, the EEA literature varies widely in its definition of hardship, physical demand, and ability to work—or "adversity"—leading to a wide range of estimates of the number of workers who would be affected if the EEA were to increase. In addition, literature examining health and mortality risk throughout the entire earnings, income, or educational distribution finds that, on average, health and mortality risk decreases with each step up the socioeconomic ladder. This literature suggests that, on average, an EEA increase could affect workers on the top rung the least, with adverse effects increasing as one moves down the ladder. However, the finding that men claiming at age 62 in the top earnings quartile die sooner than men in lower quartiles claiming later suggests that even among men of high socioeconomic status, there is substantial variation in risk. This result echoes the 1935 Committee on Economic Security's belief that some high-income individuals would be expected to come to grief in old-age.

When combining findings from both the EEA and the health literature, it does not appear that the Social Security–covered worker population can be easily separated into two groups—an unaffected (or low-risk group) and an adversely affected (or high-risk group). On two counts—(1) a lack of consensus in the literature over the composition of an identifiable hardship group and (2) a statistical rejection of the poverty-threshold model by the gradient model in the health literature—the empirical data appear to support the insurance framework over the welfare framework.

The conclusions reached in this review appear largely supportive of those reached by the original designers of the retired-worker benefit (Appendix B). One possible reason for such apparent continuity over time could be that the U.S. population has never been easily separable into a group at risk of hardship and everyone else. The failure of state welfare programs to prevent dependency or hardship in old age prior to the passage of the Social Security Act could potentially imply a mismatch between the targeted welfare approaches of the states and the underlying

distribution of risk in their populations. This review suggests that the universal insurance phi-losophy governing the current-law retired-worker benefit may have been formulated based on an underlying empirical distribution of risk that was present in 1935 and that continues to this day.

## Appendix A: Why Raise the EEA?

The four most common reasons given by proponents of an EEA increase are—in no particular order—(1) to encourage labor force participation; (2) to increase federal income tax (that is, non–Social Security trust fund) revenues; (3) to reduce the possibility that fully insured workers will myopically claim their retired-worker benefits earlier than they would have if they were not myo-pic; and (4) to increase the FRA, and, in conjunction with that proposed FRA increase, to limit the size of the early retirement reduction that beneficiaries would be allowed to incur.

Many analysts who believe it is desirable to encourage or induce increased labor force par-ticipation at older ages state that an increase in the EEA will help achieve that goal (Aaron and Reischauer 2001; Biggs 2010; Burkhauser 1996; Committee for a Responsible Federal Budget 2010; Johnson 2011; Liebman, MacGuineas, and Samwick 2005; Munnell 2008; Steuerle 2011). In addition, post-1962 declines in male labor force participation are sometimes attributed, in part, to the adoption of the male age-62 EEA (Biggs 2010; Burkhauser 1996), and it is sometimes implic-itly assumed that pre-1962 labor force participation levels could be recovered if the EEA were to be raised up toward the male pre-1961 claiming age of 65.

On the other hand, the addition of the male EEA in 1961 to the Social Security Act could have been endogenous (or caused by changes in the labor market; in health status; in the tastes and preferences of voters; or in some combination of those factors, which induced Congress to lower the age). Declines in labor force participation of men could also have been caused by other macroeconomic forces such as real income growth; there is considerable, unresolved debate in the economic literature over how much impact Social Security has on aggregate economic statis-tics, such as the labor force participation rate and the personal savings rate.

Regardless of past effects of Social Security on labor force participation, the Census Bureau's Current Population Survey (CPS) currently indicates that labor force participation rates of men at ages 62–64 are increasing and have been doing so since the mid-1990s (Leonesio and others 2012). In addition, the Bureau of Labor Statistics projects that participation rates will continue to increase for men in the 62–64 age group through 2018 (Toossi 2009). This observed increase in male labor force participation began *prior* to the gradual increase in the FRA that began in 2000 (when the 1938 birth cohort turned age 62) and *without* any change in the EEA. In addi-tion, the percentage of fully insured workers claiming retired-worker benefits at age 62 declined from 55 percent to 41 percent for men and from 55 percent to 44 percent for women in the 1994–2008 period, despite the fact that the EEA remained at 62 over this period (refer to the accompanying chart).

Percentage of newly eligible, fully insured workers claiming retired-worker benefits at age 62, by year (for birth cohorts 1930–1946)
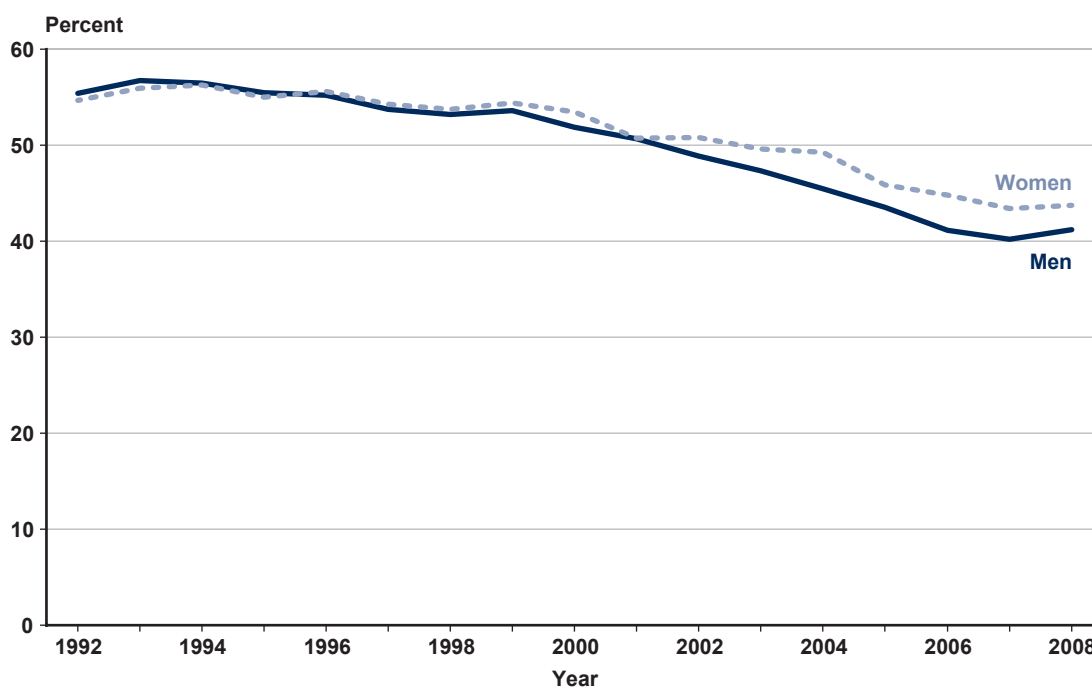
NOTE: Excludes disabled-worker beneficiaries.

