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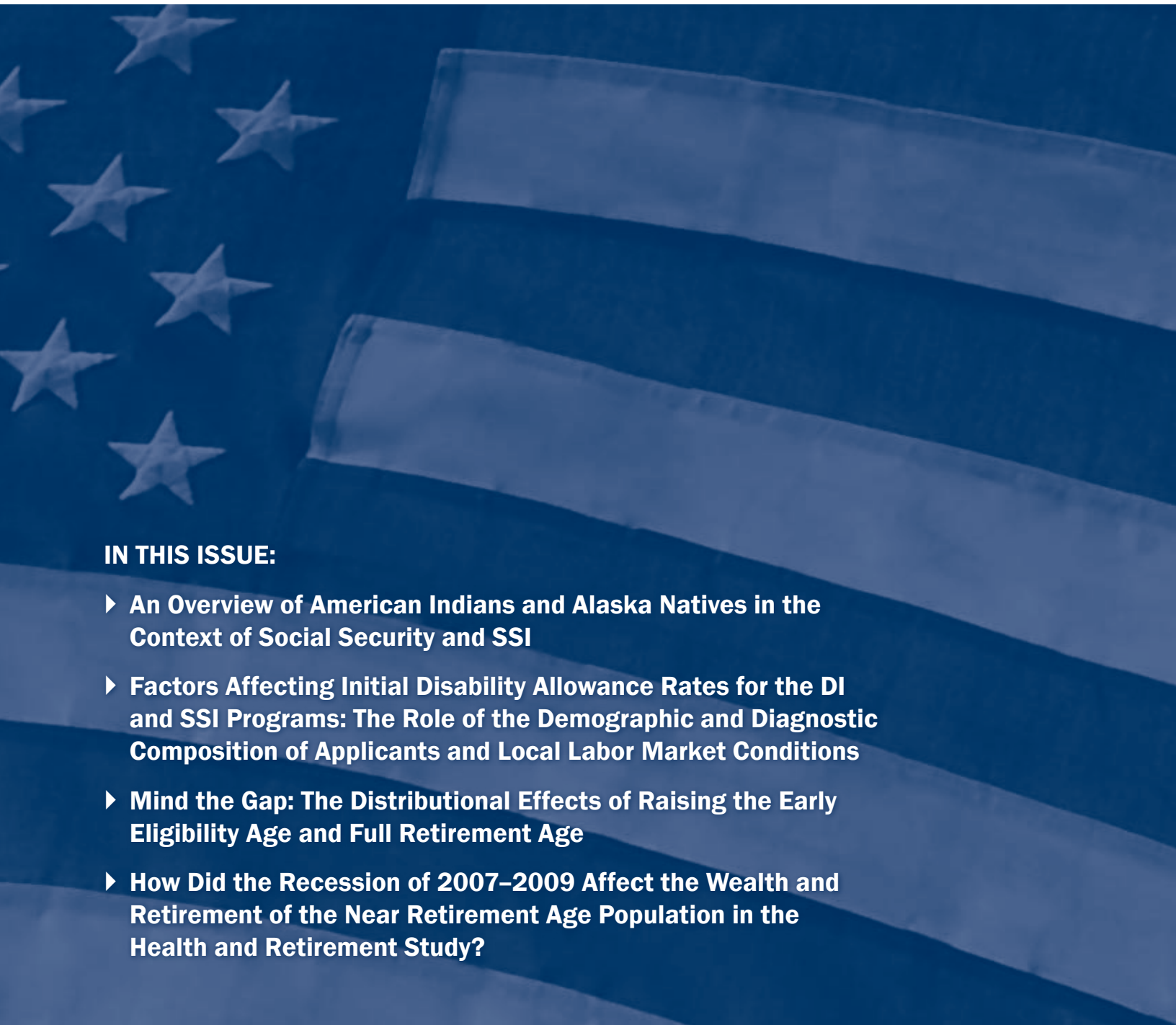

IN THIS ISSUE:

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Articles

An Overview of American Indians and Alaska Natives in the Context of Social Security and Supplemental Security Income

by Nolan Smith-Kaprosy, Patricia P. Martin, and Kevin Whitman*

This article examines the economic security of the American Indian and Alaska Native (AIAN) population by exploring AIAN receipt of Social Security benefits and Supplemental Security Income (SSI). This analysis uses data from the 2005–2009 American Community Survey Public Use Microdata Sample, which provides a larger AIAN sample size than many other sources, thereby enabling more reliable estimates. We find that adult AIANs are less likely to receive Social Security benefits and more likely to receive SSI than are adults in the total population. In both programs, median benefit amounts are lower for AIAN recipients than for recipients in the total population.

Introduction

Members of the American Indian and Alaska Native (AIAN) population face substantial economic disadvantages, making them a critical target for social insurance programs. Understanding how they use Old-Age, Survivors, and Disability Insurance (OASDI) and Supplemental Security Income (SSI) benefits illuminates the role these programs play in supporting vulnerable populations.[1] This article provides an overview of the AIAN population's characteristics and use of these programs.

Social policy literature often fails to address the AIAN population. One of the foremost reasons for this research deficit is the group's small sample size in many surveys, which creates a variety of analytical challenges.[2] To address this concern, we use the combined 2005–2009 estimates from the American Community Survey (ACS) Public Use Microdata Sample (PUMS) to analyze the characteristics of the AIAN population and investigate patterns of OASDI and SSI benefit receipt. The ACS generally oversamples AIANs, making the estimates more reliable and reflective of the true population values for this group (Census Bureau 2006). The 2005–2009 PUMS file we use includes more than 150,000 person records for individuals aged 18 or older who self-identify as American Indian or Alaska Native.

This article proceeds in four parts. First, we describe our data and the methodology for outlining the adult AIAN population in the context of OASDI and SSI.[3] Second, we summarize the socioeconomic characteristics of AIANs, and focus on those that may influence benefit eligibility and receipt. Third, we present statistics on the percentage of AIANs receiving OASDI and SSI and the average benefit amounts,

Selected Abbreviations

ACS	American Community Survey
AIAN	American Indian and Alaska Native
OASDI	Old-Age, Survivors, and Disability Insurance
PUMS	Public Use Microdata Sample
SSA	Social Security Administration
SSI	Supplemental Security Income

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all compared with the total US population. Finally, we conclude with a discussion of the practical implications of the findings and the need for future research.

Our analysis of the 2005–2009 PUMS indicates that, on average, the AIAN population is younger, less likely to be married, less well educated, less wealthy, in poorer health, and more geographically isolated than the general population. A smaller share of adult AIANs receives OASDI benefits and a higher share receives SSI benefits. Among recipients, median benefit amounts under both programs are lower for the AIAN population than for the total population.

Data and Methods

This article uses data from the 2005–2009 PUMS to provide insight into the AIAN population. The Census Bureau, which developed the ACS to replace the long form of the decennial census, randomly selects around 3.5 million addresses annually to participate in the ACS (Census Bureau 2011d). The PUMS enables the researcher to segment data by various demographic characteristics and to analyze multiple socioeconomic characteristics.

This overview uses the 5-year estimates rather than the single-year or 3-year estimates the ACS also provides. We employ the 2005–2009 PUMS because of the relatively small sample size of AIANs and the context of our analysis, which focuses more on precision than currency. The Census Bureau's guide for PUMS data users affirms that these rationales make the 5-year estimates more appropriate (Census Bureau 2011c). We tabulate a total of 11,376,591 records for persons aged 18 or older from the 5-year PUMS used in this analysis. The file includes the responses for the 2005, 2006, 2007, 2008, and 2009 surveys; no household address appears in multiple samples over that period (Census Bureau 2010). Data on disability status are available only from the 2009 PUMS.

In our analysis, AIAN refers to ACS respondents who identified their race as "American Indian and Alaska Native alone or in combination with one or more other races" (Census Bureau 2011a).[4] The inclusion of AIANs in combination with other races is important because multiracial backgrounds are common among this population. In the 2009 ACS, one-half of the respondents who specified their race as AIAN reported more than one racial identity. The focus of previous AIAN research has varied between multiracial and AIAN-alone groups, with the determination generally based on the study's particular aims.

Another important distinction for analyzing the AIAN population is whether the individuals live in reservation communities.[5] We do not distinguish the AIAN population by place of residence. We use as broad an AIAN definition as possible because this article is intended as a general overview of the population.[6]

All tables show descriptive statistics of the population, or subsets therein. Any discussion in the text referring to the overall population or the AIAN population refers specifically to adults (aged 18 or older) unless otherwise noted. We restrict our overview to the adult AIAN population because any analysis that focuses on Social Security will be difficult to interpret if minor child beneficiaries are present as well as adult beneficiaries. Social Security child benefits generally stop at age 18.[7] OASDI benefit receipt is indicated if the respondent reports a positive amount for any income from Social Security in the past 12 months (the 5-year PUMS data set does not allow us to differentiate retirement, survivor, and disability benefits).[8] SSI receipt is likewise indicated by such a response. All benefit statistics are self-reported.

All wage, Social Security income, and SSI values are in 2009 dollars, adjusted using the ADJINC variable in the 2005–2009 PUMS. The PUMS data have been weighted and statistically tested using design factors. Unless otherwise indicated, all demographic and economic comparisons between the AIAN population and the overall population, including Social Security beneficiaries and SSI recipients, are statistically significant at the 90 percent confidence level or better.

Characteristics of the AIAN Population

Table 1 provides an overview of various demographic, social, economic, and other characteristics of the adult AIAN population and compares them with those of the overall population. The analysis includes data from the PUMS along with supporting information from relevant prior literature to provide a broader context for some of the patterns seen in the PUMS data. However, a full causal exploration of any of these characteristics falls outside this article's scope.

Age

AIANs are younger than the total population on average. The median age for AIANs is 42 years, compared with 45 overall. Sixty-two is the earliest age at which an individual can receive Social Security retirement benefits; 14.0 percent of the adult AIAN population is

aged 62 or older, while the comparable figure for the total population is 20.3 percent.

A variety of factors contribute to the differences in the age distribution between the AIAN and the total populations, but one that is especially relevant in the context of Social Security is the AIAN population's higher incidence of health risk factors that shorten life, such as alcoholism, diabetes, and homicide (IHS 2011). As of 2008, the age-adjusted years of potential life lost before age 75 for the AIAN population was 8,151.6 per 100,000 persons, compared with 6,952.8 for the total population (CDC 2011).[9]

Marital Status

The share of people who are married is smaller among AIANs than in the general population, 42.2 percent versus 53.1 percent. Similarly, the shares of the AIAN population who are divorced or never married are higher than those of the total population. Particularly notable are the never-married shares: 33.4 percent for the AIAN population versus 26.9 percent overall.

Earlier studies highlight a number of elements correlated with "ever marrying" that may explain the marital patterns we see in the PUMS data. One of the foremost

Table 1.
Selected characteristics of AIAN and total populations aged 18 or older, 2005–2009

Characteristic	AIAN population	Total population (including AIAN)
Age		
Median age	42	45
Percentage aged 62 or older	14.0	20.3
Marital status (%)		
Married	42.2	53.1
Widowed	5.7	6.6
Divorced	15.1	11.0
Separated	3.5	2.3
Never married	33.4	26.9
Educational attainment (%)		
Less than high school	21.1	15.6
High school graduate	31.1	29.7
Some college or associate's degree	33.8	29.6
Bachelor's degree	9.2	16.2
Master's degree	3.4	6.2
Professional school degree	0.8	1.7
Doctorate	0.6	1.0
Median wage income ($)		
Overall	7,996	13,189
Among those having positive wage income	22,475	30,234
Income relative to poverty level [a] (%)		
Less than 50 percent of threshold	8.6	5.1
Less than 100 percent of threshold	20.1	11.8
Less than 150 percent of threshold	32.2	20.0
Disability status (%)		
With disability	23.8	15.3
Without disability	76.2	84.7
Region (%)		
Northeast	8.5	18.6
Midwest	17.6	22.1
South	33.1	36.5
West	40.9	22.8

SOURCE: Authors' calculations using 2005–2009 PUMS. The disabled category uses the 2009 PUMS.

NOTE: Rounded components of percentage distributions do not necessarily sum to 100.

a. Poverty statistics omit institutionalized individuals and those living in group quarters such as military bases and college dormitories.

factors is age, as the adult AIAN population is younger on average. However, other factors that may be relevant to the AIAN group are health and economic status. The direction of correlation between marriage and each of those two factors likely runs both ways, as healthier and wealthier individuals have higher probabilities of ever marrying, and those who are married tend to be in better health and have more wealth (Tamborini 2007). The correlation suggesting a selection bias in marriage may be a factor in the higher never-married share of the AIAN population, as AIANs experience lower physical and economic well-being than the total population.[10]

Educational Attainment

The AIAN population in the 2005–2009 PUMS is also less educated than the total population. Around 21 percent of AIANs do not have a high school diploma, while 15.6 percent of the total population falls into this category. Moreover, roughly 14 percent of AIANs received a bachelor's degree or higher, compared with around 25 percent of the total population.

DeVoe and Darling-Churchill (2008) identify the primary risk factors associated with poor educational outcomes as "living in a single-parent family, living in poverty, having a mother who has less than a high school education, and having parents whose primary language is a language other than English."[11] The first three of these factors are more prevalent among the AIAN population than the total population and may help explain some of the educational disparities seen in the PUMS data.

Economic Status

Some of the largest differences between the AIAN group and the total population appear in their relative economic status. To analyze economic well-being, we present PUMS data on wage income and poverty.[12]

Median wage income for adult AIANs is much lower than for the total population. Restricted to those with positive wage income in the preceding year, the 50th percentile earnings for AIANs is $22,475, compared with $30,234 for the general population.

Poverty in PUMS is consistent with the wage disparity, as 20.1 percent of AIANs fall below the poverty level, compared with 11.8 percent for the total population (note this is not the official poverty rate).[13] Poverty is heavily concentrated in some AIAN communities; Miller (2008) notes that each year, "at least four of the ten poorest counties in the U.S. are located on Indian reservations."

Looking specifically at single-ancestry AIAN men, Hurst (1997) finds that nearly all of the earnings differential between this group and the non-AIAN population can be explained by their human capital characteristics and geography. Lower human capital among the AIAN population is directly reflective of the type of educational differences cited earlier along with the well-established positive relationship between education and earnings. However, even with greater levels of human capital, the AIAN population would still face economic barriers based on their location. AIANs are more likely to live in isolated rural locations with fewer employment opportunities, particularly in more advanced economic sectors. Poverty tends to be highest in rural counties for all racial and ethnic groups (Jolliffe 2004). Geography is addressed in detail later in this article.

Disability

In addition to the economic disparities highlighted above, AIANs also have poorer health than the overall population. As the 2005–2009 PUMS does not include disability data in person records, we use the single-year 2009 estimates for disability. The ACS defines a "disability" as "a long-lasting physical, mental, or emotional condition" that "can make it difficult for a person to do activities such as walking…or to work at a job or business." By this definition, almost one-fourth (23.8 percent) of AIANs are disabled. The comparable figure for the total population is 15.3 percent. Because the ACS definition of disability is not the same as Social Security's definition, those values do not represent Social Security disability benefit eligibility or receipt rates.[14]

Other research has highlighted the prevalence of particular maladies and risk factors among the AIAN population. Barnes, Adams, and Powell-Griner (2010) find higher diabetes and heart disease rates for the AIAN population than for all other racial and ethnic groups studied, which may in part stem from this group also having higher rates of smoking and obesity. However, beyond behaviors that pose health risks, AIANs also face structural impediments to well-being, particularly if they live on reservations. The Centers for Disease Control and Prevention's Office of Minority Health and Health Disparities lists "cultural barriers, geographic isolation, inadequate sewage disposal, and low income" as some of the issues that prevent this population from receiving what they term as "quality medical care" (CDC 2012).

Geography

Compared with the overall US population, the AIAN population is more heavily concentrated in the western region. About 41 percent of the AIAN population lives in the West, which the Census Bureau defines as comprising Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming. Comparatively, 22.8 percent of the overall population lives in the West.

The reasons for these geographic characteristics are primarily historical. US policy created the reservation system that forced many American Indians onto rural, isolated Western lands (Sandefur 1986). For Alaska Natives, higher residency rates in Alaska are unsurprising; but even there, US policies have substantially influenced settlement patterns.

OASDI and SSI Benefit Receipt Among the AIAN Population

Many of the characteristics described above can influence the way the AIAN population uses OASDI and SSI. Some of these interactions are obvious. For example, greater prevalence of disabilities that meet Social Security eligibility requirements will generally result in higher receipt of OASDI and SSI disability benefits. Other interactions are not as apparent, but are still significant. For instance, lower earnings among AIANs not only produce an immediate economic effect, they also lower future benefits based on those earnings. Beyond earnings, sociodemographic characteristics can also play a role. The AIAN population's lower rates of marriage decrease eligibility for Social Security spousal and survivor benefits, which could offer access to higher benefits than a recipient's own earnings record provides.

Even geography may play a role in benefit receipt, through its practical effect on physical access to government services. Researchers have long identified geography as a potential barrier to government services for AIANs: "Because many of these citizens live in remote areas under cultural conditions that are far removed from the contemporary American scene, they often require assistance and service that is beyond the scope of most of the Social Security Administration district offices" (Hamilton 1969). The limited existence and maintenance of adequate infrastructure on (and leading to) Indian reservations often serves as an additional barrier for remote reservation communities.[15]

The rest of the article describes the patterns of benefit receipt that may stem, at least in part, from these types of characteristics. In Table 2, we examine Social Security benefit receipt among the AIAN and total populations and the economic characteristics of those who report receiving OASDI benefits. Table 3 presents the same data for SSI payments. Both tables also include results for individuals aged 65 or older to highlight the characteristics of aged beneficiaries.