Continued calls to increase the EEA in order to encourage work at older ages in the face of an already existing sustained turnaround in the labor force participation at older ages suggests that proponents must believe that even *greater* increases in labor force participation can be coaxed from the American worker. From this belief appears to stem the second common reason given for increasing the EEA—the assumption that an increase in the EEA will increase the amount of tax money going to the general federal treasury; that is, the amount of money available to be spent on the non–Social Security portion of the federal budget (Steuerle 2011; Biggs 2010; Johnson 2011[30]). The implicit assumption involved in this line of reasoning is that there will be an increase in general tax revenues coming to the Treasury from workers who would have stopped working at the current-law EEA of age 62, but who are induced to continue working until reaching the new, higher EEA, thereby continuing to pay federal income tax at, in theory, a higher rate than they would have paid if they had retired at age 62. For a discussion of this assumption, see this paper's companion piece—Waldron (2013).

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[30] Burkhauser (1996) and Aaron and Reischauer (2001) also subscribed to this belief, but the dates of these citations are too close to the turnaround in labor force participation for one to know whether those authors have revised their opinions, given more recent data.

A third motivator for proponents of an EEA increase is the belief that fully insured workers who would be better off increasing the level of their retired-worker benefit by delaying claiming from age 62 to 70, instead—mistakenly, or against their own self-interests—choose to accept an actuarial reduction.[31] That belief then leads some policy analysts to recommend that the EEA be raised to save the fully insured worker above the hardship threshold from his or her own short-sighted choice. Recommendations motivated by this belief are often accompanied by some type of "targeted" benefit to help those workers below the hardship (as defined by the analyst) threshold (Johnson 2011; Steuerle 2011; Munnell 2008). (The implicit assumption is that workers below the hardship threshold are behaving rationally by claiming benefits early, but that workers above the threshold are not.)

Other analysts note that if SSA did not set any age limit for claiming benefits, some workers would take benefits at a very early age (that is, well before 62) and be left with inadequate incomes (Aaron and Callan 2011). Under this argument, the choice of an appropriate EEA should be evaluated based on a balance between the adequacy of the benefit level after actuarial reduction versus the welfare of workers who may be better off being allowed to claim benefits early.[32]

In contrast, Morrissey and Garr (2009, 16) argue, "until retirement experts can demonstrate that many people come to regret their decision to retire early, the assumption should be that they are doing what is best for them." In a similar vein, George (2005, 138) believes that almost all human behavior is rational. She describes an individual's choices as resulting from "multiple currencies," which include not only money and health, but also social relationships and personal factors that feed into an individual's sense of self and self-esteem, subject to constraints resulting from social structure and social processes. George further notes, "what observers view as non-rational choices or behaviors are usually those that give priority to a currency other than the one that the observers value most" (ibid.).

Empirically, there is a small body of literature that explores whether workers are acting in their own self-interests when they choose a benefit claiming age, by estimating the correlation between length of life and age of retired-worker benefit claiming. This literature is a strain of a larger

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[31] This type of behavior is sometimes referred to as myopia. The retirement literature is generally not specific regarding the age (or ages) at which we should expect to observe retired-worker benefit claiming in the absence of myopia. Spikes in the proportion of the population claiming at the EEA and FRA (particularly at the EEA) are sometimes cited as evidence of myopia; however, there are also a substantial number of workers who claim between these two spikes. Workers could also cluster at age 62 because of liquidity constraints.

[32] This goal is later described in Aaron and Callan (2011, 15) as a balance between two types of loss—"providing help when it is not intended and failing to provide help when it is intended." Cutler, Liebman, and Smyth (2007) developed a utility optimization model to simulate the optimal eligibility age for retired-worker benefits if half the population were to be myopic. They estimated that the optimal age would have ranged from 57 to 62 in 1962 and from 61 to 62 in 2000. The authors stated, "A clear implication of these findings is that to justify an EEA, much less a rising one, there must be a very large share of the population that retires too early—otherwise concern for the well-being of the constrained forward-looking individuals would suggest that a low EEA is in order" (21).

body of adverse-selection literature concerned with private insurance markets. (See Heidler, Leifels, and Raffelhüschen [2006] for a review and theoretical discussion.) Because the retired-worker benefit is an annuity that is reduced for early claiming in a manner that is intended to be actuarially fair, *on average,* workers with shorter-than-average life expectancy would be expected to claim benefits earlier than others.

Using U.S. Social Security data, Wolfe (1983), Duggan and Soares (2001), and Waldron (2001, 2002, 2004) all found that male workers who claim benefits early, on average, die sooner than male workers who claim benefits later. Wolfson and others (1993) observed the same link between claiming age and mortality risk for Canadian workers. In contrast, to minimize the cost of benefit payouts, a private insurance company would want the short-lived individual to claim as late as possible (to minimize the years of benefit payouts) and the long-lived individual to claim as early as possible (to maximize the benefit reduction). Because the pattern of claiming observed for males in the United States and Canada is more costly or "adverse" for the public insurance fund than for the claimant, such behavior could be construed as evidence of self-interest and rational behavior on the part of the claimant.

The fourth motivation for increasing the EEA involves the way in which the EEA and FRA interact under current law and is often closely linked to the third motivation. Under current law, retired-worker monthly benefit amounts are reduced for retirement prior to the FRA. For example, when the FRA reaches 67, as scheduled under current law for the 1960 and earlier birth cohorts, benefits received at age 62 will be 70 percent of benefits received at age 67 (Goss 2010). As noted by Kingson and Brown (2009, 4), "an EEA fixed at age 62 makes it more difficult to increase the FRA, since such increases would further erode the value of benefits for persons accepting them at age 62." In other words, absent an accompanying legislated increase in the EEA, the automatic actuarial reduction for a claim at age 62 would be even higher than 30 percent if the FRA were increased above age 67.

Thus, as discussed by Kingson and Brown (2009), a fourth motivation for raising the EEA is a desire on the part of many proponents to also raise Social Security's FRA (National Commission on Retirement Policy 1999; Liebman, MacGuineas, and Samwick 2005; Steuerle 2011; Johnson 2011; Committee for a Responsible Federal Budget 2010; the authors of the report of the National Commission on Retirement Policy and Reform 2010; Aaron and Reischauer 2001).

Because benefits are actuarially reduced for workers who claim prior to the FRA, an increase in the EEA alone would cause a larger benefit to be available for a shorter period of time, rather than a smaller benefit to be available for a longer period of time; on average, such an increase would have no effect on the long-range financial status of the Social Security trust funds. In contrast, a 1-year increase in the FRA is roughly equivalent to a 7 percent across-the-board benefit reduction (Ruffing and Van de Water 2011, Box 1). For that reason, analysts who desire to achieve

long-range solvency of the OASDI Trust Funds, either partially or fully through benefit reductions, often include both an increase in the FRA (to reduce future scheduled benefits) and in the EEA (to avoid allowing workers the choice of claiming benefits at reductions greater than 30 percent of the FRA) in their list of policy recommendations.

Appendix B. The Insurance Perspective Versus the Tax-Transfer or Welfare Perspective

The question of whether Social Security is "really" an insurance program is longstanding in the Social Security literature.[33] The closely related debate about whether Old-Age Insurance (OAI) should be separated from Old-Age Assistance (OAA) or welfare dates back to at least the original 1935 Committee on Economic Security report, as does the debate about whether the OAI program (now OASDI) should be funded by a dedicated payroll tax or by general revenues and whether the dedication of a specific payroll tax to OAI has any true economic meaning. The approach taken in a distributional analysis of a proposed change in Social Security law is likely to be affected by the perspective the analyst has on the overall program.

If analysts are predisposed to view Social Security as a tax-transfer program, then they are likely to be oriented toward identifying the subpopulation in most need of the transfers and to analyze the effects of an EEA increase on that subpopulation.[34] From a transfer perspective, a policy proposal such as a hardship exemption may be viewed as more "target efficient" than a more universal transfer of resources from all current workers to all current retirees of varying means and abilities—some of whom may be perceived to be capable of working.[35]

On the other hand, if analysts view Social Security as an insurance program, then the economic risks ensured against—labor market risk and uncertainty in career earnings from a life-cycle perspective (that is, lifetime wage variability), financial market risk, and exposure to the risk of dependent family members—may not seem to naturally apply to a sharply identifiable population most in need of or dependent on benefits at age 62. Those analysts will be less likely to specify hardship-threshold models.

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[33] See Myers (1993), Pechman, Aaron, and Taussig (1968), and Attarian (2002) for a discussion of this debate from various viewpoints.

[34] For example, Steuerle (2007, 6–7) wrote, "A government that treats everyone as needy treats no one as needy. Within Social Security itself, most of the additional expenditures each year go toward raising benefits for everyone and financing early retirement, rather than reducing poverty among the elderly."

[35] Speculatively, the tax-transfer perspective may be why Steuerle (2005) wrote, "I recognize that some people are concerned about groups with shorter-than-average life expectancies. But attempting to address their needs by granting many of us who are healthy a 20th and 21st and 22nd year of transfer support and tens, if not hundreds, of thousands of dollars in extra benefits for retiring early is a very bad form of trickle down policy." As explained earlier, there is an actuarial reduction for early retirement, so from the life-cycle perspective of the contributor, benefits claimed prior to the FRA are not viewed as "extra" but rather "reduced."

It is therefore helpful to trace the roots of this ongoing debate in the literature. The emphasis in this appendix is on the insurance framework, both because it seems to be the more neglected approach and because this review is intended to supplement the Waldron (2013) evaluation of a proposed EEA increase from an insurance perspective.

The Legislative Intent of the OAI Provision of the 1935 Social Security Act: What Is Meant by the Term "Insurance"?

It is not uncommon in the Social Security literature to encounter researchers who view the current program as deviating from the original OAI program that was enacted in 1935. For example, Miron and Weil (1998, 320–321) wrote, "What had started as an insurance program, which gave money to people in the unlikely events that they reached old-age and were unable to work, instead became a transfer program of which most people could expect to be recipients at some point." Similarly, a National Research Council report (2011, 141) stated, "So while Social Security was initially conceived of as an insurance program (Scheiber and Shoven 1999), survey evidence now suggests that many expect Social Security to provide everyone with a reasonable standard of living."

The idea that workers would pay into a system for a lifetime and then only claim in the unlikely event that they ever stop working, with the majority of the public expecting to die while employed, seems unlikely to have been popular with the American public when examined in the context of contemporary competing old-age pension proposals. DeWitt (2010, 4) described the 1930s as a time in which there was "a proliferation of 'pension movements,' most of which were dubious and almost certainly unworkable."

Two of the most publicly popular alternatives to OAI at the time—the Townsend Plan and the Share Our Wealth Plan[36]—proposed a pension for every American aged 60 or older at fairly high benefit levels. (The Townsend Plan, for example, had a benefit level twice the average wage. In 2012, that would have provided an annual benefit of roughly $88,643 a year.) As Franklin D. Roosevelt (FDR) told Frances Perkins (1946, 294), "'We have to have it [OAI]. The Congress can't stand the pressure of the Townsend Plan unless we have a real old-age insurance system…'." At the time, no popular plan based entitlement to an old-age pension on an *inability to work* or on a *hardship* criterion or required a retirement determination to see if a worker was *both* not employed and "qualified" for benefits by virtue of characteristics like employment in a physically demanding job and low lifetime earnings. In contrast, state means-tested benefits generally required proof of need; lack of employment was generally not sufficient to qualify for a state old-age benefit.

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[36] The Share Our Wealth Plan did means test, but at a high level of wealth. That plan would provide a pension for anyone with less than $10,000 dollars in cash (Scheiber and Shoven 1999, 25). The Townsend Plan required a worker to not be employed and not be a felon (ibid., 23).