OASDI

A smaller share of AIANs reported receiving Social Security income in the previous 12 months than did so from the total population, 15.4 percent compared with 18.9 percent (Table 2). A similar, but slightly smaller, disparity exists among those aged 65 or older, as 86.6 percent of AIANs report receiving Social Security benefits, compared with 88.4 percent of the total population. One likely explanation for this pattern is that fewer AIANs qualify for Social Security benefits because their work records are insufficient to insure them under the program.[16]

Among those who report being disabled, the share of the AIAN group that receives Social Security benefits is far lower than that for the total population. Among disabled adult AIANs, 37.9 percent are Social Security beneficiaries, compared with 52.1 percent of the total population.[17]

Turning to marital status, which plays a role in eligibility for some Social Security benefits, the most noticeable difference between the AIAN and overall populations is among the widowed. Around 66 percent of widowed AIANs report receiving Social Security benefits, compared with 75.9 percent of the total population.[18] This result likely reflects the higher share of the AIAN widow population that is younger than age 60, which is the earliest age at which a nondisabled widow or widower can receive survivor benefits. Slightly over 26 percent of AIAN widows are younger than age 60. By comparison, around 15 percent of widows in the total adult population are younger than age 60 (not shown in table). Among widows aged 62 or older, the rates of OASDI receipt are nearly identical for the AIAN and total populations (also not shown).

Average benefit amounts among Social Security beneficiaries are lower for the AIAN population than for the total population. The 50th percentile (median) value among those reporting Social Security benefit

income in the preceding 12 months is $9,467 for AIAN adults, compared with $10,834 overall. A similar pattern is seen at both the 25th and 75th percentiles.

Poverty among adult Social Security beneficiaries is also more prevalent in the AIAN population than in the total population. About 20 percent of AIAN Social Security beneficiaries have income below the poverty threshold, while for all beneficiaries the figure is 10.6 percent. This divergence likely reflects the AIAN population's greater tendency to lack other resources. It may also reflect the continued effects of lower lifetime earnings, which reduce Social Security benefits despite a progressive benefit formula that replaces a higher share of income for low lifetime earners.[19]

Similar patterns emerge among aged OASDI beneficiaries aged 65 or older. The 25th, 50th, and 75th percentile OASDI benefit amounts are lower for AIANs than for the total population. In addition, poverty rates are higher among AIAN beneficiaries than the total population of beneficiaries in that age range. The magnitudes of the differences are consistent with those seen for all adult beneficiaries.

SSI

SSI receipt among AIANs is substantially higher than in the total population (Table 3). Five percent of adult AIANs received SSI payments, around double the rate for the total adult population.

Looking at the age group in which one is eligible to receive SSI payments based on age (65 or older), 8.6 percent of the AIAN group received SSI, compared with 4.2 percent of the total population. The resource limits for SSI aged recipients are strict ($2,000 for an individual in 2011) (SSA 2012d). The AIAN population's higher rate of SSI receipt is consistent with their relative economic vulnerability.

SSI receipt among those who are disabled is higher for the AIAN population than for the total population. Among adults categorized as disabled in the 2009 PUMS, almost one-fifth (18.8 percent) of the AIAN group are SSI recipients compared with about one in seven (13.9 percent) overall.

Regardless of marital status, the difference in SSI receipt rates is consistent between the AIAN and total

Table 2.
Social Security benefit receipt among the AIAN and total populations aged 18 or older, 2005–2009

Characteristic	AIAN population	Total population (including AIAN)
	Percentage who receive benefits	
Overall	15.4	18.9
Aged 65 or older	86.6	88.4
Disabled	37.9	52.1
Married	15.4	18.7
Widowed	65.6	75.9
Divorced	19.5	19.8
Separated	12.5	12.3
Never married	5.3	5.4
	Average annual benefit amounts (in dollars)	
Among all adult beneficiaries		
75th percentile	13,148	14,726
50th percentile	9,467	10,834
25th percentile	6,392	7,167
Percentage of beneficiaries in poverty [a]	19.9	10.6
Among beneficiaries aged 65 or older		
75th percentile	13,464	14,992
50th percentile	10,078	11,360
25th percentile	6,831	7,503
Percentage of beneficiaries in poverty [a]	15.2	8.4

SOURCE: Authors' calculations using 2005–2009 PUMS. The disabled category uses the 2009 PUMS.

a. Poverty statistics omit institutionalized individuals and those living in group quarters such as military bases and college dormitories.

populations. For all marital status groups, the share of the AIAN population reporting SSI receipt roughly doubles that of the overall population.

Among recipients, the median annual income from SSI is $6,996 for the AIAN population, slightly below the $7,196 median for the total SSI population. Similarly small differences exist at the 75th percentile and 25th percentiles. The variation in SSI payments is smaller than that for Social Security benefits, consistent with the fact that only the latter are earnings-based. The small difference in SSI payments between the AIAN and total populations may be explained in part by a variety of factors that can affect SSI payment amounts, including other resources, marital status, and varying state supplements.[20] However, a complete analysis of those factors is outside the scope of this article.

Almost 48 percent of the AIAN SSI recipient population has income below the poverty threshold, compared with 39.9 percent of the total SSI recipient population. High poverty rates for both groups are consistent with a program targeted towards those with "little or no income" (SSA 2012c).

Similar results appear for SSI recipients aged 65 and older. AIANs receive lower payment amounts at the 25th, 50th, and 75th percentiles and are more likely to be in poverty than the total population of SSI recipients. Notably, the discrepancies are larger among the aged than among adult SSI recipients overall.

Conclusion

The 2005–2009 PUMS allows in-depth research into the socioeconomic characteristics of the AIAN population and shows how these characteristics relate to their receipt of OASDI and SSI benefits. Addressing these topics is critical to improving our understanding of a traditionally understudied population, particularly in the context of social insurance programs designed to help mitigate economic vulnerability.

The AIAN population is younger, more likely to be unmarried, less educated, less wealthy, in poorer health, and more likely to live in a geographically isolated location than the US population as a whole. All of these characteristics can in some way influence OASDI and SSI benefit receipt. Our findings indicate that the adult AIAN population is less likely to receive

Table 3.
SSI receipt among the AIAN and total populations aged 18 or older, 2005–2009

Characteristic	AIAN population	Total population (including AIAN)
	Percentage who receive payments	
Overall	4.7	2.4
Aged 65 or older	8.6	4.2
Disabled	18.8	13.9
Married	2.4	1.1
Widowed	10.9	5.6
Divorced	8.2	4.4
Separated	8.1	5.7
Never married	4.6	3.0
	Average annual payment amounts (in dollars)	
Among all adult recipients		
75th percentile	8,096	8,596
50th percentile	6,996	7,196
25th percentile	4,102	4,261
Percentage of recipients in poverty [a]	47.7	39.9
Among recipients aged 65 or older		
75th percentile	7,573	8,536
50th percentile	4,970	5,835
25th percentile	2,898	3,583
Percentage of recipients in poverty [a]	40.6	30.4

SOURCE: Authors' calculations using 2005–2009 PUMS. The disabled category uses the 2009 PUMS.

a. Poverty statistics omit institutionalized individuals and those living in group quarters such as military bases and college dormitories.

OASDI benefits than the total population and more likely to receive SSI. Median Social Security and SSI benefit amounts among AIANs who receive income from the programs are lower than for beneficiaries in the overall population.

Understanding how AIANs interact with Social Security is a pertinent research question in an applied policy context. SSA has recently introduced a website designed specifically for AIANs, created a fact sheet explaining the importance of the agency's administered benefits to these communities, and launched new field efforts to reach underserved AIAN clients through reservation visits and video claiming (SSA 2012a). Research on the relationship between AIANs and the benefits that the SSA provides and administers can help inform these efforts.

Future research should continue to explore the AIAN population in more depth and disaggregate the overall group to answer more specific research questions in the context of Social Security and other policy areas. Furthermore, it would be useful to explore Social Security administrative data to gauge the accuracy of OASDI and SSI benefit reporting among the AIAN population.[21] Analysis of relative reliance on OASDI and SSI income would also be worthwhile. Such additions to the literature would broaden our understanding of the determinants and consequences of OASDI and SSI benefit receipt among vulnerable groups.

Notes

[1] Although SSI payments are funded by general tax revenues rather than by Social Security taxes, we include the program in our analysis because it is administered by the Social Security Administration (SSA).

[2] Additionally, each tribe has its own unique, intricate relationship with the federal government, and the remote locations of many reservations often stress these relationships and minimize communication between tribal and federal officials.

[3] For descriptions of OASDI retirement, survivor, and disability benefits, see http://www.socialsecurity.gov/pgm/retirement.htm, http://www.socialsecurity.gov/pgm/survivors.htm, and http://www.socialsecurity.gov/pgm/disability.htm, respectively. For a description of the SSI program, see http://www.socialsecurity.gov/pgm/ssi.htm.

[4] This analysis does not focus on Native Hawaiians, who are represented by a separate variable in PUMS, but it does include a small number of self-identified AIANs who listed Native Hawaiian as one of their other races.

[5] Federally recognized tribal governments generally must withhold Social Security taxes for employees, with an exception for work performed by tribal council members (IRS 2011).

[6] Although we use a single AIAN identifier, readers should be aware that the AIAN population is heterogeneous. AIANs have diverse histories and socioeconomic characteristics and represent a range of independent, self-governing nations.

[7] For an overview of Social Security's benefits for children see http://www.socialsecurity.gov/pubs/10085.html.

[8] The 2009 ACS subject definition list describes Social Security income as including "Social Security pensions and survivor benefits, permanent disability insurance payments made by the Social Security Administration prior to deductions for medical insurance, and railroad retirement insurance checks from the U.S. government. Medicare reimbursements are not included" (Census Bureau 2009, 78).

[9] American Indian life expectancy varies by regional area, as do chronic disease rates among the elderly AIAN population (McDonald, Ludtke, and Allery 2002). Differences in chronic disease prevalence among AIAN elderly population are related to rural geography, sex, age, health care access, and health behaviors (Moulton and others 2005).

[10] The reciprocal correlation, marriage's protective effect, is interesting in that it may influence some of the socioeconomic disparities discussed later in this article.

[11] The authors also find that issues such as alcohol abuse, cigarette use, marijuana use, and physical fights at schools, all of which may disrupt education, are more common among American Indians than whites.

[12] The ACS variables used in this analysis are WAGP (wages or salary income in the past 12 months), and POVPIP (person poverty status recode), respectively (Census Bureau 2011b).

[13] Poverty in this analysis comes from the PUMS variable POVPIP. Those who are institutionalized or living in group quarters such as military bases and college dormitories have missing values for this variable and are excluded from the analysis (Census Bureau 2011b).

[14] Burkhauser and others (2012) find that the ACS will underestimate the Social Security Disability Insurance population and the disabled SSI population because its questions do not address limitations on work activity.

[15] The SSA has introduced video service delivery options for individuals living in remote locations, such as some reservations. To help those without individual access to the internet, the SSA is working to allow centralized video claiming services at hospitals or other reservation facilities.

[16] For a basic description of how an individual qualifies for Social Security retirement and disability benefits see http://www.socialsecurity.gov/pubs/10035.html and http://www.socialsecurity.gov/pubs/10029.html, respectively.

[17] To reiterate, the PUMS disability variable does not represent Social Security's disability definition.

[18] The differences between the AIAN and total populations in the shares of divorced, separated, and never-married individuals receiving Social Security benefits are not statistically significant.

[19] For a description of how Social Security retirement benefits are calculated, see http://www.socialsecurity.gov/pubs/10070.html.

[20] Additionally, for SSI payments, AIANs are exempted from many income and resource eligibility requirements related to the various types of disbursements (such as cash, stock, partnership interests, land, interest, individual Indian trust or lease income, and others) received as members of AIAN tribes or groups. Over 569 federally recognized tribes in the United States, along with numerous nonfederally recognized tribes, have to be considered in the SSI application process, adding to its administrative complexity (SSA 2012b).

[21] Previous research has shown that self-reported income from Social Security benefits often does not match Social Security administrative earnings records. Analyzing self-reported Social Security income for respondents in the 1990 Survey of Income and Program Participation, Olson (2002) finds that among beneficiaries aged 18–64, only 42 percent reported values consistent with SSA records. Among those aged 65 or older, the figure was 25 percent, with respondents being more likely to understate their income from Social Security. Unless there is a systemic bias in reporting Social Security income among the AIAN population that is absent in the total population, the relative comparisons in this article should hold. However, future work should address that topic in more depth.

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Factors Affecting Initial Disability Allowance Rates for the Disability Insurance and Supplemental Security Income Programs: The Role of the Demographic and Diagnostic Composition of Applicants and Local Labor Market Conditions

by Kalman Rupp*

Various factors outside the control of decision makers may affect the rate at which disability applications are allowed or denied during the initial step of eligibility determination in the Social Security Disability Insurance (DI) and Supplemental Security Income (SSI) programs. In this article, using individual-level data on applications, I estimate the role of three important factors—the demographic characteristics of applicants, the diagnostic mix of applicants, and the local unemployment rate—in affecting the probability of an initial allowance and state allowance rates. I use a random sample of initial determinations from 1993 through 2008 and a fixed-effects multiple regression framework. The empirical results show that the demographic and diagnostic characteristics of applicants and the local unemployment rate substantially affect the initial allowance rate. An increase in the local unemployment rate tends to be associated with a decrease in the initial allowance rate. This negative relationship holds for adult DI and SSI applicants and for SSI childhood applicants.

Introduction

The probability of an initial disability allowance among Disability Insurance (DI) and Supplemental Security Income (SSI) applicants is affected by numerous factors at individual, state, and national levels. That includes demographic and diagnostic characteristics of applicants (age, sex, and type of impairment), national policies, local factors such as the state unemployment rate, and the implementation of disability determination policies by state Disability Determination Services (DDSs). In this article, I focus on the role of key factors that are outside of the direct control of DDS management in affecting initial allowances. I also discuss implications for the understanding of variations in state initial allowance rates.[1]

Three of the most important factors believed to affect the probability of an initial allowance are (1) demographic characteristics of applicants, (2) the diagnostic mix of applicants, and (3) local labor market conditions. Existing descriptive statistical tabulations of initial determination results summarize the association of those variables and the initial allowance rate, but are not designed to isolate the independent effect of those factors. More is known

Selected Abbreviations

DDS	Disability Determination Service
DI	Disability Insurance
GLS	generalized least squares
OLS	ordinary least squares
SSA	Social Security Administration
SSI	Supplemental Security Income

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about the causal effect of labor market shocks on the allowance rate. Consistent with previous studies (discussed in the next section), I use fixed-effects multiple regression analysis. The fixed-effects model controls for state- and/or year-specific effects. This nonexperimental methodology allows the estimation of the relationship between the dependent variable (initial allowance rate) and the independent variables of interest net of long-term differences among states and changes in national policies affecting each state. Because of the use of individual-level data on applicants, I can look at the relationship between my indicator of local labor market conditions—the unemployment rate—and the initial allowance rate, considering a level of detail on applicant characteristics (for example, age and diagnostic category) that has not been feasible in previous work that was based exclusively on state-level data. Because in this study (as in all related analyses) the nature of the evidence is nonexperimental, caution is warranted in causal interpretation.

There are a number of reasons for expecting a relationship between labor market conditions, disability applications, and the initial allowance rate. Adverse labor market conditions are expected to bring in marginally qualifying or marginally interested applicants or affect the timing of application following disability onset. Adverse labor market conditions may result in job loss or decreased access to full-time, part-time, or irregular job or work opportunities.[2] Those changes typically hit people with disabilities the hardest. Thus, people in the process of disablement may apply for disability benefits earlier than they otherwise would. Others may believe that they are only marginally qualified, but the opportunity cost of applying for disability benefits decreases sufficiently for application to appear worthwhile. A related, but distinct factor is that reduced employment and earnings increase the chances for an adult applicant to pass the substantial gainful activity (SGA) screen. These factors are relevant in the DI and SSI adult program context. The loss of income and reduced work opportunities also increase the chances that the individual would meet the SSI income screen. That factor affects adult SSI and concurrent applicants. Concurrent applicants meet the eligibility criteria of both DI and SSI, and thus are potentially eligible to receive both types of benefits. Job loss, poor labor market conditions, and the increased chance of meeting the SSI means test because of parental income loss may also affect adults with disabled children by increasing the relative attractiveness of applying for disability benefits on behalf of their child. An increase in the proportion of marginally qualified applicants is outside of the control of the DDS and should be expected to result in a reduced average probability of allowance. A negative relationship between changes in the unemployment rate and the probability of an initial allowance suggests that the Social Security Administration (SSA) is successful in screening out some marginally qualified applicants. The present study has been designed to address the overall relationship between the unemployment rate and the initial allowance rate. In this study, I do not test specific mechanisms underlying that relationship, although that is a worthwhile topic for more research in the future.

This study focuses on the initial disability determination outcome (initial allowance or initial denial).[3] Thus, when I speak of "applicants" in the context of this analysis, I am referring to people subject to the initial determination decision.[4] I refer to Title II of the Social Security Act as "DI" and Title XVI as "SSI." People applying for or receiving both DI and SSI benefits are referred as "concurrents" throughout this article. Adults who apply for benefits are classified as "DI-only," "SSI-only," or "concurrent" applicants.

The rest of the article is structured as follows: I review related literature in the next section and then address the data and methodology. I then present the empirical results and finally conclude.

Previous Literature

A paucity of research addresses factors affecting disability allowance rates. However, a larger body of previous research looks at factors affecting applications and awards. The broader literature is relevant for my topic for several reasons. First, key hypotheses about the effects of labor market conditions on initial allowance rates are predicated on the presumption of a positive relationship between adverse labor market conditions and disability applications. Second, separate estimates of the effects of labor market conditions on applications and on initial allowances is informative with respect to possible effects of labor market conditions on initial allowance rates. For example, if an estimated positive relationship exists between changes in the state unemployment rate and changes in the volume of disability applications, and a similar

but smaller effect with respect to the volume of initial allowances, such a finding would suggest a negative relationship between high unemployment and the initial allowance rate. Finally, the methodological issues are similar with respect to estimating the effect of various factors on applications, allowances, and allowance rates.

Rupp and Stapleton (1995) summarized studies on the relationship between the unemployment rate, applications, awards, and caseload growth between 1974 and 1995, using primarily aggregate time-series methods and, in a few instances, cross-sectional approaches based on individual-level data. In addition, they presented new results based on state-level, fixed-effects modeling. Their fixed-effects analysis also provided much more detail and programmatic specifics than did previous studies. Specifically, while previous studies were limited to DI applications and awards, the authors also estimated models of initial determinations and the initial allowance rate separately for DI-only, SSI-only, and concurrent applicants. The fixed-effects results generally have shown a positive relationship between the state unemployment rate and *both* DI and SSI applications and awards. The estimates for initial allowance rates have shown zero effect in the year of change, but significant negative effects with lags of 1 year and 2 years for all three program groups. A lagged effect arises if changes in the unemployment rate resulted in increased applications in subsequent years. The authors estimated that a 1 percentage point increase in the unemployment rate was associated with no change in the initial allowance rate for DI-only applicants in the given year of the unemployment rate change, but it resulted in a 1 percentage point decrease in the initial allowance rate during the following year as well as during the second year after the unemployment rate change. Stapleton, Dietrich, and Lo (1995) and Stapleton and others (1998) provided detail on the data and methodology that was used to estimate the results reported previously by Rupp and Stapleton (1995).

Using individual-level data on a sample of men from the 1978 Survey of Disability and Work and a structural model of applications, awards, and state-contingent lifetime income flows, Kreider (1999) estimated, as expected, that the unemployment rate has had a positive effect on DI applications. Black, Daniel, and Sanders (2002) used county-level data; a natural experiment framework; and first differences with state, county, and year fixed effects to estimate the effect of labor market shocks to the local economy on program participation. The authors found a negative relationship between labor market participation and disability program participation both for DI and SSI.[5] Their results suggested that the relationship between economic conditions and disability program participation is much stronger for permanent than for transitory economic shocks. Transitory shocks reflect short-term (for example, year-to-year) changes—such as typical business cycle effects—while permanent shocks are associated with lasting change, such as the disappearance of a major source of jobs in the local economy or the coal boom and bust studied by the authors. Burkhauser, Butler, and Weathers (2001/2002) used Health and Retirement Study data and a hazard model framework to analyze the effect of various factors on the timing of DI applications. They used the unemployment rate to capture the effects of labor market conditions on a worker's decision to apply for DI. Their results showed that a higher state unemployment rate substantially increases the risk of DI application following the onset of disability for both men and women and reduces the time from disability onset to application.

Strand (2002) used state-level data to assess variation in allowance rates for the 1997–1999 period. He used ordinary least squares (OLS) regression, which pooled the 3 years of data, with the allowance rate (and in some models, the filing rate) as the dependent variable, a number of state-level predictors, and year dummies. The models explained a substantial portion of state-to-state variation, and when adjusting for the independent variables, the variation in allowance rates among states was cut in half. The author also found that states with the highest and lowest allowance rates for DI and SSI tended to retain that status over time and that there was a negative association between filing rates and allowance rates. The unemployment rate coefficients were negative, as expected, and statistically significant.

Autor and Duggan (2003) used state-level difference equations to look at the effect of labor market conditions on DI applications. They found that state employment contractions were associated with increased DI applications. Their results were generally robust to fixed effects and other alternative specifications. Duggan and Imberman (2008) estimated annual time-series regressions of DI applications, awards, and recipients at the national level using more recent data

(1984–2003) than previous studies. They produced results comparable with previous estimates reported by Rupp and Stapleton (1995); Black, Daniel, and Sanders (2002); and Autor and Duggan (2003). Duggan and Imberman's results showed that adverse labor market conditions have had significant effects on DI entry in the expected direction.

Soss and Keiser (2006) used a pooled cross-section analysis of both DI and SSI applications in a "seemingly unrelated regressions" framework. Their state-level models explained well over half of the variation in DI application rates and even more of the variation in SSI application rates. They found that increases in the state unemployment rate were associated with increases in both DI and SSI applications. Guo and Burton (2008, 2012) focused on state-level models of DI application rates with and without fixed effects and found that both specifications resulted in a substantial positive relationship between the unemployment rate and DI application rates. Using state-level data for the 1993–2009 period, Coe and others (2011) investigated the extent to which state-level variation in DI application rates reflected differences in health, demographic and employment characteristics of the population, policies, and politics. The authors presented estimates with and without state fixed effects. The models not including state fixed effects explained 70–80 percent of the state-level variation in application rates depending on specification and program group, whereas the models with fixed effects explained 85–93 percent of the variation. All three fixed-effects models estimated a positive unemployment rate coefficient, but only two of them (overall DI and DI/SSI concurrent) were statistically significant.

Thus, recent studies generally found a positive relationship between labor market shocks and disability applications. They used a variety of methodologies and their point estimates varied and were not always directly comparable, but the qualitative conclusion of a positive association was consistent across studies. Only two studies (Rupp and Stapleton (1995) and Strand (2002)) provided direct estimates of the relationship between the unemployment rate and disability allowance rates.[6] Both considered a number of state-level variables and provided evidence consistent with the hypothesis of a negative link.

Data and Methodology

In this study, I build on previous work that used fixed-effects modeling to assess factors affecting disability applications, allowances, and the allowance rate. My initial disability determination model is as follows:

$$Y_{ist} = \alpha + \beta X_{ist} + \gamma UE_{st} + \delta_s + \zeta_t + \varepsilon_{ist},$$

where

Y_{ist} = initial decision for individual *i*, in state *s* in year *t* (ist) − Y_{ist} = 1 if initial decision is an allowance, Y_{ist} = 0 if initial decision is a denial;

X_{ist} = vector of characteristics for individual (ist) subject to the initial determination;

UE_{st} = the state unemployment rate for state (s) at year (t);

α = estimated intercept;

β = vector of estimated coefficients for individual characteristics;

γ = estimated coefficient for the unemployment rate;

δ_s= estimated fixed effect for state (s);

ζ_t = estimated fixed effect for year (t); and

ε_{ist} = a random error term.

In the individual-level models, I use a logit specification with the result of the initial disability determination (1 = allowance, 0 = denial) as the dependent variable. All models include state and time fixed effects. Additional independent variables include the natural logarithm of the state unemployment rate and individual indicators for sex (female = 1); age group (dummies for the following age groups for adults: 18–24, 25–29, 30–34, 35–39, 40–44, 45–49, 50–54, 55–59, 60–64, with 50–54 chosen as the reference group and dummies for the following age groups for children: 0–5, 6–12, 13–17, with 0–5 chosen as the reference group); primary diagnosis (15 dummies, with musculoskeletal chosen as the reference group[7]); and the presence of a secondary diagnosis indicator[8] (yes = 1). While this study improves on previous work partly by including those individual-level variables that provide substantial controls for factors affecting allowance rates, there are unobserved aspects of case severity that are not explicitly accounted for in the econometric model. Program group is a stratifying variable (DI-only adult, SSI-only adult, concurrent adult, SSI child). All of the states and the District of Columbia are included as "states"; Puerto Rico and the US territories are excluded from the sample frame.

I also conduct additional analyses using state-level data to address issues related to the possibility of aggregation bias that may have affected previous studies, to assess the predictive properties of my models, and to address issues related to variation in allowance rates across space and time. Most of my state-level models use OLS as did related work by Strand (2002). In addition, I explore issues related to possible lagged effects using generalized least squares (GLS) to correct for autocorrelation.[9]

There are several innovative features of the present study. This is the first study that controls for the demographic and diagnostic mix of individual applicants—two sets of variables known to be strongly related to the probability of an initial allowance. Their inclusion allows me to analyze the role of the unemployment rate controlling for and conditional on the characteristics of applicants. The data cover a longer and more recent period than did previous studies. Finally, previous studies did not separately estimate models for SSI childhood allowance rates, while this study does.

The study universe consists of 1,736,554 records, a 5 percent random sample of initial determinations for the 1993–2008 period. The sample frame includes DI-only adults, SSI-only adults, concurrent adults, and SSI childhood initial determinations. The sample frame excludes DI-only and concurrent childhood initial determinations (consisting of 1,698 observations, or about 0.1 percent of the source 5 percent sample). The data source is the so-called "831 file"[10] from SSA's National Disability Determination Services System File, which contains data on DDS initial determinations. As previously noted, technical denials made by SSA prior to sending application records to the DDS are not included in the sample frame. The state unemployment rate for the given year, obtained from Current Population Survey data, was added to each initial determination record. Table 1 describes the characteristics of the applicant sample by SSA program group.

Results

This section is organized around two topics: (1) estimated effects of demographic characteristics, diagnostic factors, and the unemployment rate on the initial allowance rate; and (2) differences in allowance rates among the states.

Estimated Effects of Demographic and Diagnostic Factors and the Unemployment Rate on the Initial Allowance Rate

Table 2 shows the estimated effect of demographic characteristics, diagnostic factors, and the state unemployment rate on the probability of an initial allowance from fixed-effects logit regressions. The models in this table include state and year fixed effects, as well as the following time-varying factors: demographic characteristics, primary diagnosis, the presence of a secondary diagnosis, and the state unemployment rate. The results show that both sex and age are associated with the probability of an initial allowance. Women have a lower probability of an allowance for all program groups. The positive relationship between age and the probability of an initial allowance is strong and remarkably similar across the three adult program groups.[11] Children aged 0–5 are more likely to be allowed than those aged 6–17.

There is substantial variation in the estimated marginal effect of primary diagnosis (Chart 1). Looking at DI-only adults, I observe that (net of the effect of other independent variables) having a musculoskeletal impairment (the reference category) is associated with a predicted probability of initial allowance that is the lowest of all primary impairment categories (except "unknown"). In contrast, having an intellectual disability, a disease of the genitourinary system, or neoplasms as a primary impairment substantially increases the probability of an initial allowance. The overall patterns are quite similar for SSI-only adults and concurrent adults. Remarkably, with a few exceptions, the patterns of estimated primary diagnosis effects are similar for SSI children. Having a secondary diagnosis has a relatively small estimated negative effect on the three adult program groups, while the coefficient for SSI childhood initial allowances is positive and significant.

Controlling for demographic and diagnostic characteristics of applicants, Table 2 also shows that an increase in the unemployment rate is associated with a decrease in the probability of an allowance for all four program groups. Table 3 explores that relationship further by comparing estimates of the unemployment rate coefficient from three different model specifications, by SSA program group. We start with a model that includes state and year fixed effects and the unemployment rate and then add demographic and diagnosis predictors in a sequential fashion to investigate the sensitivity of the unemployment rate coefficient.

Table 1.
Mean and standard error of study variables, by SSA program group

Variable	Adult program group						SSI child	
	DI-only		SSI-only		Concurrent			
	Mean	Standard error	Mean	Standard error	Mean	Standard error	Mean	Standard error
Number of observations	484,591		426,141		520,538		305,284	
Sex								
Proportion female	0.480	0.001	0.550	0.001	0.462	0.001	0.373	0.001
Age group (distribution)								
0–5	. . .	. . .	. . .	. . .	. . .	. . .	0.376	0.001
6–12	. . .	. . .	. . .	. . .	. . .	. . .	0.434	0.001
13–17	. . .	. . .	. . .	. . .	. . .	. . .	0.190	0.001
18–24	0.013	0.000	0.177	0.001	0.087	0.000	. . .	. . .
25–29	0.026	0.000	0.078	0.000	0.090	0.000	. . .	. . .
30–34	0.046	0.000	0.097	0.000	0.104	0.000	. . .	. . .
35–39	0.074	0.000	0.119	0.000	0.127	0.000	. . .	. . .
40–44	0.107	0.000	0.133	0.001	0.143	0.000	. . .	. . .
45–49	0.140	0.000	0.132	0.001	0.145	0.000	. . .	. . .
50–54	0.182	0.001	0.113	0.000	0.138	0.000	. . .	. . .
55–59	0.217	0.001	0.087	0.000	0.113	0.000	. . .	. . .
60–64	0.196	0.001	0.064	0.000	0.054	0.000	. . .	. . .
SSA primary diagnosis (distribution)								
Infectious and parasitic	0.011	0.000	0.028	0.000	0.024	0.000	0.002	0.000
Neoplasms	0.095	0.000	0.027	0.000	0.045	0.000	0.009	0.000
Endocrine	0.040	0.000	0.052	0.000	0.052	0.000	0.013	0.000
Blood	0.003	0.000	0.004	0.000	0.003	0.000	0.011	0.000
Mental [a]	0.135	0.000	0.284	0.001	0.237	0.001	0.453	0.001
Intellectual disability [b]	0.007	0.000	0.056	0.000	0.020	0.000	0.110	0.001
Musculoskeletal	0.320	0.001	0.169	0.001	0.232	0.001	0.014	0.000
Nervous	0.079	0.000	0.069	0.000	0.067	0.000	0.072	0.000
Circulatory	0.112	0.000	0.076	0.000	0.091	0.000	0.008	0.000
Respiratory	0.039	0.000	0.040	0.000	0.037	0.000	0.101	0.001
Digestive	0.021	0.000	0.023	0.000	0.026	0.000	0.007	0.000
Genitourinary	0.015	0.000	0.011	0.000	0.013	0.000	0.005	0.000
Skin	0.002	0.000	0.003	0.000	0.003	0.000	0.003	0.000
Congenital	0.001	0.000	0.003	0.000	0.001	0.000	0.029	0.000
Other primary	0.002	0.000	0.001	0.000	0.002	0.000	0.069	0.000
Unknown	0.059	0.000	0.098	0.000	0.077	0.000	0.084	0.001
Missing	0.057	0.000	0.057	0.000	0.069	0.000	0.009	0.000
SSA secondary impairment								
Proportion yes	0.528	0.001	0.511	0.001	0.543	0.001	0.381	0.001
Unemployment rate	5.296	0.002	5.481	0.002	5.337	0.002	5.366	0.002
Allowance rate	0.437	0.001	0.314	0.001	0.287	0.001	0.396	0.001

SOURCES: Data are based on 1,736,554 initial disability determinations in the 50 states and the District of Columbia for the 1993–2008 period, taken from SSA's National Disability Determination Services System File. State unemployment rate data are taken from the Current Population Survey.

NOTES: Study universe is a 5 percent random sample of all initial determinations in the United States during the period under study. Technical denials made by SSA prior to sending the application records to the DDSs (reflecting decisions concerning ineligibility of the applicant based on nondisability criteria) are not included in the sample frame. The state unemployment rate for the applicable year was added to each initial determination record.

. . . = not applicable.

a. Not including intellectual disability.

b. Intellectual disability was formerly known as mental retardation.

Table 2.
Estimated effect of demographic and diagnostic variables and the state unemployment rate on the probability of initial allowance, by SSA program group: Logit regression coefficients from fixed-effects logit regression models

Parameter	Adult program group			SSI child
	DI-only	SSI-only	Concurrent	
Intercept	0.385***	-0.163***	-0.034	0.032
Sex				
Female	-0.292***	-0.125***	-0.177***	-0.175***
Male (reference group)	. . .	. . .	. . .	. . .
Age group				
0–5 (reference group)	. . .	. . .	. . .	. . .
6–12	. . .	. . .	. . .	-0.962***
13–17	. . .	. . .	. . .	-0.832***
18–24	-0.258***	-0.513***	-0.823***	. . .
25–29	-0.617***	-0.915***	-0.825***	. . .
30–34	-0.628***	-0.828***	-0.777***	. . .
35–39	-0.625***	-0.777***	-0.734***	. . .
40–44	-0.588***	-0.684***	-0.650***	. . .
45–49	-0.478***	-0.566***	-0.538***	. . .
50–54 (reference group)	. . .	. . .	. . .	. . .
55–59	0.722***	1.031***	0.808***	. . .
60–64	0.891***	1.253***	1.044***	. . .
SSA primary diagnosis				
Infectious and parasitic	1.905***	1.275***	2.030***	0.849***
Neoplasms	2.443***	2.228***	2.583***	3.250***
Endocrine	0.318***	0.361***	0.459***	-0.064
Blood	1.224***	0.865***	1.376***	0.538***
Mental [a]	1.300***	1.401***	1.476***	0.960***
Intellectual disability [b]	2.840***	2.837***	2.607***	2.900***
Musculoskeletal (reference group)	. . .	. . .	. . .	. . .
Nervous	1.116***	1.050***	1.045***	0.920***
Circulatory	0.705***	0.655***	0.946***	0.358***
Respiratory	1.158***	0.548***	1.060***	-1.079***
Digestive	0.546***	0.529***	0.811***	0.427***
Genitourinary	2.540***	2.282***	2.863***	0.223**
Skin	0.227***	0.026	0.401***	-0.615***
Congenital	0.963***	2.116***	0.917***	1.617***
Other primary	0.135*	1.371***	0.761***	2.305***
Unknown	-0.980***	-1.586***	-1.008***	-0.370***
Missing	0.133***	0.148***	0.163***	0.481***
SSA secondary impairment				
No (reference group)	. . .	. . .	. . .	. . .
Yes	-0.060***	-0.040***	-0.070***	0.363***
Unemployment rate	-0.148***	-0.133***	-0.164***	-0.094***

(Continued)

Table 2.
Estimated effect of demographic and diagnostic variables and the state unemployment rate on the probability of initial allowance, by SSA program group: Logit regression coefficients from fixed-effects logit regression models—*Continued*

Parameter	Adult program group			SSI child
	DI-only	SSI-only	Concurrent	
Number of observations	484,591	426,141	520,538	305,284
Likelihood ratio χ^2	[c] 115,382	[c] 91,089	[c] 99,789	[c] 80,713
Probability > χ^2	<.0001	<.0001	<.0001	<.0001
Max-rescaled R^2	0.284	0.270	0.250	0.314
- 2 log likelihood, intercept only	663,996	530,173	624,496	409,891
- 2 log likelihood, intercept and covariates	548,614	439,084	524,707	329,177

SOURCES: Data are based on 1,736,554 initial disability determinations in the 50 states and the District of Columbia for the 1993–2008 period, taken from SSA's National Disability Determination Services System File. State unemployment rate data are taken from the Current Population Survey.