In fact, the definition of insurance assumed by some modern analysts to describe the intent of the program's original designers—that is, a program that supported a narrow remnant of the population that survived to old age—does not appear to match those designers' own words.[37] For example, FDR articulated his concept of old-age insurance in a 1931 speech to the New York (NY) legislature while he was Governor of NY (J. Harris, n.d.). In that speech, FDR expressed his displeasure with the Old-Age Security bill passed by the NY state legislature that provided for gratuitous[38] old-age benefits and stated:

> Our American aged do not want charity, but rather old age comforts to which they are rightfully entitled by their own thrift and foresight in the form of insurance. It is, therefore, my judgment that the next step to be taken should be based on the theory of insurance by a system of contributions commencing at an early age. In this way all men and women will, on arriving at a period when work is no longer practical, be assured not merely of a roof over head and enough food, to keep body and soul together, but also enough income to maintain life during the balance of their days in accordance with the American standard of living.

FDR's definition of insurance appears to have involved "all men and women" becoming entitled by virtue of their history of lifetime contributions to a benefit high enough for an "American standard of living" to be maintained. In other words, he was describing a system in which he envisioned all insured workers claiming benefits *when* they stopped working, not *if they ever* stopped working. This universality of entitlement concept seems to have more in common with the popular flat pension benefit proposals of the time than with either a catastrophic insurance plan on which few people would be expected to file a claim or a means-tested welfare benefit for which few people would be expected to qualify. Strikingly, FDR's phrase "American standard of

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[37] For this discussion, I am analyzing the stated goals and overarching design of OAI proposed by FDR and the 1935 Committee on Economic Security. I interpret the core designers of OAI to be FDR; Frances Perkins, FDR's secretary of labor and chairman of the Committee on Economic Security; Edwin Witte, executive director of the Committee; and Arthur J. Altmeyer, chairman of the Technical Board of the Committee, Perkin's assistant secretary of labor, and later, the first commissioner of Social Security. This is the same group of individuals that DeWitt (1997, chap. 3) stated would be the first four names in a hypothetical "Hall of Fame for Social Security." It may be that some researchers take the designers' intent to be represented by the size and scope of the program as it passed Congress in 1935, which was more limited in coverage of the U.S. population than it is today. However, Miron and Weil (1998, 320) stated, "Although Social Security has grown enormously since it was created, this growth represents, for the most part, the unfolding of the program's original design." Where those authors' seem to differ from me and possibly FDR is in their interpretation of the term insurance.

[38] The original designers used the word "gratuitous" to describe old-age benefits that were financed by general revenues to distinguish them from OAI benefits that were financed by earmarked taxes (contributions). The modern equivalent to what the original designers described as "gratuitous" benefits would be old-age "welfare" or "assistance" benefits financed from either state or federal general revenues—that is, the Supplemental Security Income aged program and/or various state cash assistance programs. In his speech , FDR was referring to NY state old-age welfare benefits; he wanted the NY legislature to pass an insurance program instead. It is worth noting that Frances Perkins worked in the NY state government for FDR at the time.

living" echoes the "reasonable standard of living" expectation that the National Research Council (2011) attributes to the public 81 years later.

The definition of OAI articulated by FDR in 1931 was echoed in the Committee on Economic Security's report that contained the Roosevelt administration's proposal for OAI, which was submitted to Congress in 1935.[39] The Committee, chaired by Secretary of Labor Frances Perkins, wrote:

> Contributory annuities are unquestionably preferable to noncontributory pensions. They come to the workers as a right, whereas the noncontributory pensions must be conditioned upon a "means" test. Annuities, moreover, can be ample for a comfortable existence, bearing some relation to customary wage standards, while gratuitous pensions can provide only a decent subsistence.

> Difficult administrative problems must be solved before people who are not wage earners and salaried employees can be brought under the compulsory system, and it is to be expected that some people from higher income groups will come to financial grief and dependence in old age. Until literally all people are brought under the contributory system, noncontributory pensions will have a definite place even in long-time old-age security planning. (Committee on Economic Security 1935)

Again, we see the Committee envisioning a system in which annuities come to all workers "as a right," and "bear some relation to customary wage standards." In fact, the Committee specifically referred to the expectation that even high-income workers were subject to risk in old age. The Committee seems to have viewed risk as universal at *all* levels of the earnings distribution. From this view, what naturally followed was a universal benefit to which all workers who met the insured-status requirements of the Social Security Act would be entitled, regardless of earnings level and means or need. The Committee believed that such a system would act to *prevent* future hardship, as opposed to the state-based systems in place at the time, which waited until hardship occurred and then tried to *relieve* it.

What Motivated the Designers of Old-Age Insurance?

The next four subsections discuss the concepts of private market failure, labor market risk, familial risk, and contributory finance—that taken together, were a part of the decision to design a universal old-age insurance system rather than a welfare system.

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[39] The importance of FDR's NY speech in representing his definition of OAI was also highlighted by Witte (1962, 18) in describing a meeting with the president that he attended with Perkins, Altmeyer, and Eliot (assistant solicitor for the Department of Labor) concerning the work of the 1935 Committee on Economic Security. Witte wrote, "He [FDR] also again stated that all forms of social insurance must be self-supporting, without subsidies from general tax sources, but the conversation developed that he understood that assistance from general tax revenues would have to be given to people already old and without means. He indicated, however, that he still held the view which he had expressed when, as governor of New York, he signed the old age pension law of that state, to the effect that the only long-time solution of the problem of old-age security lies in a compulsory old age insurance system."

Private market failure. Some researchers hold the view that Social Security is a forced savings vehicle to prevent moral hazard. Aaron and Callan (2011, 2) described that view as the idea, "enough people are short-sighted or procrastinate when it comes to retirement saving, saving too little or starting to save too late to provide adequate income during retirement, to justify collective intervention to mandate saving." Thompson (1983, 1446) described a somewhat related view, "the progressive benefit formula is a device to skew benefits toward those who would not have saved for retirement in the absence of Social Security and away from those who would have."

This myopia justification for OAI is absent from the primary source materials written by the designers of Social Security. In contrast, the case made by the Committee on Economic Security was that *any* worker was potentially at risk of falling on hard times despite that worker's own best efforts to prepare for his or her old age; all workers were exposed to economic risk or the "hazards and vicissitudes" of life. According to this view, responsible people can still fall on hard times via exposure to labor, health, and financial market shocks outside their individual control. With regard to retirement saving, instead of myopia, the Committee on Economic Security focused on the following idea, also described by Aaron and Callan (2011), "not all financial and insurance markets exist and operate efficiently."