NOTES: Study universe is a 5 percent random sample of all initial determinations in the United States during the period under study. Technical denials made by SSA prior to sending the application records to the DDSs (reflecting decisions concerning ineligibility of the applicant based on nondisability criteria) are not included in the sample frame. The state unemployment rate for the applicable year was added to each initial determination record. All models include state and year fixed effects; coefficients for those variables are not shown in the table.

* = statistically significant—different from zero at the 0.95 level of confidence;

** = statistically significant—different from zero at the 0.99 level of confidence;

*** = statistically significant—different from zero at the 0.999 level of confidence.

. . . = not applicable.

a. Not including intellectual disability.

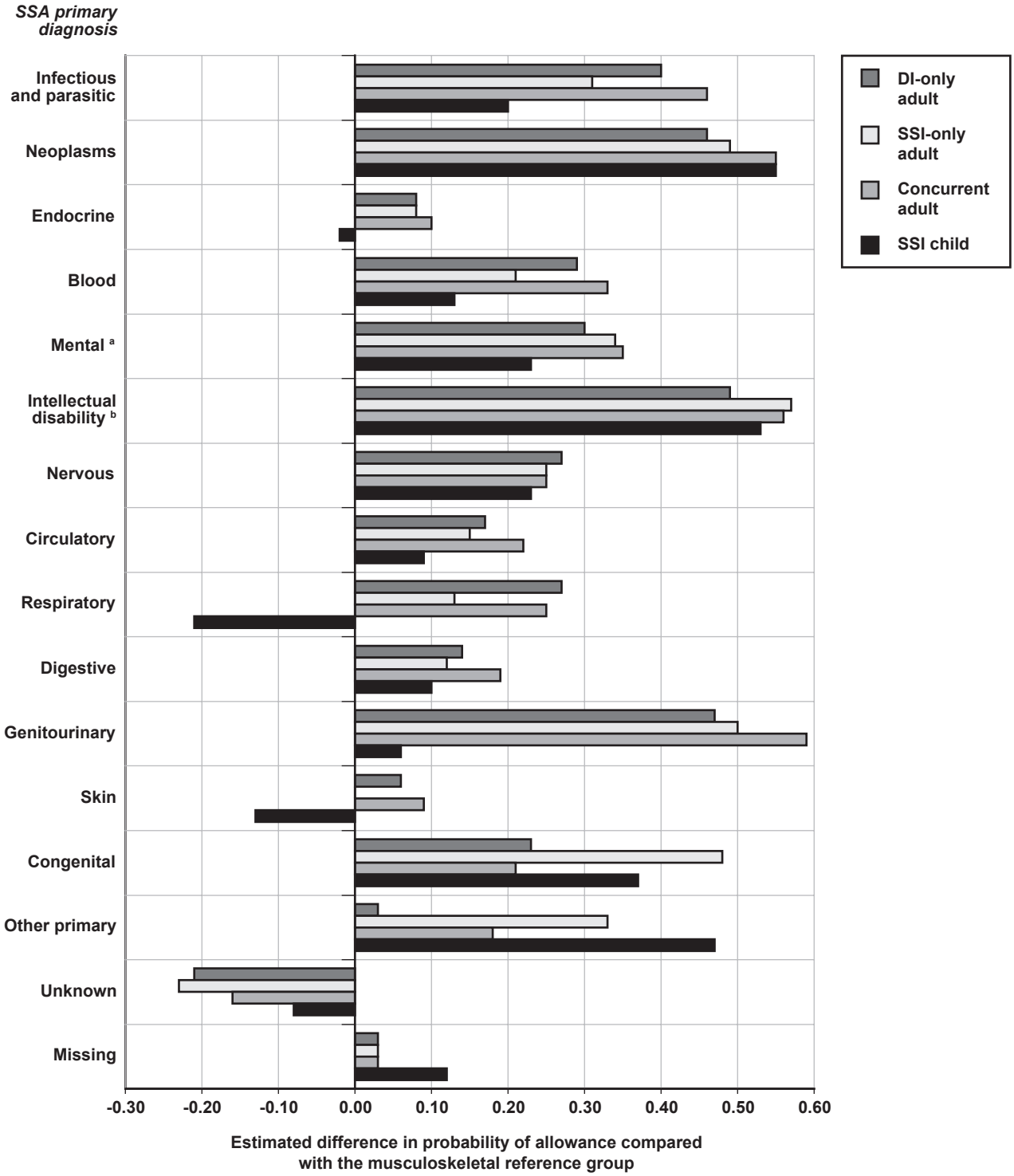
b. Intellectual disability was formerly known as mental retardation.

c. Likelihood ratio χ^2 degrees of freedom is 92 in the three adult models. It is 86 in the SSI child model.

Model 1 includes state and year fixed effects and the unemployment rate as independent variables. Model 2 adds demographic predictors, while model 3 adds primary diagnosis variables and an indicator for the presence or absence of a secondary impairment. The top panel of Table 3 provides the results for the DI-only group. All three estimated coefficients are negative and statistically significant. The results are remarkably robust to model specification. The patterns are similar for SSI-only and concurrent adults. Notably, the estimated relationships for SSI children are quite similar to the results for adults, albeit the point estimates tend to be somewhat lower. The statistically significant negative relationship for children is remarkable because, unlike for adults, the reference person with a disability (the child) is not directly affected by the unemployment rate, and the person who may be affected by it (the adult parent) is not necessarily disabled. Thus, some of the explanations related to the effect of changes in the local unemployment rate on the employment status of the disabled applicant are not relevant in the same way as they may be for adults with disabilities. Plausible explanations involve the effect of job loss of adults on the financial eligibility of the child and the effect of adverse labor market conditions on the opportunity costs of disability application on behalf of the child. Chart 2 presents the corresponding estimates of marginal effects of the unemployment rate evaluated at the mean for each of the four SSA program groups.

Given the wide variation in the marginal association between allowance outcomes and diagnostic categories (as shown in Table 2) for all four program groups, a more detailed analysis of the relationship between diagnosis and labor market shocks is warranted. Specifically, an important question is whether the unemployment rate effect is conditional on the diagnostic category of the applicant. Table 4 explores that possibility by presenting the estimated unemployment rate coefficients from separate logit models for each primary diagnosis group by SSA program group (68 regressions). Chart 3 shows only the estimated effects that are statistically significant—different from zero at least at the 0.95 level of confidence. All

Chart 1.
Estimated marginal difference (evaluated at the mean) between the probability of allowance for applicants with an SSA primary diagnosis, compared with the reference group of applicants with a musculoskeletal disease as the primary diagnosis



SOURCES: Data are based on 1,736,554 initial disability determinations in the 50 states and the District of Columbia for the 1993–2008 period, taken from SSA's National Disability Determination Services System File. State unemployment rate data are taken from the Current Population Survey.

a. Not including intellectual disability.

b. Intellectual disability was formerly known as mental retardation.

Table 3.
Estimated relationship between the state unemployment rate and the probability of initial allowance from fixed-effects logit regression models, by SSA program group

Model	Unemployment rate logit coefficient	N
	DI-only adult	
1	-0.123***	484,591
2	-0.131***	484,591
3	-0.148***	484,591
	SSI-only adult	
1	-0.126***	426,141
2	-0.142***	426,141
3	-0.133***	426,141
	Concurrent adult	
1	-0.146***	520,538
2	-0.152***	520,538
3	-0.164***	520,538
	SSI child	
1	-0.100***	305,284
2	-0.101***	305,284
3	-0.094***	305,284

SOURCES: Data are based on 1,736,554 initial disability determinations in the 50 states and the District of Columbia for the 1993–2008 period, taken from SSA's National Disability Determination Services System File. State unemployment rate data are taken from the Current Population Survey.

NOTES: Study universe is a 5 percent random sample of all initial determinations in the United States during the period under study. Technical denials made by SSA prior to sending the application records to the DDSs (reflecting decisions concerning ineligibility of the applicant based on nondisability criteria) are not included in the sample frame. The state unemployment rate for the applicable year was added to each initial determination record.

Predictors for models 1–3 are as follows:

Model 1—year, state, and unemployment rate.

Model 2—year, state, unemployment rate, and demographic characteristics of applicants.

Model 3—year, state, unemployment rate, and demographic and diagnostic characteristics of applicants.

* = statistically significant—different from zero at the 0.95 level of confidence;

** = statistically significant—different from zero at the 0.99 level of confidence;

*** = statistically significant—different from zero at the 0.999 level of confidence.

of the statistically significant coefficients are negative as expected.[12] There is some variation among the diagnostic categories, suggesting that the unemployment rate has different effects on the allowance rate for different types of impairments. In particular, the estimated negative effect of the unemployment rate is consistently large across adult program groups for mental and musculoskeletal disorders. Importantly, all of the statistically significant estimates for SSI children are also negative (as shown in Table 4), albeit only three coefficients are significant (intellectual disabilities, mental impairments, and endocrine disorders). Thus, the evidence is strong for a tendency of a negative association between allowance rates and unemployment rate effects conditional on diagnosis for both adults and children.

Generally, increases in the unemployment rate are associated with reductions in the probability of an initial allowance outcome—a finding that is fairly robust. This is consistent with the hypothesis that deteriorating labor market conditions have a positive effect on applications[13] through drawing in marginally qualified applicants and that SSA is successful in screening out many of those marginally qualified applicants in the initial determination phase.

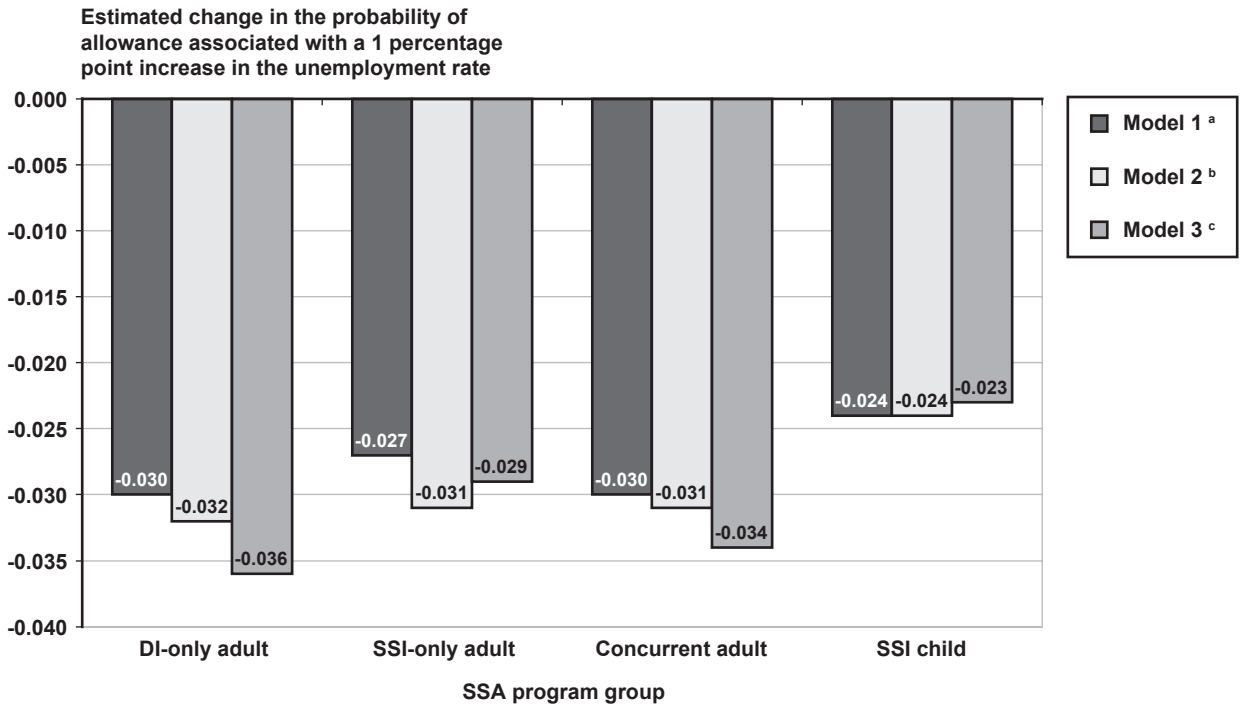
Because previous related studies used state-level data, it is worthwhile to compare results from this study with those of studies employing similar models; I use a data set aggregated to the state level. The state-level results are summarized in Table 5, where I use the same underlying data set that was used for the individual-level analysis to facilitate comparability with that analysis. Table 5 shows that the state-level estimates of the effect of the unemployment rate on allowance rates are robust to weighting and model specification. The dependent variable in all of the models is the initial allowance rate. Models 1–5 use independent variables that are directly comparable to the individual-level predictors. All of the estimated effects are statistically significant and negative; they vary in a relatively narrow range and are similar to the estimated marginal effects from the individual-level models.

An additional issue I address is the three-way relationship between the unemployment rate, volume of applications, and initial allowance rate. From previous research, we know that there is strong evidence of a positive relationship between the unemployment rate and the number of initial applications; as the

unemployment rate increases, more people apply for disability benefits. One question that comes to mind is whether the negative association between the unemployment rate and initial allowance rate is simply a reflection of that increased volume or whether the association continues to be negative and statistically significant after controlling for the volume of applications. A related question is whether increases in the volume of applications are associated with the initial allowance rate for reasons unrelated to increases in the unemployment rate. In order to answer these questions, both the unemployment rate and the volume of applications need to be included as independent variables in the regression model. Model 6 includes both variables, using the natural logarithm of the number of initial determinations in the state as the indicator of the volume of applications (see Table 5). Two sets of estimated coefficients (sets 1 and 2) are provided for model 6 to answer the two questions above. The first set shows the unemployment rate coefficient for the four program groups and the second set displays the initial determinations coefficients. The estimated unemployment rate effects are highly robust to the inclusion or exclusion of the initial determinations independent variable, suggesting that the relationship between the unemployment rate and initial allowance rates is not explained by the increased volume of applications associated with higher unemployment. Having said that, the volume of applications also has an independent effect. All four estimated coefficients are negative, suggestive of an independent negative relationship between changes in the number of initial determinations and changes in the initial allowance rate, although only two of these coefficients are statistically significant.

Finally, I conduct tests addressing the temporal dimension of the relationship between the unemployment rate and initial allowance rates. Recall that Rupp

Chart 2.
Estimated effect of a 1 percentage point increase in the state unemployment rate on the probability of allowance (evaluated at the mean), by SSA program group and model specification



SOURCES: Data are based on 1,736,554 initial disability determinations in the 50 states and the District of Columbia for the 1993–2008 period, taken from SSA's National Disability Determination Services System File. State unemployment rate data are taken from the Current Population Survey.

a. Includes state and year fixed effects and the state unemployment rate.

b. Adds demographic characteristic predictors.

c. Adds primary diagnosis indicators and a variable indicating the presence of a secondary diagnosis.

and Stapleton (1995) reported statistically significant negative lagged effects from state-level models, but no significant relationship between the unemployment rate and initial allowance rates for the same year. In contrast, both my individual- and state-level analyses show statistically significant negative relationships for the same year. Consequently, I conduct further analysis of my state-level data to shed light on the source of those differences. Similar to Rupp and Stapleton (1995), I use models that correct for autocorrelation and include lagged values of the unemployment rate predictor.

In Table 6, correcting for autocorrelation using generalized least squares (GLS) without including lagged values of the unemployment rate predictor does not affect the sign and statistical significance of the adult current-year unemployment rate coefficients, but produces coefficients that are smaller in absolute value. For childhood models using the current-year unemployment rate predictor, the GLS estimate is not statistically significantly different from zero in two of the models, but is statistically significant and positive in the model that controls for both demographic and diagnostic factors.