Edward Berman (n.d.) of the Committee on Economic Security depicted inefficiencies in the private market for life insurance over the 1923 to 1932 period, prior to Social Security's OAI benefit. Berman found, "the industrial policyholder, who is, in the great majority of cases, a member of the working class, pays a higher price for the protection he gets, and receives less service in connection with this protection, than does the holder of an ordinary insurance policy, who is likely to be a member of a higher income-receiving group." Over the period, 32.3 percent of ordinary insurance was terminated because of a lapse in coverage versus 69.4 percent of industrial insurance. In addition, 21.3 percent of ordinary insurance and 17.4 percent of industrial insurance was terminated by cash surrender (under lapse, a policyholder only receives protection during the period in which he or she held the insurance; under cash surrender, a policyholder receives some return for termination before maturity). Thus, overall at least 86.8 percent of industrial insurance and 53.6 percent of ordinary insurance did not fulfill the purpose for which the insurance was bought. These numbers highlight the fact that while the lower-income group appears to have been the most exposed to financial risk, the risk experienced by the higher-income group was also substantial.

Ralph Harris (n.d.), also of the Committee on Economic Security, concluded, "commercial companies have not reached sufficient people in sufficient volume to meet the need for real security." DeWitt (2010, 4) discussed that while the Great Depression "was the triggering event that finally persuaded Americans to adopt a social insurance system," it was the transformation of society from a land-based preindustrial society in which individuals could subsist off the land to a modern industrial society that created the problem of economic security.

Labor market risk. The failure of commercial companies to provide economic security prior to the passage of the Social Security Act does not necessarily imply that the insurance companies were engaged in widespread fraud and abuse.[40] In addition to the problem of adverse selection in annuity markets, which arises from heterogeneity in life expectancy in the underlying population,[41] private markets may be ill-equipped to provide insurance against labor market risks. A lapse can occur in private insurance markets if a worker loses a job and can no longer make private insurance payments. OAI is much more flexible; a worker may experience years of zero earnings and remain insured for retired-worker benefits, as long as he or she has obtained the required quarters of coverage based on past earnings contributions.

Similarly, the Social Security bend point formula offers workers wage or earnings insurance that was unavailable on the private market prior to 1935, but that can intersect with financial risk and the ability of a worker to save for his or her own retirement. (To use the job loss example, a worker generally cannot continue to save while unemployed.) Thompson (1983, 1438) commented, "this feature can be viewed as a form of life-cycle insurance offered to all workers entering the labor force."

Under current law, the percentages of the benefit formula decrease as earnings increase, so that although workers with higher lifetime earnings receive a larger monthly benefit amount than workers with lower earnings, the percentage of preretirement OASDI taxable earnings replaced is higher for workers with lower lifetime earnings than for workers with higher lifetime earnings. Some Social Security analysts consider this feature a redistributive, transfer, or welfare element of OAI. However, most workers do not know with certainty how high their lifetime earnings[42] will be at the beginning of their career or to what labor market shocks they will be exposed throughout the course of their career.

For example, suppose a worker with high earnings beginning at age 30 falls on hard times at age 40. That worker will have high earnings for only 10 years, well below the top 35 years used to calculate his or her average indexed monthly earnings (AIME) amount, which is used to calculate his or her monthly benefit. Thus, this individual may not end up at the top bend point of the retired-worker benefit formula and will have a higher replacement than expected when he or she reaches age 62, but a lower total benefit amount. In this way, the bend points in the formula can be viewed as a type of wage insurance in the case of an unexpected, unplanned shock to earnings at age 40 that the earner may not have been expecting when aged 30–39. From the insurance perspective, a worker only knows his or her expected benefit level *in hindsight* or after 35 or more years of work.

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[40] Berman (n.d.) noted, however, that there was a problem with overselling to bad risks in the industrial insurance market.

[41] See Stiglitz (1986, 280–281) for a discussion of this issue.

[42] The benefit formula wage-indexes and averages the top 35 years of a worker's Social Security–covered earnings.

Another feature of OAI not present in private markets is that its benefit formula is indexed to national average wage growth. OAI's large group insurance pool allows workers to share in overall improvements in the standard of living that have occurred over their working life, even if they, as individuals, have experienced a shock. Although this feature was not formally incorporated into the Social Security Act until 1977 (previous increases were made on an ad-hoc basis), it seems to resonate with FDR's 1931 description of a contributory insurance program that assures an "American standard of living."

The Committee on Economic Security was silent about these features of the bend point formula: It did not describe the formula as wage or life-cycle insurance, but it also did not describe it as intentionally redistributive or as a welfare element. As far as the original designers' intent, the reader must use his or her own judgment, given the context of the time, and the designers' repeated stress on the superiority of insurance over welfare. Ex post, one of the designers—Witte (1959, 107) stated, "Some redistribution of income undoubtedly is involved in all social security programs. As I see it, however, this is only one of its results, not its principle objective." Witte's remarks seem to contrast with a not uncommon modern focus on measuring whether the system is "progressive" as if progressivity, rather than insurance, is the primary goal of the program. Witte (ibid.) described this focus on redistribution as a "radical view" held by some supporters of Social Security, like Abraham Epstein (a pioneer in the field, whose social insurance design was rejected by the Committee on Economic Security in favor of contributory old-age insurance).[43]

Familial risk. While discussions of Social Security often focus on a worker's own benefits, near-universal coverage in the OASDI system means that most workers are also insured against facing the full burden of supporting elderly relatives. Supporting that statement, Witte (n.d) wrote:

> Numerous surveys made before the depression indicated that from one-third to one-half of the aged were dependent upon others for all or a part of their support…Most of the needy old people have been and are still being supported, in whole, or in part, by their children, other relatives, and friends. The depression has made it impossible for many children to continue to support their parents and consequently many more aged have had to resort to relief.[44]

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[43] Witte described Epstein as saying, "there is no value in social insurance unless it includes funds supplied by the government and contributes to the redistribution of income." As described in the next section, one key to that type of approach in modern times is that many analysts who believe the bend point formula is redistributive by design also do not recognize the earmarked OASDI payroll tax as an insurance contribution. Among analysts who do view the earmark as a contributory tax, Witte is echoed by Myers (1993, 16) who writes, "The essence of insurance is the broad pooling of the risks involved. OASDI, as a social insurance program, provides such pooling" and by Altman (2013, 117) who writes, "Redistribution is not a feature unique to welfare. All group insurance redistributes."