Next, I look at the effect of including lagged values of the unemployment rate predictor. In most cases, the inclusion of lagged values did not change the sign of the current-year (period t) coefficient, but tended

Table 4.
Estimated relationship between the state unemployment rate and the probability of initial allowance: Unemployment rate logit coefficients from separate fixed-effects logit regression models, disaggregated by SSA primary diagnosis and program group

	Adult program group			
SSA primary diagnosis [a]	DI-only	SSI-only	Concurrent	SSI child
Infectious and parasitic	-0.080	-0.071	-0.063	-0.136
Neoplasms	-0.082***	-0.020	-0.040	-0.050
Endocrine	-0.145***	-0.204***	-0.239***	-0.158*
Blood	-0.032	0.040	-0.120	0.013
Mental [b]	-0.191***	-0.178***	-0.209***	-0.127***
Intellectual disability [c]	-0.239**	-0.089***	-0.165***	-0.189***
Musculoskeletal	-0.195***	-0.204***	-0.189***	-0.012
Nervous	-0.105***	-0.086***	-0.126***	-0.039
Circulatory	-0.121***	-0.188***	-0.148***	0.080
Respiratory	-0.083**	-0.073*	-0.148***	-0.059
Digestive	-0.093*	-0.087*	-0.184***	0.035
Genitourinary	-0.129*	-0.019	-0.048	0.027
Skin	0.069	-0.102	0.038	-0.256
Congenital	-0.230	-0.056	-0.055	-0.002
Other	-0.127	0.061	-0.376*	-0.047
Unknown	-0.114***	-0.006	-0.045	0.045
Missing	-0.152***	-0.089**	-0.163***	-0.088

SOURCES: Data are based on 1,736,554 initial disability determinations in the 50 states and the District of Columbia for the 1993–2008 period, taken from SSA's National Disability Determination Services System File. State unemployment rate data are taken from the Current Population Survey.

NOTES: Study universe is a 5 percent random sample of all initial determinations in the United States during the period under study. Technical denials made by SSA prior to sending the application records to the DDSs (reflecting decisions concerning ineligibility of the applicant based on nondisability criteria) are not included in the sample frame. The state unemployment rate for the applicable year was added to each initial determination record.

* = statistically significant—different from zero at the 0.95 level of confidence;

** = statistically significant—different from zero at the 0.99 level of confidence;

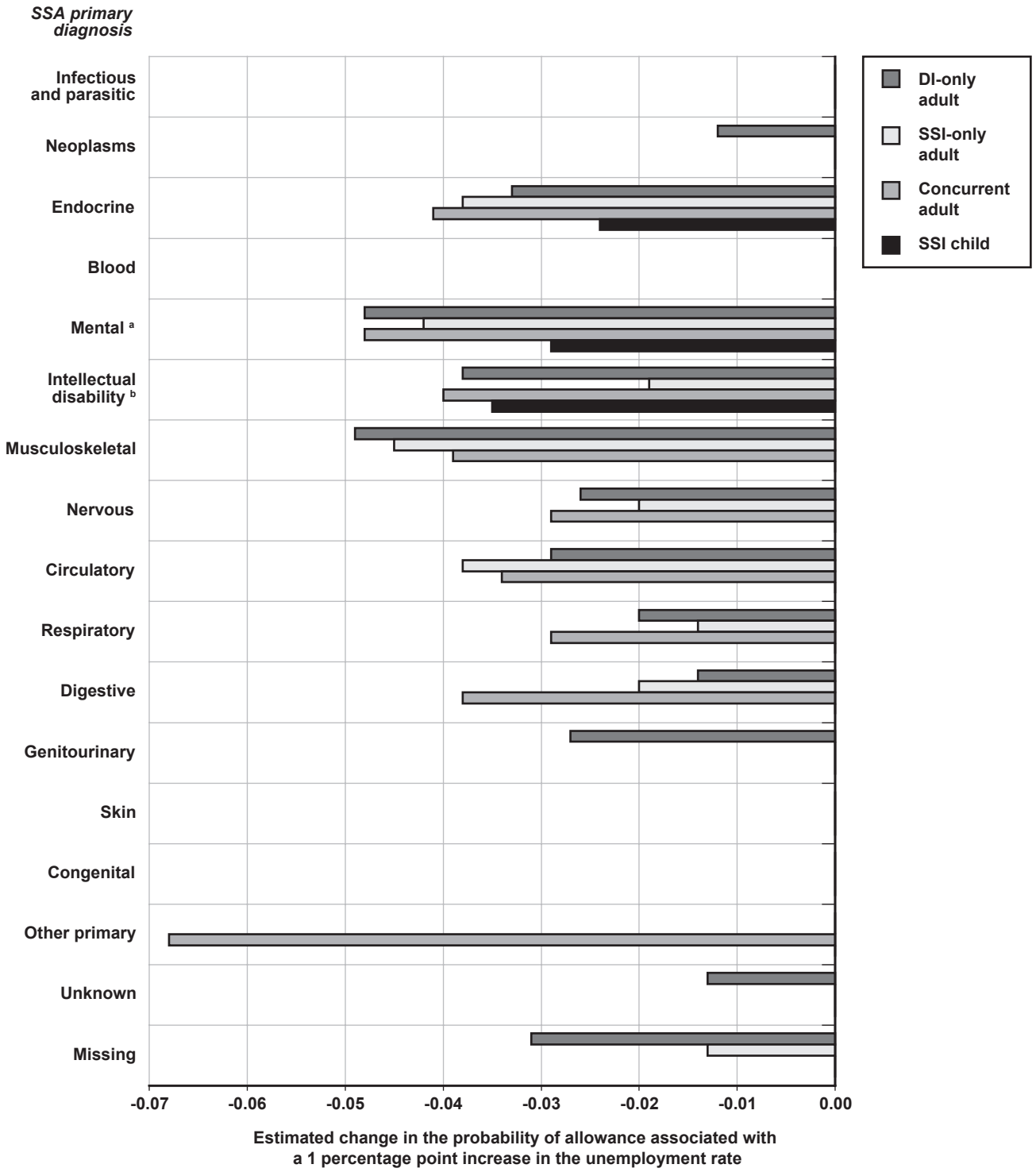
*** = statistically significant—different from zero at the 0.999 level of confidence.

a. Regression models are conditioned on the presence of the SSA primary diagnosis category. The estimates are also disaggregated by program group. Numeric entries and significance levels in the table represent results from 68 separate regressions.

b. Not including intellectual disability.

c. Intellectual disability was formerly known as mental retardation.

Chart 3.
Estimated effect of a 1 percentage point increase in the state unemployment rate on the probability of allowance, by SSA primary diagnosis



SOURCES: Data are based on 1,736,554 initial disability determinations in the 50 states and the District of Columbia for the 1993–2008 period, taken from SSA's National Disability Determination Services System File. State unemployment rate data are taken from the Current Population Survey.

NOTE: Chart displays only estimates that are statistically different from zero at the 0.95 level of confidence.

a. Not including intellectual disability.

b. Intellectual disability was formerly known as mental retardation.

to eliminate statistical significance. Most strikingly, when both period t-1 and period t-2 lagged predictors are added, all of the t-2 coefficients are consistently negative and in most cases statistically significantly different from zero. I measure the cumulative effect by the sum of the three coefficients and estimate it as -1.8 percent for DI-only adults, -1.3 percent for SSI-only adults, -0.7 percent for concurrent adults, and -0.8 percent for SSI children (author's calculation based on model 1 estimates in Table 6).

Based on this analysis, the current study and the Rupp and Stapleton (1995) estimates are consistent with respect to finding evidence to support the hypothesis of lagged effects of the unemployment rate on initial allowance rates, but inconsistent in that the 1995 study failed to show current-year effects. The inconsistency with respect to current-year effects may of course reflect the fact that the two studies are based on data reflecting very different time periods and economic conditions. In my view, however, there are reasons to have confidence in the current study's findings of current-year effects and to conclude that the failure of the 1995 study to find current-year effects may be attributable to data limitations of that study. With respect to this analysis, the current-year estimates are consistent and statistically significant using a large number of individual- and state-level models pertaining to a large number of subgroups. In addition, this study includes detailed controls for demographic variables and the diagnostic mix of applicants, while the previous study lacked this level of detail. Finally, the data for the 1995 study had some unique weaknesses, as discussed by Stapleton, Dietrich, and Lo (1995). The most important in this context is the fact

Table 5.
Estimated fixed-effects coefficients on allowance rates from state-level OLS models, by SSA program group

Model	Adult program group			SSI child
	DI-only	SSI-only	Concurrent	
	Estimated effect of a 1 percentage point increase in the unemployment rate on the allowance rate			
1	-0.025***	-0.026***	-0.024***	-0.024***
2	-0.026***	-0.029***	-0.022***	-0.024***
3	-0.023***	-0.023***	-0.022***	-0.021***
4	-0.023***	-0.025***	-0.021***	-0.021***
5	-0.026***	-0.016***	-0.022***	-0.016***
6: set 1	-0.025***	-0.024***	-0.020***	-0.023***
	Estimated effect of a 1 percent increase in the number of initial determinations on the allowance rate			
6: set 2	-0.027	-0.054***	-0.049**	-0.003

SOURCES: Data are based on 1,736,554 initial disability determinations in the 50 states and the District of Columbia for the 1993–2008 period, taken from SSA's National Disability Determination Services System File. State unemployment rate data are taken from the Current Population Survey.

NOTES: Study universe is a 5 percent random sample of all initial determinations in the United States during the period under study. Technical denials made by SSA prior to sending the application records to the DDSs (reflecting decisions concerning ineligibility of the applicant based on nondisability criteria) are not included in the sample frame. The state unemployment rate for the applicable year was added to each initial determination record.

The dependent variable in all of the models is the initial allowance rate, expressed as a fraction. Independent variables for models 1–6 are as follows:

Model 1—year, state, and unemployment rate (unweighted).

Model 2—year, state, unemployment rate, and demographic characteristics of applicants (unweighted).

Model 3—year, state, unemployment rate, and diagnostic characteristics of applicants (unweighted).

Model 4—year, state, unemployment rate, and demographic and diagnostic characteristics of applicants (unweighted).

Model 5—year, state, unemployment rate, and demographic and diagnostic characteristics of applicants (weighted).

Model 6 (sets 1 and 2)—year, state, unemployment rate, and natural logarithm of number of initial determinations (unweighted).

* = statistically significant—different from zero at the 0.95 level of confidence;

** = statistically significant—different from zero at the 0.99 level of confidence;

*** = statistically significant—different from zero at the 0.999 level of confidence.

that there was a temporal misalignment in that study between the data set pertaining to the unemployment rate and the administrative data on initial determinations that should bias current-year estimates toward zero. Specifically, while the unemployment rate data were compiled based on a calendar-year basis, the initial determination data reflected a fiscal-year concept that started 3 months earlier.

Several conclusions and issues for future research arise from the analysis presented in Table 6. The state-level estimates therein are generally consistent with the hypothesis of a negative relationship between disability allowance rates and the local unemployment rate. The evidence is strongest for DI and SSI adults and somewhat weaker for concurrent adults and SSI children. The analysis also suggests that both current-year and lagged unemployment rate effects are present, that is, the unemployment rate affects initial allowance rates during the same calendar year, but some of the effects on initial allowance rates materialize years later. The evidence of lagged effects on allowance rates is consistent with the finding of Burkhauser, Butler, and Weathers (2001/2002) that the risk of applying for DI benefits is highest during the year immediately after the onset of a work-limiting condition, but the median duration between onset and

Table 6.
Estimated fixed-effects coefficients from state-level GLS models, with and without lagged unemployment rate predictors, by SSA program group

Time period: Unemployment variable(s)	Adult program group											
	DI-only			SSI-only			Concurrent			SSI child		
	t	t-1	t-2	t	t-1	t-2	t	t-1	t-2	t	t-1	t-2
Model 1												
t	-0.016***	. . .	. . .	-0.011***	. . .	. . .	-0.007***	. . .	. . .	0.000	. . .	. . .
t, t-1	-0.001	-0.016***	. . .	-0.004	-0.007	. . .	-0.006	-0.001	. . .	0.013	-0.014*	. . .
t, t-1, t-2	-0.006	0.002	-0.014***	-0.009	0.010	-0.014**	-0.007	0.003	-0.003	0.002	0.026*	-0.032***
Model 2												
t	-0.015***	. . .	. . .	-0.013***	. . .	. . .	-0.008***	. . .	. . .	0.000	. . .	. . .
t, t-1	0.002	-0.019***	. . .	-0.013**	0.000	. . .	-0.005	-0.003	. . .	0.013*	-0.140*	. . .
t, t-1, t-2	-0.003	-0.001	-0.015**	-0.017***	0.016*	-0.013*	-0.007	0.004	-0.006	0.001	0.028**	-0.034***
Model 3												
t	-0.009***	. . .	. . .	-0.011***	. . .	. . .	-0.008***	. . .	. . .	0.01***	. . .	. . .
t, t-1	-0.001	-0.009*	. . .	-0.0135***	0.002	. . .	-0.004	-0.004	. . .	0.014	-0.005	. . .
t, t-1, t-2	-0.005	0.004	-0.011**	-0.018***	0.018**	-0.013**	-0.006	-0.004	-0.007*	0.007	0.019*	-0.021***

SOURCES: Data are based on 1,736,554 initial disability determinations in the 50 states and the District of Columbia for the 1993–2008 period, taken from SSA's National Disability Determination Services System File. State unemployment rate data are taken from the Current Population Survey.

NOTES: Study universe is a 5 percent random sample of all initial determinations in the United States during the period under study. Technical denials made by SSA prior to sending the application records to the DDSs (reflecting decisions concerning ineligibility of the applicant based on nondisability criteria) are not included in the sample frame. The state unemployment rate for the applicable year was added to each initial determination record.

Lagged unemployment rate predictors follow: t = current year; t-1 = 1 year earlier; t-2 = 2 years earlier.

The dependent variable for all of the models is the initial allowance rate, expressed as a fraction.

Independent variables for models 1–3 are as follows:

Model 1—year, state, and unemployment rate.

Model 2—year, state, unemployment rate, and demographic characteristics of applicants.

Model 3—year, state, unemployment rate, and demographic and diagnostic characteristics of applicants.

* = statistically significant—different from zero at the 0.95 level of confidence;

** = statistically significant—different from zero at the 0.99 level of confidence;

*** = statistically significant—different from zero at the 0.999 level of confidence.

disability application is much longer. Because the issue of possible lagged effects of the unemployment rate and initial disability allowance rates has substantial policy relevance and, to my knowledge, is addressed only in this article and in Rupp and Stapleton (1995), more research on the temporal structure of the unemployment rate effect is warranted.

State-to-State Differences in Observed Allowance Rates

In this section, I address two additional aspects of state-to-state differences in allowance rates. The first explores prediction and the second deals with the understanding of variations of allowance rates across space and time. Neither aspect involves causal inference. The term "explanation"—commonly used in this context (for example, explanation of R^2)—does not imply causation.

The issue of the predictive power of the regression models has to do with the ability of the independent variables included in the models to predict the allowance rate for individual states. In assessing the quality of the state-level predictions, following Strand (2002), I use the counterfactual of the average absolute difference between the state and national mean as the main measurement tool; in the absence of any additional information, the national mean is the best predictor of the state allowance rate. My model, however, considers a number of additional variables that allow me to calculate a predicted allowance rate for each state that itself varies around the national average. The expectation is that the average absolute difference between observed and predicted state allowance rates is smaller than the counterfactual that considers only the national average in the prediction. The magnitude of reduction is my key measure of the predictive ability of the model.

First, I look at the relationship between observed and model-predicted allowance rates by state and program group for selected years. Table 7 shows the average observed and model-predicted allowance rate for the states, the standard deviation of observed and predicted state allowance rates, the average absolute difference between the state and national mean, and the average absolute difference between the observed and predicted state average. All of the estimates are based on unweighted averages of the state-level statistics.

When I compare the average observed and predicted initial allowance rates for individual years, all of the differences are within 2 percentage points. Most are much smaller: 16 of the 20 estimates show a difference of 1 percentage point or less. The standard deviation of predicted state allowance rates is noticeably lower. An arguably better measure of the explanatory strength of the model is given by comparing the average absolute difference between the observed state and national mean (a model with no predictors) with the average absolute difference between the observed and model-predicted state averages. As in Strand (2002), I prefer the average absolute difference measure to the standard deviation measure because outliers unduly influence the standard deviation. The model results in substantial reduction. For example, for DI-only adults in the year 2000, state allowance rates on average varied 7.8 percentage points in either direction from the national average. The model accounts for 4.0 percentage points, explaining roughly half of the average absolute difference. In other words, the individual-level predictions aggregated to the state level reduce the average absolute difference in allowance rates by roughly half, as opposed to the counterfactual, which compares raw state allowance rates with the national average allowance rate. The magnitude of the results is comparable to Strand's results for DI and SSI allowance rates in 1999. The magnitude of the reduction in average absolute value of the difference between observed and predicted allowance rates is expressed both in percentage point and percent terms in the two columns with the heading "Reduction of average absolute difference attributable to model" (Table 7). The percent reduction varies by 10–59 percent, but most are substantial—9 of the 20 estimates are close to or above 50 percent.

Table 8 explores the sensitivity of predictive accuracy to the use of individual-level compared with state-level models[14] and to decisions about the use of weights. It compares the results of five alternative methods to measure overall accuracy. In this analysis, weights are used in two distinct steps. The first is the estimation of the regression model. The individual-level models are "self-weighting," while the state-level models can be estimated unweighted or weighted. In this context, the term self-weighting means that (1) the individual-level models weight each initial determination equally, and (2) the result is that each state is represented proportionally to the number of initial determinations in that state.[15] The second step is the derivation of summary statistics at the national level from the state-level estimates.