[44] See Miron and Weil (1998, 310) for a brief discussion of literature criticizing the Committee's characterization of the data.

Insurance against this type of cost visited upon an adult child by their elderly parents is extremely difficult for economists to price, but nevertheless may have value to many workers and their families. Note that the families of workers above a designated hardship level would certainly be exposed to this type of risk, perhaps even to a greater extent than those below the hardship threshold, because their relatives might be less likely to qualify for any means-tested relief through other government programs that are funded by general revenues and designed to help very low-income workers.

In this way, the idea that OASDI represents a "transfer" from young to old (under a fully pay-as-you-go system) or from later birth cohorts to earlier (start-up) birth cohorts seems most relevant if we assume that workers with children do not attach an insurance value to the program with regard to their own coverage *and* would have chosen not to support their elderly relations in the absence of Social Security. Otherwise, part of the money that goes out of a working person's paycheck to OASDI might well go to a working person's elderly relation. If, on an individual basis (that is, without the broad risk pooling available through OASDI), the worker is at risk of spending more than the OASDI payroll tax to support his or her relation in the absence of OAI, then, hypothetically, that worker would have less money to spend on his or her own children, relative to current law. Of course, to attach a value to this hypothetical situation, we would have to observe the risk preferences of workers and the value, if any, that they attach to this multigenerational aspect of OAI—a value that is unobservable to the social scientist, but that could well exist.[45]

A belief in the superiority of a self-financed system over a system dependent on general revenue financing. One linchpin of the tax-transfer philosophy is the belief that the dedicated OASDI payroll tax has no true economic meaning. For example, Pechman, Aaron, and Taussig (1968, 74) wrote:

> Social Security payroll taxes are legally earmarked, but they are not *economically* earmarked…If Congress should decide to end the earmarking of the payroll tax (but should allocate it to the general fund) and to earmark enough of say, the corporate income tax to pay for social security benefits, nothing would be changed except some accounting.

This belief is reflective of a longstanding controversy in economics over earmarked taxes. As Buchanan (1963, 457) noted, "The near-universal condemnation of the institution [earmarking] by experts in budgetary theory and practice is familiar and need not be summarized here."[46]

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[45] See Lesnoy and Leimer (1985, 17) and Thompson (1983, 1458) for related discussions.

[46] Buchanan (1963, 458) also wrote, "Institutionally, earmarking provides a means of compartmentalizing fiscal decisions. The individual citizen, as voter-taxpayer-beneficiary, is enabled to participate, separately,…in several public expenditure[s] that may arise." On the other hand, he noted that general fund budgeting "allows the citizen to 'vote' only on the aggregate outlay for predetermined 'bundles' of public services, as this choice is presented to him by the budgetary authorities (ibid., 459). The analogy Buchanan made to the free market would be the choice inefficiencies associated with the requirement that "one stick of butter be purchased with each loaf of bread" (ibid.).

The tax-transfer view tends to combine the various federal taxes an individual pays into a single amount (with the idea that the aggregate of all federal taxes reflects the total amount of money the budgetary authorities have available to spend on all federal programs, including, but not limited to, OASDI), treating the legal earmarking of the tax as irrelevant to an economic model. The counter to the tax-transfer view, elucidated by Willcox (1955) and predating Buchanan's (1963) seminal work on a theory of earmarking by several years, is that the public may view the OASDI tax bundle and federal income tax bundle as separate entities that are not fungible.[47]

In fact, the debate over earmarks was present at least as far back as 1935. The Committee on Economic Security strongly linked differences in funding with differences between the insurance piece of the Social Security Act (OAI) and the welfare piece (OAA, now the Supplemental Security Income [SSI] program). FDR in particular was adamant that OAI be self-financing.[48] As Perkins (1963, 15–16) remarked, "Nobody then knew what the dole was; I do now. It wasn't *so* bad even then, but it was getting something you yourself hadn't paid for…Franklin Roosevelt was greatly opposed to the dole: 'Oh, we don't want the dole; not the dole!' I had a great time to get him quieted down and stop talking about the dole; to try to think about the realities."[49]

It should be noted that FDR's hostility to the dole was not shared by everyone in his administration. Cohen (1985, chap. 1, 7) noted that Emergency Relief Administrator Harry Hopkins "favored some kind of broad, comprehensive, unified program that would involve, exclusively

[47] Willcox (1955, 335) wrote, "To say that these payments are taxes is to say that, constitutionally, they could be used for other governmental purposes as well as for the payment of social insurance benefits, but it is not to say that politically or morally they could be so used. For the same reasons that Congress would not have imposed them for any purpose other than social insurance, they could not be expected to remain long on the statute books if they were diverted to other uses."

[48] There are analysts such as Schieber (2012, 52) who appear to equate the contributory insurance principle with the issue of a pay-as-you-go method versus an advanced-funding method of financing OASDI benefits. As Schieber wrote, "When FDR took his stand on 'insurance principles' for Social Security, he was implicitly saying that participants should receive fair market rates of returns on their contributions over their working lives… As Social Security diverged from funded to pay-as-you-go financing, President Roosevelt, Arthur Altmeyer, and Edwin Witte became concerned about economic fairness" (ibid., 59). On the other hand, Witte (1949, 48–49), in a speech cited by Schieber, stated, "It is precisely because I want a welfare state, in the sense contemplated by the Constitution, and not a Santa Claus state, that I am so strongly urging extension and improvement of our old-age and survivors' insurance. As I see it, unless this is done very promptly, Referendum No. 4 is only the beginning of what we will have to face, and the contributory principle in relation to old-age support will be lost. But I may be wrong and those who favor universal pensions or exclusive reliance upon old-age assistance and private pensions may be right." In this context, I interpret "Santa Claus state" as a reference to the dangers of OAA or universal pensions versus contributory OAI, not as a reference to the issue of a pay-as-you-go method versus an advanced-funding method of financing, as suggested by Schieber (2012, 52). For Referendum Proposition No. 4, see http://repository.uchastings.edu/ca_ballot_props/474.

[49] The "dole" as used here refers to unemployment insurance in England. Frances Perkins stated that during the Great Depression, the English put unions into the unemployment insurance system, who had not paid into the fund. According to Perkins (1963, 15–16), American manufacturers thought this was a very egregious action, and when she brought up OAI, they would say, "No, that's the dole too. I don't believe in the dole." Perkins wrote that FDR was also opposed to the English system of *the dole* for both unemployment and OAI proposals (both proposals were spearheaded by Perkins, FDR's secretary of labor at the time).

or substantially, federal general revenues." With regard to Hopkin's proposal, Perkins (1946, 284) wrote:

> Although Hopkins was eloquent, the President at once saw that this would be the very thing he had been saying he was against for years—the dole. This prejudice served as a guidepost to warn him against unsystematic and unrelated distribution of funds from the Treasury. He insisted that the two systems, however much they might apply to the same people, should be kept separate because relief appropriations should be curtailed and canceled as soon as there was a revival of business and employment opportunities. The systems of unemployment and old-age insurance ought to continue as a permanent part of our economy.

Similarly, Witte (1966, 146) wrote:

> The Committee on Economic Security always considered and discussed the subject of old-age security as falling into two parts:
>
> 1. Old age assistance to old people in need and on a needs basis, payable from general tax revenues.
>
> 2. Old age insurance, in the form of retirement annuities payable as a matter of right to wage-earners on retirement at a specified age, from funds to which they had themselves contributed.
>
> This sort of a concept runs through all of the reports made by members of the staff on the subject, the report of the advisory council, the report of the Committee on Economic Security, and the President's message.[50]

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[50] The published *Report to the President of the Committee on Economic Security*, dated January 15, 1935, proposed general revenues be used to supplement the old-age benefits beginning in 1965 (Committee on Economic Security 1935). However, according to Altmeyer (1966), when the report was submitted to Congress on January 17, 1935, this recommendation was altered at the direction of the president. Specifically, Altmeyer (1966, 29) wrote:

> On the afternoon of January 16, after the President had already notified Congress that on the following day he would present a special message on economic security, he sent for Miss Perkins [Secretary of Labor Frances Perkins]. He said there must be some mistake in the table which appeared in the report since he had not understood that a large deficit to be met out of general revenues would develop in the old age insurance system beginning in 1965. …When informed that the table was correct, the President said the report must be changed at least to the extent of indicating this plan was only one of several that Congress might consider. He also directed that the committee proceed to develop, as soon as possible, a completely self-sustaining old age insurance system. The next day, January 17, the President forwarded the committee's report [to Congress] which incorporated the change suggested by him.

The January 17th report, rather than the report published January 15, 1935, provided the basis for the OAI legislation incorporated in the 1935 Social Security Act.

Was the Insurance Framework Abandoned in 1939?

Pechman, Aaron, and Taussig (1968, 33) based much of their view of OASDI as a transfer program whose primary goal was adequacy on the 1939 Amendments to the Social Security Act. They noted, "These [1939] amendments marked the major turning point in the historical development of social security. The principle of individual equity was severely modified by amendments designed to achieve other welfare-oriented goals…The welfare function of benefits, or the principle of "social adequacy," was stressed as a major appropriate goal of social security."

In contrast, FDR referred to a "two-fold approach" to greater old-age security, which he "believe[d] to be sound" in his 1938 letter of transmittal to Congress. He stated, "One way is to begin the payment of monthly old-age benefits sooner, and to liberalize the benefits to be paid in the early years. The other way is to make proportionately larger Federal grants-in-aid to those states with limited fiscal capacities, so that they may provide more adequate assistance to those in need."

In other words, FDR—who submitted the proposals to Congress that were incorporated into the 1939 amendments—appears to be in disagreement with Pechman, Aaron, and Taussig (1968) regarding the degree to which the those amendments represented a "turning point" for OAI. He seems to have viewed the welfare piece of the Social Security Act as continuing in the form of the OAA program (now SSI) and the insurance piece as continuing in the form of an expanded OAI program.

The *1938 Advisory Council Report* likewise did not interpret the 1939 amendments as an alteration of the sharp separation between welfare and OAI embedded in the 1935 act and stated:

> After a thorough consideration of the growing problem of old-age dependency facing our country and of the experience thus far under the program of old-age assistance, the Council is convinced of the wisdom of Congress in establishing a contributory program of old-age insurance….It is only through the encouragement of individual incentive, through the principle of paying benefits in relation to past wages and employment, that a sound and lasting basis for security can be afforded… Since contributory old-age insurance possesses these advantages over dependency relief or old-age assistance, it is in the public interest that the insurance program be improved and extended to cover additional groups.

The Rise of "Adequacy and Equity": A Turning Point for Social Security Analyses, but Not Necessarily a Turning Point for the Program Itself

Although OAI's original designers did not view the basic contributory insurance framework as changing in 1939, an *adequacy and equity* concept that was introduced during the discussion that preceded the 1939 amendments has come to dominate a fairly large portion of the Social Security

literature since then. In fact, some Social Security experts and economists appear to consider the concepts of *adequacy and equity* as descriptive of the principles of old-age or "social" insurance.[51] Thompson (1983, 1437) did not refer to adequacy and equity as principles, but he did call them "objectives." On the other hand, an insurance traditionalist like Myers (1993, 16) referred to adequacy and equity as "characteristics." In addition, the *1938 Social Security Board Report* (which was submitted to FDR) referred to adequacy and equity as "principles," but the *1938 Advisory Council Report* (which was submitted to the Senate Finance Committee and the Social Security Board) and FDR's letter of transmittal to Congress did not. In fact, FDR rejected both the language of the 1938 Advisory Board with regard to *adequacy and equity* and, as discussed previously, chose to emphasize the two-fold nature of his approach to old-age security—OAI and OAA—in his letter to Congress.