The averaging is either unweighted (giving each state equal weight, regardless of size), or weighted (giving each state a weight proportional to the number of initial determinations in that state). I illustrate the sensitivity of results to the level of aggregation of the sample used for the regression model and weighting at two steps in the analysis based on calculations showing DI outcomes for the year 2000. Method 1 represents the kind of statistics the previous results in Table 5 were based on (individual-level logit model, self-weighting sample used for model estimation, and unweighted average of state-level results to derive the national average absolute difference). The findings from Table 8 are straightforward. First, the estimated average absolute difference between observed and model-predicted values is not sensitive to the use of individual-level versus state-level data in the modeling; there is only a 0.2 percentage point difference between the individual-level method 1 and the state-level method 3 results. The same is

Table 7.
Actual and model-predicted unweighted average state initial allowance rates, by SSA program group, for selected years 1993–2008 (in percent)

Year	State allowance rate		Standard deviation of state allowance rates		Average absolute difference between—		Reduction of average absolute difference attributable to model	
	Observed	Predicted	Observed	Predicted	State and national mean	Observed and predicted state rate	Percentage point	Percent
DI-only adult								
1993	43.6	43.7	7.7	7.0	6.2	4.6	-1.6	-25.5
1995	40.9	39.5	8.1	6.6	6.3	4.8	-1.5	-23.7
2000	47.3	46.7	9.4	7.2	7.8	4.0	-3.7	-48.1
2005	45.9	45.7	8.8	7.0	6.9	3.5	-3.4	-49.0
2008	47.1	48.8	7.7	7.1	5.9	4.1	-1.8	-30.3
SSI-only adult								
1993	36.0	36.0	9.2	7.1	7.3	5.0	-2.3	-31.5
1995	29.4	28.4	6.7	5.7	5.0	4.3	-0.8	-15.7
2000	34.8	34.1	8.2	6.6	6.2	3.3	-2.9	-47.4
2005	32.9	33.1	10.4	8.0	8.0	3.6	-4.4	-54.8
2008	34.0	34.1	7.4	7.1	5.8	3.5	-2.3	-40.4
Concurrent adult								
1993	32.0	32.3	7.3	5.6	6.1	4.7	-1.4	-22.5
1995	27.5	26.9	6.3	4.9	4.4	3.8	-0.6	-14.2
2000	32.9	32.3	8.0	6.7	5.6	3.4	-2.2	-39.9
2005	29.3	28.7	8.9	6.9	6.9	3.1	-3.8	-55.3
2008	29.6	30.4	7.3	6.2	5.3	3.4	-2.0	-36.9
SSI child								
1993	50.4	52.4	8.1	7.5	6.2	5.6	-0.6	-9.9
1995	33.7	33.2	10.5	7.9	7.9	4.1	-3.9	-48.7
2000	43.9	44.0	10.6	9.3	8.0	4.2	-3.8	-47.5
2005	46.7	45.3	10.6	9.3	9.9	4.1	-5.8	-58.5
2008	45.6	45.1	12.6	10.6	10.0	4.3	-5.8	-57.6

SOURCES: Data are based on 1,736,554 initial disability determinations in the 50 states and the District of Columbia for the 1993–2008 period, taken from SSA's National Disability Determination Services System File. State unemployment rate data are taken from the Current Population Survey.

NOTES: Study universe is a 5 percent random sample of all initial determinations in the United States during the period under study. Technical denials made by SSA prior to sending the application records to the DDSs (reflecting decisions concerning ineligibility of the applicant based on nondisability criteria) are not included in the sample frame. The state unemployment rate for the applicable year was added to each initial determination record.

true in the comparison of method 2 and method 5. Second, the results are not sensitive to giving equal weight to each state or using weights proportional to the number of initial allowances in the state-level models; the result from method 4 is only 0.2 percentage points higher than the result from method 5. Third, the only factor that affects the magnitude of the average absolute difference in a meaningful way is the use of weighting in summarizing state-level averages to the national level. When state results are weighted by size (the number of initial determinations), there is a clear reduction in the average absolute difference compared with results that give equal weight to the states in summarizing the state-level results to the national level. The unweighted average of the state-level estimates from the individual-level model (method 1) is 4.0 percentage points, while the corresponding weighted average of the states from method 2 is 3.3 percentage points—a difference of 0.7 percentage points (a substantial percent reduction). The magnitude of difference between method 3 (unweighted state averages) and method 4 (weighted state averages) displays a similar pattern (0.5 percentage points). The reduction arising from weighting the state averages is partly explained by the fact that random error of state-level estimates is negatively related to size. That suggests that some of the unexplained variation in the unweighted state-level models is attributable to random variation; the weighted estimates give more weight to the larger states, while the unweighted estimates are unduly influenced by very small states, especially because the state-level estimates are based on an underlying 5 percent sample of individual-level observations rather than a larger sample.[16]

Next, I consider how my fixed-effects models contribute to the understanding of the overall variation in allowance rates across states. The R^2 is commonly used to assess the variation "explained" by the independent variables included in a regression model. This explanation is purely descriptive and does not reflect causal understanding. In the context of fixed-effects modeling, we can go a little further and decompose the total variation into the following four components:

1. variation attributable to unmeasured factors that reflect long-term differences among the states,
2. additional variation attributable to unmeasured factors that reflect year-specific national differences,
3. additional variation attributable to the effect of specific independent variables that vary by state and over time, and

Table 8.
Comparisons showing the effect of the use of individual- and state-level models and weighting on state-level predictions: DI-only adult estimates for year 2000

Method	Level of analysis and estimation method [a]	Method of weighting		Estimated average absolute difference between observed and predicted state average allowance rates in percentage points
		Model	Summary statistics	
1	Individual-level, logit	Self-weighting [b]	Unweighted average of states [c]	4.0
2	Individual-level, logit	Self-weighting [b]	Weighted state averages [d]	3.3
3	State-level, OLS	Unweighted [e]	Unweighted average of states [c]	3.8
4	State-level, OLS	Unweighted [e]	Weighted state averages [d]	3.3
5	State-level, OLS	Weighted [f]	Weighted state averages [d]	3.1

SOURCES: Data are based on 1,736,554 initial disability determinations in the 50 states and the District of Columbia for the 1993–2008 period, taken from SSA's National Disability Determination Services System File. State unemployment rate data are taken from the Current Population Survey.

a. In estimating the individual-level regression model, the unit of observation is the individual initial determination; in state-level models, it is the state.

b. Self-weighting means that each initial determination is weighted equally. As a result, each state is represented proportionally to size, that is, proportionally to the number of initial determinations.

c. The calculation of the national average of states gives equal weight to each state, regardless of size.

d. In the calculation of the national average, each state is represented proportionally to the number of initial determinations in that state.

e. In estimating the regression model, each state receives equal weight, regardless of size.

f. In estimating the regression model, each state receives a weight proportional to the number of initial determinations in that state.

4. unexplained variation that may result from unmeasured time-varying factors not explicitly considered in the model or from purely random fluctuations.

Table 9 shows the decomposition of total variation. State fixed effects reflect long-term differences among states and account for 41–52 percent of explained variation. Note that state fixed effects do not provide any specific information about the reasons for these long-term differences, which may be due to factors that are exogenous or endogenous to program management. Next, I find that year effects range widely by program group from 9 percent for concurrent adults to 29 percent for the SSI-child category. Year effects pick up the effects of changes over time that affect all states equally. Perhaps it is not surprising that the variation explained by year effects is by far the highest for the SSI-child program group, given the enormous volatility of national policies and their implementation from the Supreme Court's *"Zebley"* decision to the 1996 welfare reform. Note that state and time fixed effects combined explain 55–79 percent of the overall variation.[17]

I find that adding the three sets of time-varying independent variables to state and time fixed effects in a sequential fashion increases the R^2 by 6–18 percent depending on program group. The relative contribution of the three principle sources of time-varying factors is somewhat sensitive to the sequence of adding the three groups of independent variables to the equation.

Given the substantial contribution of state fixed effects to the overall variation in allowance rates, Chart 4 shows the average allowance rate by state over the 1993–2008 observation period. The chart demonstrates that long-term observed average differences among the states—in effect the estimated state fixed effects—are substantial. Further analysis of the 1993–2008 average state allowance rates suggests that the long-term average of allowance rates by state is correlated among the program groups. The unweighted r^2 between the DI and SSI *adult* series is 0.66. All of the program groups show a positive correlation with each other as well. The strongest correlation is between the SSI *adult* and concurrent *adult* averages by state ($r^2 = 0.94$). The unweighted r^2 between the DI-only *adult* and SSI *child* series is 0.67. The positive correlation coefficients suggest that relatively permanent differences among the states affect the four program groups similarly. Chart 5 displays scattergrams of the six possible two-way relationships between the state averages for the four program groups during the 1993–2008 period. Of particular interest is the

Table 9.
Components of total variation in allowance rates from level fixed-effects OLS regression models, by SSA program group (in percent)

Component of variation [a]	Adult program group			
	DI-only	SSI-only	Concurrent	SSI child
State fixed effects	52	41	46	50
Year fixed effects	14	16	9	29
Time-varying independent variables (unemployment rate and demographic and diagnostic characteristics of applicants)	10	17	18	6
Unexplained [b]	24	25	27	16
Total	100	100	100	100

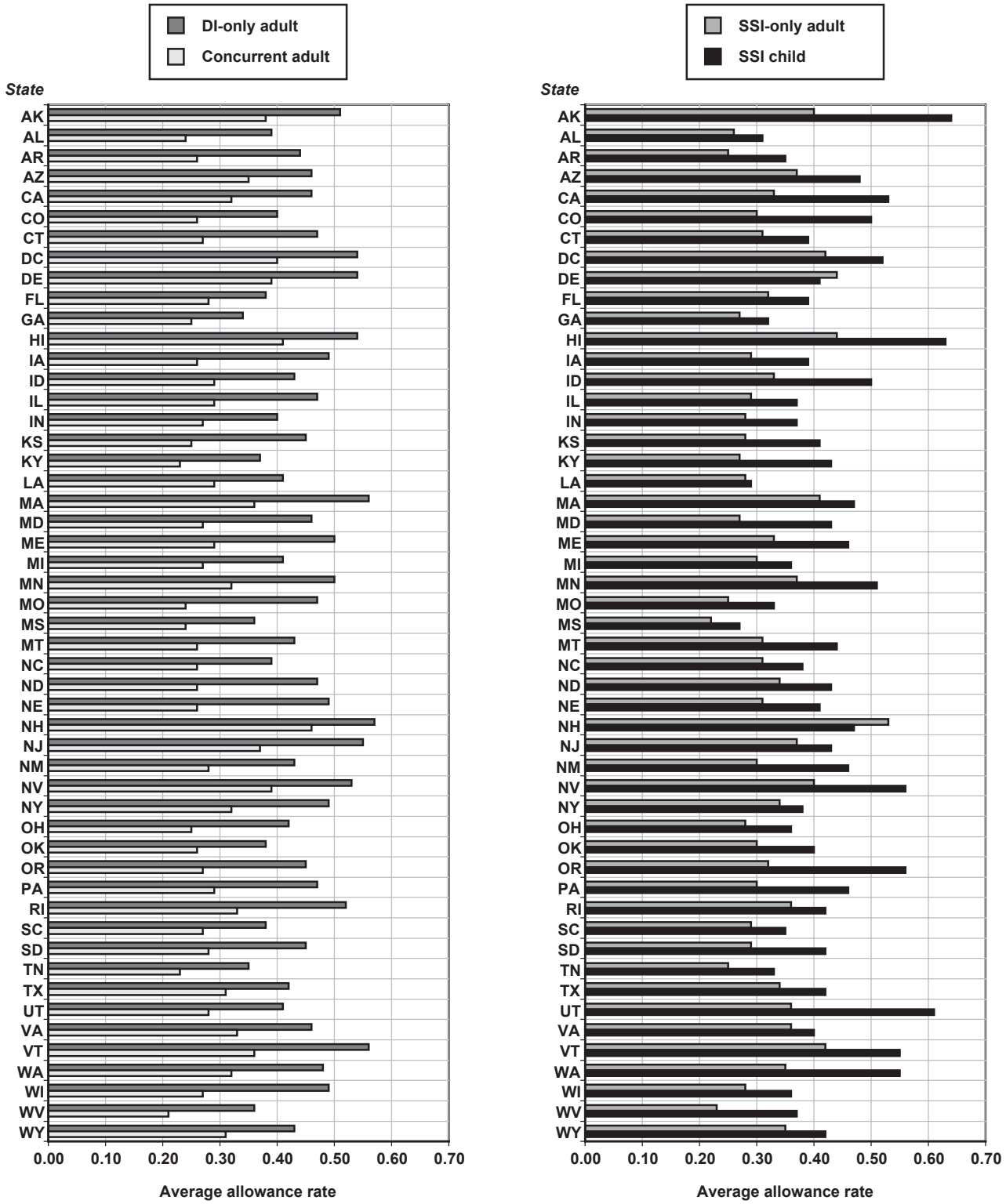
SOURCES: Data are based on 1,736,554 initial disability determinations in the 50 states and the District of Columbia for the 1993–2008 period, taken from SSA's National Disability Determination Services System File. State unemployment rate data are taken from the Current Population Survey.

NOTES: A total of 12 regressions were estimated: three models for each of the four program groups. For each program group, independent variables were included in a sequential manner. The first model included only state fixed effects. The second model added year fixed effects. The third model added the time-varying variables. The results in this table reflect state-level OLS regression models. Totals may not sum to 100 because of rounding.

a. The first row contains the R^2 from the first model for each program group. The subsequent two rows reflect the marginal increase in the R^2 arising from adding the given group of independent variables to the model. The total of the first three rows represents the R^2 for the third model that included all three groups of variables.

b. The unexplained variation was calculated by subtracting the R^2 for the third model that included all of the predictors from 100 percent.

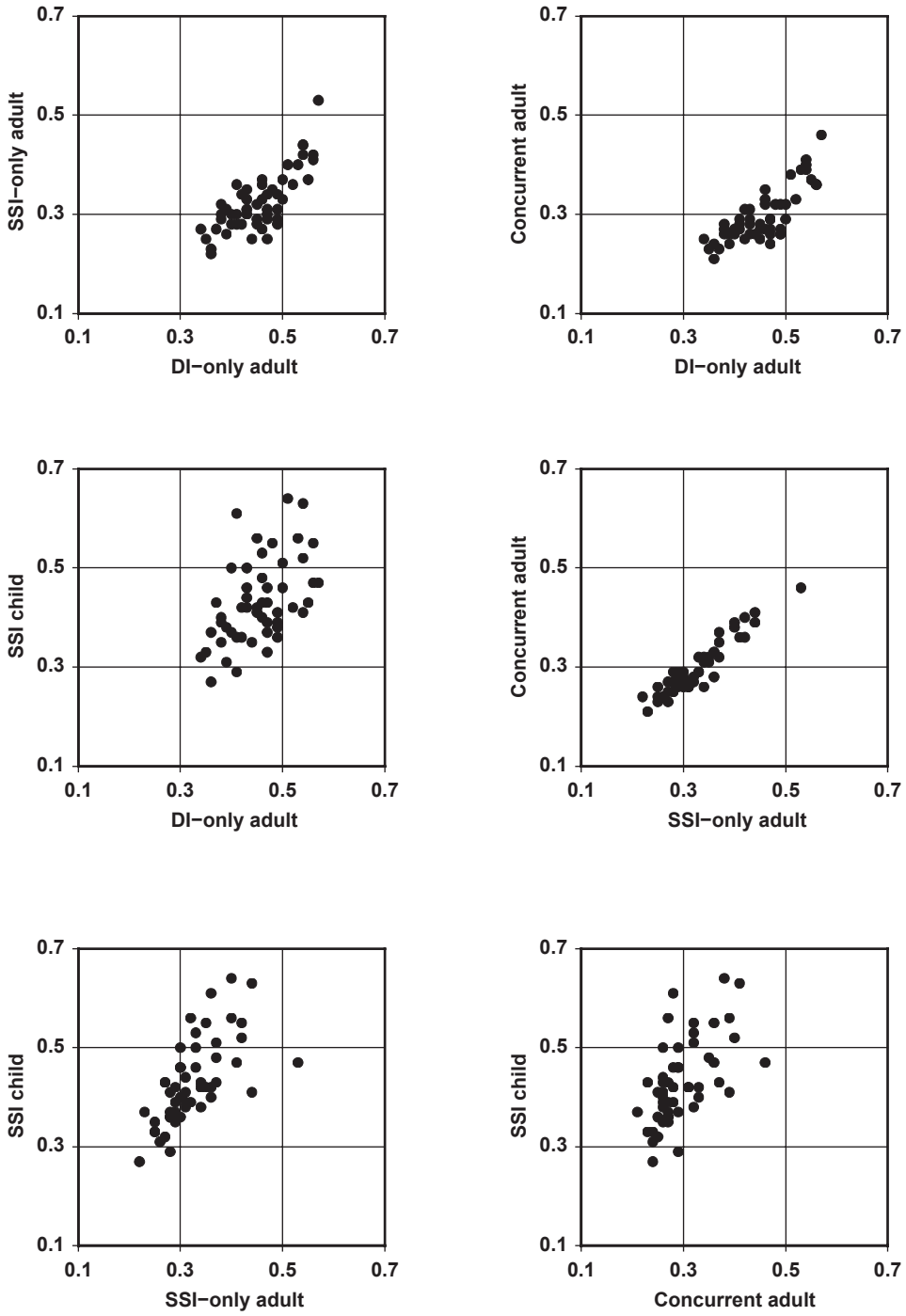
Chart 4.
Estimated average allowance rate, by state and SSA program group, 1993–2008



SOURCE: Data are based on 1,736,554 initial disability determinations in the 50 states and the District of Columbia for the 1993–2008 period, taken from SSA's National Disability Determination Services System File.