In his "Essays on Social Security," Brown (1977, 30), a consultant for the 1935 Committee on Economic Security, relayed to us that the adequacy and equity concepts were not part of OAI's founding principles. Rather, Rienhard Hohaus (1938), an actuary with the Metropolitan Life Insurance Company, introduced them into the Social Security discussion. Brown suggested that Hohaus used the concepts of adequacy and equity to describe the benefit formula (which replaces lower earnings amounts at a higher rate than higher earnings amounts). Note that Hohaus's description of the benefit formula was written after that formula was already designed and that he was not involved in that design. However, Hohaus's own words (1938, 84) seem to go beyond Brown's (1977) discussion of his remarks, when he stated:

> Social Insurance, on the other hand, is molded to society's need for a minimum of protection against one or more of a limited number of recognized social hazards. The minimum may be considered as that income which society feels is necessary and economically practicable for the subsistence of individuals comprising it. These payments, it is held, must be met in one form or another anyway, and social insurance endeavors to organize the budgeting therefor and dispensing thereof through systematic government processes. Hence, just as considerations of equity of benefits form a natural and vital part of operating private insurance, so should considerations of adequacy of benefits control the pattern of social insurance.

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[51] The difference between the specific program of OAI, now OASDI, as described in the Social Security Act, and the wider concept of "social insurance" may explain part of the difference in views between the insurance framework and the transfer, adequacy, or welfare framework. As Myers (1993, 6) noted, the term "social security" is now typically used to narrowly refer to OASDI. However, in the broader *social insurance* literature, in which many Social Security experts participate, some economists might call "insurance" what an average American would term "welfare." For example, Stiglitz (1986, 290) stated, "welfare programs can be thought of as insurance against the kinds of contingencies that we, or our children, might face."

Hohaus's (1938) emphasis on "minimum protection," "subsistence," and "adequacy" seems at odds with FDR and the Committee on Economic Security's emphasis on a "comfortable existence," an "earned right," and an "American standard of living." In fact, the Committee on Economic Security had applied the term "decent subsistence" to "gratuitous pensions"—a welfare arrangement they argued was inferior to an earned insurance benefit. Hohaus appears to be blending the OAA function with the OAI function—roles that OAI's designers took great pains to keep separate in both the 1935 Social Security Act and in the 1939 amendments to that act.

In addition, Hohaus's views on OAI financing, although they foreshadow the views of some modern Social Security analysts (as well as Buchanan's "budgetary authorities" who have a disinclination for earmarking), seem diametrically opposed to the views of OAI's designers who believed the financing of the welfare program and the contributory insurance program should be kept separate.[52] Hohaus (1938, 110) wrote:

> …A scheme so revised, therefore, may bring about considerable curtailments in governmental outlays for these assistance purposes. In turn, it might be deemed perfectly proper to divert some of these savings for the purpose of providing government subsidies for the contributory scheme…One system is, after all, as much a part of this country's program for old age security as the other. Indeed, this inclusive view is fundamental from an economic standpoint, since the expenditures involved in both plans [OAI and OAA] are included in the total old age security bill for which the nation will have to make financial arrangements.

In summary, Hohaus's (1938) article in which he introduced the concept of adequacy and equity is perhaps best characterized as a critique of the OAI program and the arguments put forth on its behalf by its designers. In that article's discussion of OAI finance, there is a blending of the sharply distinguished "two-prong" approach referenced by FDR in 1938 in his letter to Congress in support of the 1939 amendments, a point upon which we have ample evidence that FDR was adamant.

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[52] Some confusion on this point might arise from the fact that the 1938 Advisory Council and 1938 Advisory Board recommended general revenues eventually be used to finance part of OAI. I am giving more weight to FDR's repeated admonishments to the 1935 Committee on Economic Security rather than to later documents produced by subsequent advisory councils and advisory boards, over which FDR may have exerted less control. Although a sentence in the 1943 Amendments to the Social Security Act opened the door to possible future general revenue financing, this sentence was eliminated in the 1950 amendments. Thus, in practice, so far OAI has remained free of general revenue transfers of the type advocated by the 1938 Advisory Council and Board.

While the Hohaus perspective appears to have influenced subsequent Social Security analyses and various commissions, such as the 1994 Bipartisan Commission on Entitlement Reform and the 2010 Fiscal Commission,[53] it is less clear that his perspective has had much influence[54] on Social Security law itself. The OAI program remains self-financed, with the retired-worker benefit payable as an earned right based on a worker's past covered earnings. SSI (formerly OAA), in contrast, is means tested and funded from general revenues. In this way, the 1935 Committee on Economic Security's distinction between OAI and OAA is still embodied in the sharp legal and programmatic distinctions between OASDI (Title II) and SSI (Title XVI) in the Social Security Act. One way to describe this apparent conflict over analytical frameworks could be to say that OAI's original designers have so far prevailed in the substance of the law, but that OAI's critics have so far largely prevailed in the way that the law is analyzed and discussed in much of the Social Security literature.

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[53] Both the 1994 Kerry Danforth Commission and the 2010 Fiscal (Bowles Simpson) Commission could be described as taking the Hohaus approach to looking at the "total old-age security bill"—despite the self-financing nature of OASDI in current law. For more information, refer respectively to http://www.socialsecurity.gov/history/reports/KerreyDanforth/KerreyDanforth.htm and http://www.socialsecurity.gov/history/reports/ObamaFiscal/ObamaCommission.html. Neither Commission garnered enough votes to issue a final report. In addition, as a body, Congress has appeared less amenable than various budgetary experts to the Hohaus philosophy.

For example, in January 2010, the Senate voted 97-0 to approve an amendment to limit from consideration any changes to Social Security included in a proposed deficit commission. (However, the proposed deficit commission itself failed to be approved by the Senate.) In the 1990 Budget Enforcement Act, Congress specified that Social Security not be included in annual federal budget totals (that is, it would be "off budget"). Prior to the 1990 law, Congress adopted section 310(g) of the Congressional Budget Act in 1985, which prohibited using reconciliation to make cuts to Social Security.

[54] A possible exception could be Social Security's regular and special minimum benefit. The special minimum benefit and its predecessor—the regular minimum—could be said to be an attempt to address benefit adequacy concerns through OAI. Olsen and Hoffmeyer (2001/2002) noted that the special minimum benefit level has been below the official poverty level since its inception, which seems to echoes Hohaus's use of the term "subsistence." However, the special minimum benefit has since fallen even further below the poverty line, so that currently, almost no worker receives a higher payment through the use of the special minimum benefit than through his or her wage-indexed OASI benefit (Feinstein 2013). As discussed by Olsen and Hoffmeyer (2001/2002), Congress has in the past expressed concerns over whether the minimum benefit was properly reaching its target (long-term low earners), and despite legislation aimed at achieving that goal in 1972, it is not clear that the goal has ever been achieved.

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