NOTE: The allowance rate for each state is calculated as the average allowance probability during the 1993–2008 period.

Chart 5.
Bivariate relationship between average state allowance rates for various combinations of SSA program groups, 1993–2008



SOURCE: Data are based on 1,736,554 initial disability determinations in the 50 states and the District of Columbia for the 1993–2008 period, taken from SSA's National Disability Determination Services System File.

NOTES: The six scattergrams show the relationship between the average state allowance rate for the program group represented by the X axis and the program group represented by the Y axis. The dots represent a given state (or states with similar combinations of X and Y values).

apparent relationship involving the SSI child program group and the three adult program groups. While the visual impression from the chart suggests a relatively strong association between the SSI-only adult and SSI child series as expected, there is clearly some positive relationship even between the DI-only adult and SSI child series as well—a finding that reinforces the inference based on the estimated r^2 between the two series discussed earlier. The correlations themselves, of course, do not tell whether the association is due to historical differences in external factors outside of the control of DDS management or to state-to-state differences that are internal to DDSs, but nevertheless the consistent positive association in all six two-way comparisons is remarkable. Disentangling these influences is a worthwhile subject for future research.

Conclusions

Overall, I find that the probability of an initial allowance is clearly affected by demographic characteristics, diagnostic mix, and the local unemployment rate in the expected direction. All of these factors are outside the control of DDS decision makers; therefore, accounting for their role should help in comparing allowance rates across DDS units on a footing more equal than the comparison of raw initial allowance rates.

The empirical results show that—

1. Older adult disability applicants are more likely than younger adult applicants to experience a favorable outcome of the initial disability determination, regardless of SSA program group (DI, SSI, or both). The reverse is true for childhood SSI applicants. Adult applicants with a musculoskeletal primary diagnosis are less likely to experience a favorable initial disability determination outcome than applicants with other diagnoses, regardless of program group. In contrast, adult applicants with intellectual disabilities, neoplasms, and genitourinary diagnoses are relatively more likely to receive a favorable initial determination result. The relationship between primary diagnosis and the likelihood of an initial allowance is generally similar for adult and childhood applicants.
2. An increase in the state unemployment rate tends to be associated with a decrease in the initial allowance rate. This relationship holds for all three adult program groups and childhood SSI applications. The negative relationship between unemployment and initial allowances is particularly strong for "mental" diagnoses for all three adult program groups and for SSI children. The negative relationship is statistically significant, and it is comparable in magnitude for musculoskeletal diagnoses for all three adult program groups. Interestingly, only the DI-only adult coefficient is statistically significantly different from zero for neoplasms, and even that point estimate is relatively low in absolute value. Note that (a) neoplasms are invariably "doctor diagnosed" health conditions and (b) award decisions may be more likely to be made at the "meet the listings" step in the disability determination process, compared with determinations regarding mental and musculoskeletal impairments. Both of these indicate the relatively major role of objective factors for neoplasms, and therefore it is not surprising that we estimate award probabilities for the neoplasms diagnostic group that are relatively less likely to be responsive to business cycle conditions.
3. Estimates based on individual-level data are generally comparable to estimates from similarly specified models based on state-level models. An important advantage of access to data on individual characteristics of applicants is that it provides maximum flexibility for program group analyses and model specification.
4. Using the fixed-effects models substantially contribute to predictability of the variation of state allowance rates. A substantial portion of state-to-state variation in allowance rates is explained by relatively permanent differences among the states and year-to-year changes affecting all states. The state fixed effects reflect differences among the states that are long term, that is, they affect average state differences for the whole 1993–2008 study period. The year fixed effects reflect factors, such as legislative changes, that affect all states during a given year. The models allow for the measurement of variation attributable to these two sources, but do not provide specific reasons for their explanatory power. Time-varying factors accounted for by the models include demographic and diagnostic characteristics of applicants and the state unemployment rate, which provide additional contribution to explained variation. The three groups of variables included in the regression models (state fixed effects, time fixed effects, and time-varying factors) together explain 73–84 percent of total variation. Sixteen to 27 percent of the total variation in state allowance rates (depending on SSA program group)

is not explained by fixed effects and time-varying factors explicitly considered in the models.

Various future research directions might be productive. An obvious extension to this study would be to replicate it using data that are more recent. Accounting for the role of state and year fixed effects and time-varying exogenous factors should be helpful in refining projections of initial allowance rates. A logical direction of follow up could extend this analysis to research on factors affecting ultimate allowance rates and lifetime benefit streams. Of particular interest with respect to lifetime benefit streams is the question of whether the exit rates of marginally qualifying applicants who were awarded benefits during periods of high unemployment are higher than the exit rates of others who were first awarded benefits during more favorable labor market conditions. Another potentially fruitful area of future research might focus on the temporal dynamics (lag structure) of the relationship between unemployment shocks and disability allowance rates. Yet another potentially promising area might involve studies designed to analyze various mechanisms that may be responsible for the relationship between the unemployment rate and initial determination results. Some may be external to the disability determination system; others may involve programmatic responses to external shocks, such as sudden increases in applications arising from worsening labor market conditions or other factors.

While this study does not focus on possible responses by DDS administrators or caseworkers, and the recent work of Maestas, Mullen, and Strand (2011) did not analyze the effects of local labor market conditions on DDS decision making, a file adding longitudinal data on caseworker characteristics to this analysis file might facilitate future work on the relationship between the business cycle and DDS decision making.

Notes

Acknowledgments: The author is indebted to Brad Trenkamp for assistance in assembling the database for this study and is also thankful to Norma Coe, Jessie Dalrymple, Paul Davies, Eli Donkar, Irena Dushi, Jeff Hemmeter, Bert Kestenbaum, and Alexander Strand for helpful feedback, useful suggestions, and technical review comments on earlier versions of the article.

[1] Some applicants initially denied are subsequently allowed. Ultimate allowance rates are of obvious interest to the Social Security Administration, but beyond the scope of the current analysis. In this article, I focus on the initial allowance rates—an analysis that is a necessary first step in any study of ultimate allowance rates.

[2] An important broader context is health insurance coverage. Adverse labor market conditions may reduce access to private health insurance. In contrast, SSI awardees are automatically eligible for Medicaid in most cases, while DI awardees are eligible for Medicare after a combined 5-month DI waiting period and a 24-month Medicare waiting period.

[3] Initial determinations are made by state DDS units. "Technical denials" made by SSA field offices prior to the initial disability determination process are not included in the analysis sample. Technical denials are the result of evidence that the applicant does not meet the nondisability criteria for either DI or SSI benefit eligibility. Applicants who are neither DI-insured nor meet the SSI means test are typically denied by SSA field office staff, and no records are forwarded to the DDS.

[4] There are five steps in the initial determination process. Those involve the assessment of whether the applicant (1) is working at the SGA level, (2) has a "severe" condition, (3) has a severe condition that is included in the list of disabling conditions, (4) can do the work he or she did previously, and (5) can do any other type of work. Initial allowances can be made at steps 3 and 5. Initial denials can be made at steps 1, 2, 4, and 5 (http://www.socialsecurity.gov/dibplan/dqualify5.htm). This article focuses on initial determinations and does not address possible reversals of denials at subsequent levels (reconsideration and appeals).

[5] The author uses variation in coal prices in the Appalachian region arising from the Organization of the Petroleum Exporting Countries (OPEC) oil embargo and a subsequent bust in the coal market in the 1980s to identify the impact of labor market conditions on DI and SSI program participation.

[6] The current review focuses on literature subsequent to the publication of Rupp and Stapleton (1995). That study included an extensive review of previous studies, but did not identify any that specifically focused on initial allowance rates. The pioneering work of Mordechai Lando, and others at SSA in the 1970s, focused on the relationship between applications and the unemployment rate, but included a few separate estimates on the relationship between awards and the unemployment rate (Lando 1979).

[7] The list of primary diagnoses is as follows: infectious and parasitic diseases; neoplasms; endocrine, nutritional, and metabolic diseases; mental disorders (not including intellectual disabilities); intellectual disabilities; diseases of the blood and blood forming organs, nervous system, circulatory system, respiratory system, digestive system, genitourinary system, skin and subcutaneous tissue, musculoskeletal system and connective tissue; congenital anomalies; and other disorders.

[8] Variables, such as the presence of a secondary diagnosis, are often included in models of this kind to capture some unmeasured factors. The inclusion of such control variables helps to reduce estimation bias with respect to the

variables of key interest, but their coefficients may not have a straightforward causal interpretation.

[9] I use the Wooldridge test for autocorrelation in panel data using the xtserial procedure in STATA and correct for autocorrelation using the xtgls procedure.

[10] The file is based on information from Form SSA-831. (See SSA Program Operations Manual, Section DI 26510.001, extracted from https://secure.ssa.gov/poms.nsf/lnx/0426510001 on April 30, 2012.)

[11] The prevalence of disability and applications tended to rise sharply for people in their fifties and early sixties. The estimates in this study show a sharp increase in the marginal effect between the 50–54 age group and the 55–59 group. Those differences may reflect unmeasured changes in the characteristics of applicants or the effect of the rules and implementation practices related to vocational factors.

[12] Note that 26 of the 35 nonsignificant coefficients are negative, suggesting that small subsample size rather than the lack of true negative effects may be the more important reason for lack of statistical significance for the individual coefficients.

[13] Note that although the scope of this study is limited to factors affecting initial allowances, I also test a state-level, fixed-effects model with the natural logarithm of the number of initial determinations as the dependent variable. The estimates (not shown) indicate substantial positive effects of changes in the unemployment rate on initial determinations for all four SSA program groups, a finding consistent with past studies estimating a positive relationship between the unemployment rate and applications or initial determinations.

[14] Note that the individual-level and aggregate models use the exact same data set and model specification except for the functional form (logit versus OLS), thus the comparisons are not affected by extraneous factors arising from possible differences in the source data themselves.

[15] A self-weighting sample arises from selection with a constant probability.

[16] This interpretation is supported by information on the standard error of state allowance rates from the micromodels. For example, the standard error of the DI-only sample's average allowance probability is 0.0021 for California, 0.0024 for New York, and 0.0026 for Texas. In contrast, the corresponding numbers are 0.0162, 0.0154, and 0.0153 for Wyoming, Alaska, and the District of Columbia (DC), respectively. Thus, the standard error of state allowance rates in those two small states and DC is over 1.5 percentage points compared with the much smaller standard error (below 0.3 percentage points) for the three large states cited first.

[17] The relative contribution of year effects and state effects is fairly invariant to the sequential order of introducing the two sets of predictors to the regression equation, reflecting an additive relationship.

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Mind the Gap: The Distributional Effects of Raising the Early Eligibility Age and Full Retirement Age

by Anya Olsen*

Policymakers have proposed increases to the early eligibility age (EEA) and/or full retirement age (FRA) to address increasing life expectancy and Social Security solvency issues. This analysis uses the Social Security Administration's Modeling Income in the Near Term, version 6 (MINT6) model to compare three retirement-age increases suggested by the Social Security Advisory Board: increase the gap between the EEA and FRA by raising only the FRA, increase both the EEA and FRA to maintain a 4-year gap between them, and increase both the EEA and FRA to maintain a 5-year gap between them. Although all three options would improve system solvency by similar proportions, their effect on individual beneficiaries in the future would vary. Benefit reductions are greater under the proposals with more months between the EEA and FRA, while the option that maintains a 4-year gap results in benefit increases for some beneficiaries compared with current law.

Introduction

This article analyzes the distributional and solvency effects of increasing Social Security's retirement ages. The full retirement age (FRA) is the age at which a beneficiary's full primary insurance amount (PIA), upon which monthly benefits are based, is payable.[1] The current-law FRA varies from age 65 to 67 depending on year of birth. The earliest age at which retirement benefits can start is 62 (the early eligibility age or EEA). Retired-worker benefits claimed between the EEA and FRA are permanently reduced, based on the number of months between the beneficiary's age when benefits are claimed and his or her FRA. Policymakers have proposed increases to the EEA and/or FRA to address increasing life expectancy and Social Security solvency issues.

This analysis compares the following three retirement-age increases suggested by the Social Security Advisory Board in its report, *Social Security: Why Action Should Be Taken Soon*:[2]

1. After the current-law FRA reaches age 67, index the FRA to longevity by increasing it 1 month every 2 years starting for those turning age 62 in 2024 (hereafter referred to as the "growing-gap option").
2. Apply the same FRA increase as that proposed under the growing-gap option. In addition, raise the EEA by the same increments as the FRA starting with individuals turning age 62 in 2017 to maintain a 4-year gap between the two ages (hereafter referred to as the "gap-4 option").
3. Apply the same FRA increase as that proposed under the growing-gap option. In addition, raise the EEA by the same increments as the FRA starting with individuals turning age 62 in 2024 to maintain a 5-year gap between the two ages (hereafter referred to as the "gap-5 option").

Selected Abbreviations

DRC	delayed retirement credit
EEA	early eligibility age
FRA	full retirement age
MINT	Modeling Income in the Near Term
OCACT	Office of the Chief Actuary

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The distributional analysis presented here is based on projections from the Social Security Administration's (SSA's) Modeling Income in the Near Term, version 6 (MINT6) model, and the results pertain to Social Security beneficiaries aged 60 or older in the years 2030, 2050, and 2070.[3] The analysis does not simulate behavior changes in response to increasing the EEA or the FRA, but increasing the EEA would prevent some individuals from claiming benefits as early as they could under current law (that is, they would not be eligible to claim benefits before the new law would allow).[4] The analysis assumes that anyone who under current law would have started receiving benefits before the new EEA would start at the new EEA under the gap-4 and gap-5 options. The benefits under each option are compared with the benefits *scheduled to be paid* under current law (scheduled benefits) and the *actual benefits that could be paid* without any changes to current law (payable benefits).[5] Solvency estimates are from SSA's Office of the Chief Actuary (OCACT), based on the *2011 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds (2011 Trustees Report)*.[6]

Major Findings

Although each of the three retirement-age policy options would improve system solvency by similar proportions, their effect on individual beneficiaries would vary across the population, as the following highlights show:

- Benefit reductions are greater under the proposals with more months of early retirement reductions; the growing-gap option results in an 8 percent reduction in median benefits in 2070, compared with a 4 percent reduction under the gap-5 option and a 2 percent reduction under the gap-4 option. The growing-gap option also results in more beneficiaries overall receiving a benefit reduction by 2070: 82 percent, compared with 65 percent under the gap-5 option and 53 percent under the gap-4 option.
- Although the majority of beneficiaries would receive benefit reductions, the gap-4 option would increase benefits for 28 percent of beneficiaries in 2070 compared with scheduled benefits. This occurs because the number of years in which benefits are reduced for early retirement decreases from 5 to 4.
- Up to 6 percent of beneficiaries in the youngest age group (60–69) in 2070 would not receive any benefit under the gap-4 and gap-5 options because some individuals in that group would be younger than the new EEA and no longer eligible for benefits at those ages.
- Poverty rates would increase slightly under all three retirement-age options, with the largest increases occurring for individuals in the youngest age group.

Current Law

The earliest age at which a retired-worker or spousal beneficiary can start receiving benefits is 62 (see Table 1). Beneficiaries turning age 62 in 2012 (born in 1950) have a FRA of 66. For each month that a beneficiary receives benefits before his or her FRA, the benefit is reduced by one reduction factor.[7] The total benefit reduction for claiming benefits at age 62 increases from 25 percent to 30 percent under current law. An individual who claims retirement benefits at the EEA today would be subject to 48 months of early retirement, or a 25 percent benefit reduction. Starting for individuals born in 1955, the FRA will increase by 2 months each year until it reaches age 67 in 2022 for those born in 1960 or later. Once current law is fully phased in by 2022, the difference between the EEA and FRA will be 5 years. At that time, an individual who claims benefits at the earliest age possible would be subject to 60 months of early retirement, or a 30 percent benefit reduction.

Three Retirement-Age Options: A Comparison

All three options include the same incremental increase in the FRA by indexing it to longevity over the very long term, although the EEA increases only under the gap-4 and gap-5 options (see Table 2). OCACT estimates that to index the FRA to longevity, it would need to increase by 1 month every 2 years beginning with individuals turning age 62 in 2024. The growing-gap option does not include an increase in the EEA from age 62, thereby continuously increasing the gap and the number of early retirement months between the EEA and FRA. The gap-4 option begins increasing the EEA by 1 month every 2 years for those turning age 62 in 2017 (beginning with the current-law increase in the FRA from age 66 to 67 in 2017); as Table 2 shows, that option maintains a 4-year gap between the EEA and FRA. The gap-5 option does not begin increasing the EEA until 2024, maintaining a 5-year gap between the EEA and FRA. Under all three options, the widow(er) EEA and FRA also increase by the same number of years as the

retired-worker EEA and FRA, but for those turning age 60, not age 62, in each year.[8] The following tabulation shows the corresponding additional early retirement months and benefit reductions associated with increasing the gap between the EEA and FRA beyond the 5 years (or 60 months) in current law, for the growing-gap option:

Early retirement months	Benefit reduction (percent)
62	30.8
64	31.5
66	32.3
68	33.0
70	33.8
72	34.5
74	35.3
76	36.0
77	36.4
78	36.8
79	37.1
80	37.5
82	38.3
84	39.0
86	39.7
88	40.3
90	41.0
91	41.3
92	41.7
94	42.3
96	43.0

SOURCE: Author's calculations using MINT6 data.

NOTE: As early retirement months continue to increase beyond 96, so would the benefit reductions.

As previously noted, the increases in the retirement ages occur over a very long period. A midcareer worker born in 1972 and turning age 62 in 2034 would have a FRA of 67 and 6 months under all three options, with an EEA ranging from age 62 under the growing-gap option to 63 and 6 months under the gap-4 option (see Table 2). The growing-gap option would produce the maximum number of early retirement months (that is, 66 months) for this worker, resulting in a benefit reduction of about 32 percent (see the previous tabulation). The effects on benefits for a midcareer worker would not be significantly different from scheduled benefits; however, the effects on benefits would be larger further in the future. An individual born today and turning age 62 in 2074 would have a FRA of 69 and 2 months under each of the options, with an EEA ranging from age 62 under the growing-gap option to 65 and 2 months under the gap-4 option. The growing-gap option would produce the maximum number of early retirement months (that is, 86 months) for this worker, resulting in a benefit reduction of about 40 percent.

Interaction of Retirement-Age Options With Existing Program Rules

Changes to the EEA and FRA would result in additional changes to benefits when they interact with existing program rules. Changes to program rules increase or decrease benefits compared with current law, which may negate, mitigate, or amplify changes caused by the retirement-age options. For example,

Table 1.
Benefit reduction for claiming benefits at age 62 under current law, by year of attaining age 62 and year of birth

Year of attaining age 62	Year of birth	EEA	FRA	Early retirement months	Benefit reduction (percent)
1999 or earlier	1937 or earlier	62	65	36	20.0
2000	1938	62	65 and 2 months	38	20.8
2001	1939	62	65 and 4 months	40	21.7
2002	1940	62	65 and 6 months	42	22.5
2003	1941	62	65 and 8 months	44	23.3
2004	1942	62	65 and 10 months	46	24.2
2005–2016	1943–1954	62	66	48	25.0
2017	1955	62	66 and 2 months	50	25.8
2018	1956	62	66 and 4 months	52	26.7
2019	1957	62	66 and 6 months	54	27.5
2020	1958	62	66 and 8 months	56	28.3
2021	1959	62	66 and 10 months	58	29.2
2022 or later	1960 or later	62	67	60	30.0

SOURCE: Social Security full retirement-age chart, available at http://www.socialsecurity.gov/retire2/agereduction.htm.

under current law a beneficiary can earn delayed retirement credits (DRCs) of up to 8 percent a year by waiting to claim benefits until after his or her FRA, up to age 70.[9] Because the FRA increases under all three options, the number of DRCs earned would decrease because these estimates do not account for changes in claiming behavior. Although the same number of people is estimated to claim benefits in each year under the proposals as under current law, fewer of those individuals would be claiming benefits after the new, higher FRA. This results in lower benefits for some beneficiaries who would have earned DRCs under current law.

Under the gap-4 and gap-5 options, the number of computation years used in the benefit calculation and the age at which earnings are wage-indexed would increase as the EEA increases, based on OCACT assumptions.[10] For example, Social Security benefits are currently based on a worker's 35 highest years of earnings, but if the EEA increases to 63, the options increase the number of earnings years to 36. Because an additional lower or zero-earnings year could be added to the benefit calculation, that change would generally result in lower benefits. In addition, the options would increase the age at which earnings are wage-indexed from age 60 (2 years prior to the current-law EEA) to 61 (2 years prior to the EEA in this example). Because wages typically grow faster than prices, this change would generally result in higher benefits.[11]

Table 2.
EEA status and increases under all three retirement-age options, by year of attaining age 62 and year of birth

Year of attaining age 62	Year of birth	EEA under—			FRA increase [a]
		Growing-gap	Gap-4	Gap-5	
2016	1954	62	62	62	66
2017	1955	62	62 and 2 months	62	66 and 2 months
2018	1956	62	62 and 4 months	62	66 and 4 months
2019	1957	62	62 and 6 months	62	66 and 6 months
2020	1958	62	62 and 8 months	62	66 and 8 months
2021	1959	62	62 and 10 months	62	66 and 10 months
2022	1960	62	63	62	67
2023	1961	62	63	62	67
2024–2025	1962–1963	62	63 and 1 month	62 and 1 month	67 and 1 month
2026–2027	1964–1965	62	63 and 2 months	62 and 2 months	67 and 2 months
2028–2029	1966–1967	62	63 and 3 months	62 and 3 months	67 and 3 months
2030–2031	1968–1969	62	63 and 4 months	62 and 4 months	67 and 4 months
2032–2033	1970–1971	62	63 and 5 months	62 and 5 months	67 and 5 months
2034–2035	1972–1973	62	63 and 6 months	62 and 6 months	67 and 6 months
2036–2037	1974–1975	62	63 and 7 months	62 and 7 months	67 and 7 months
2038–2039	1976–1977	62	63 and 8 months	62 and 8 months	67 and 8 months
2040–2041	1978–1979	62	63 and 9 months	62 and 9 months	67 and 9 months
2042–2043	1980–1981	62	63 and 10 months	62 and 10 months	67 and 10 months
2044–2045	1982–1983	62	63 and 11 months	62 and 11 months	67 and 11 months
2046–2047	1984–1985	62	64	63	68
2048–2069	1986–2007	62	b	b	c
2070–2071	2008–2009	62	65	64	69
2072–2093	2010–2031	62	b	b	c
2094–2095	2032–2033	62	66	65	70
2096 or later	2034 or later	62	b	b	c

SOURCE: Author's calculations based on three retirement-age options.

NOTE: The options would continue to index the EEAs and FRA to longevity in perpetuity.

a. Remains the same under the three retirement-age options.

b. EEA increases continue at the same rate, by 1 month every 2 years during the designated time period.

c. The FRA increase continues at the same rate, by 1 month every 2 years during the designated time period.

Benefit Reductions Over Time Under All Three Retirement-Age Options

The growing-gap option, which only increases the FRA, would produce the largest benefit reductions among the three retirement-age options.[12] By 2070, the median percentage reduction in individual benefits compared with scheduled benefits would be 8 percent under the growing-gap option, compared with 4 percent under the gap-5 option and 2 percent under the gap-4 option. To put these reductions in context, median payable benefits in 2070 would be 23 percent lower compared with scheduled benefits.

As the EEA and FRA increase over time, benefit reductions and the percentage of beneficiaries who have benefit reductions would increase. As Chart 1 shows, there would be no change in median benefits in 2030 compared with current law because less than a quarter of beneficiaries would be negatively affected under each of the options. As more beneficiaries are affected by the changes in the EEA and FRA each year (see Table 3), the median benefit reduction compared with scheduled benefits increases over time. For example, under the growing-gap option, the percentage of beneficiaries who would have benefit reductions increases from 13 percent in 2030 to 82 percent in 2070. This option also has the largest percentage of beneficiaries who would have benefit reductions by 2070 (82 percent, compared with 53 percent and 65 percent for the gap-4 and gap-5 options, respectively).

Effects of Increasing the EEA

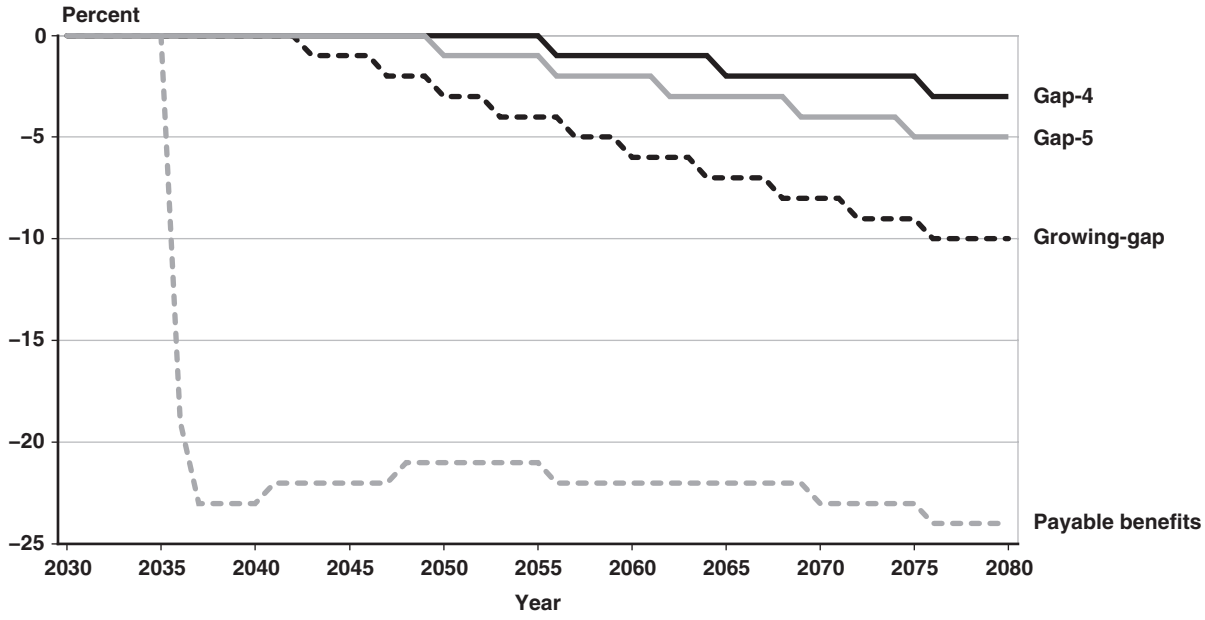
Increasing the EEA would raise benefit claiming ages because beneficiaries could no longer claim benefits at their current law EEA. As noted previously, beneficiaries under current law who claimed benefits before the new, higher EEA would claim them at the new EEA under the gap-4 and gap-5 options. That provides a

Table 3.
Percentage of beneficiaries aged 60 or older with higher or lower benefits relative to scheduled benefits, selected years 2030–2070

	Growing-gap		Gap-4		Gap-5	
Year	Higher benefit	Lower benefit	Higher benefit	Lower benefit	Higher benefit	Lower benefit
2030	0	13	17	9	0	7
2050	0	69	26	45	0	51
2070	0	82	28	53	1	65

SOURCE: Author's calculations using MINT6 data.

Chart 1.
Median individual benefit differences for beneficiaries aged 60 or older relative to scheduled benefits, 2030–2080



SOURCE: Author's calculations using MINT6 data.

"lower bound" estimate of the increase in the median claiming age that would result from raising the EEA. As shown in Table 4, the median benefit claiming age would not change under the growing-gap option compared with scheduled benefits, but would increase under the gap-4 and gap-5 options.[13] For example, under the gap-4 option, the median benefit claiming age would increase 2 years and 4 months for spousal and worker beneficiaries. Under the gap-5 option, there would be a smaller increase in the median benefit claiming age for some groups because the EEA increase would start later (for example, there would be a 1 year and 5 month increase for spousal and worker beneficiaries). Although the median claiming age would increase under the gap-4 and gap-5 options for most beneficiaries, the increasing FRA under all three options would result in additional early retirement months and therefore benefit reductions.

Retired-Worker Beneficiaries and Benefit Reductions Under All Three Retirement-Age Options

All three options would reduce benefits for retired-worker beneficiaries by increasing the number of early retirement months. Under each of those reform options, beneficiaries would be subject to a different number of early retirement reductions based on the increasing FRA and the increases (or lack of increases) in the EEA. In 2070, the median claiming age for retired-worker beneficiaries under scheduled benefits would be 64 and 1 month (see Table 4), while the median FRA would be 67. That results in 35 months of early retirement reductions, or a 20 percent benefit reduction. Under the gap-4 option, the same group of beneficiaries would have an increased median claiming age of 64 and 10 months and an increased median FRA of 68 and 6 months. That results in 44 months of early retirement reductions and an increase in the reduction for early retirement from 20 percent to about 23 percent. Meanwhile, under the growing-gap and gap-5 options, retired-worker beneficiaries would have the same median claiming age (64 and 1 month) as under scheduled benefits, but a higher median FRA (68 and 6 months). That would result in 53 months of early retirement reductions and an increase in the benefit reduction to about 27 percent. As Chart 2 shows, the median number of early retirement months would increase under all three retirement-age options, resulting in benefit reductions for retired-worker beneficiaries compared with scheduled benefits (see Table 5).[14]

Beneficiaries Experiencing Little or No Effect on Benefits Under All Three Retirement-Age Options

Some beneficiary groups would have similar early retirement reductions under the options as they do under current law. For example, under the gap-5 option, a spousal and worker beneficiary would have a median increase of 1 additional month of early retirement (from 56 to 57 months (see Table 4)), increasing their median benefit reduction from 28 percent to about 29 percent.

Table 4.
Median benefit claiming ages for beneficiaries aged 60 or older in 2070 under all three retirement-age options, by beneficiary type

Beneficiary type	Median claiming age under—			Median FRA [b]
	Growing-gap and scheduled benefits [a]	Gap-4	Gap-5	
Retired worker	64 and 1 month	64 and 10 months	64 and 1 month	68 and 6 months
Spousal and worker	62 and 4 months	64 and 8 months	63 and 9 months	68 and 6 months
Spousal only	64 and 9 months	64 and 11 months	64 and 9 months	68 and 6 months
Survivor and worker	62 and 7 months	64 and 5 months	63 and 7 months	68 and 2 months
Survivor only	64 and 9 months	64 and 9 months	64 and 9 months	68 and 2 months
Retired disabled worker	59	59	59	68 and 6 months
Disabled worker	57	57	57	68 and 11 months

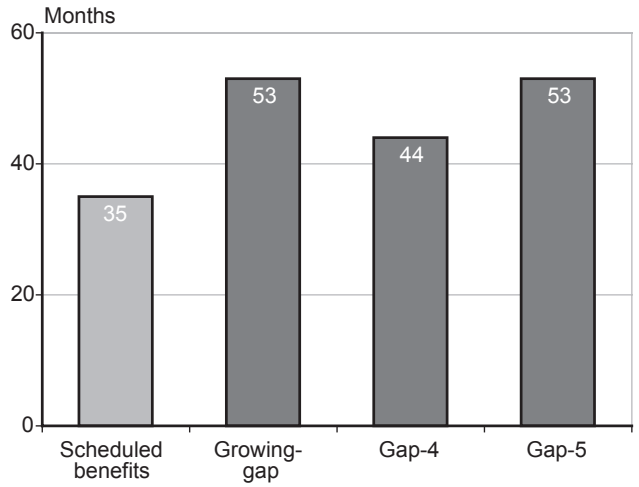
SOURCE: Author's calculations using MINT6 data.

a. The median benefit claiming age does not change under the growing-gap option compared with scheduled benefits.

b. The median FRA under scheduled benefits is age 67 for all beneficiaries.

As shown in Table 5, disabled beneficiaries would not receive benefit reductions at the median under any of the retirement-age options. That is because disabled beneficiaries convert to retired-worker beneficiaries at their FRA and are therefore not subject to early retirement reductions. However, disabled beneficiaries could be affected by these options if they receive auxiliary benefits as an aged spouse or survivor. For example, under the growing-gap option, 10 percent of retired disabled beneficiaries (older than their FRA) would receive a benefit reduction and 4 percent of disabled-worker beneficiaries (younger than their FRA) would receive a reduction.

Chart 2.
Median number of months of early retirement for retired-worker beneficiaries aged 60 or older in 2070



SOURCE: Author's calculations using MINT6 data.

Table 5.
Median percentage change in benefits for beneficiaries aged 60 or older relative to scheduled benefits in 2070, by beneficiary type

Beneficiary type	Growing-gap	Gap-4	Gap-5	Payable benefits
Retired worker	-9	-6	-7	-23
Spousal and worker	-9	0	-3	-23
Spousal only	-8	-2	-2	-23
Survivor and worker	-2	-1	-2	-23
Survivor only	0	-2	-1	-23
Retired disabled worker	0	0	0	-23
Disabled worker	0	0	0	-23

SOURCE: Author's calculations using MINT6 data.

Reducing the Gap Between the EEA and FRA From 5 Years to 4 Years

If the gap between the EEA and the FRA was reduced by 1 year, about 30 percent of beneficiaries would have benefit increases. Reform options that increase the EEA and/or FRA generally reduce benefits, but the gap-4 option would increase benefits for 28 percent of beneficiaries in 2070 (see Table 3). This would occur because the fully phased-in current-law gap of 5 years (starting in 2022) would decrease to 4 years, reducing the maximum number of early retirement reductions.

Table 6 shows how some beneficiaries would receive benefit increases under the gap-4 option. For example, retired-worker beneficiaries who have a higher benefit under the option would receive a 6 percent median benefit increase in 2070 compared with scheduled benefits. Under current law, that group would have 59 months of early retirement reductions, compared with 48 months under the gap-4 option (that is, the benefit reduction for early retirement would decrease from about 30 percent under current law to 25 percent under the option). In general, the beneficiaries who would have benefit increases under the option are those who would claim benefits as early as possible, and therefore would have the greatest number of early retirement reductions, under current law.

Beneficiaries Who Would Not Receive Benefits Under All Three Retirement-Age Options

Up to 6 percent of beneficiaries in the youngest age group (60–69) would not receive a benefit under the options. As noted earlier, under the gap-4 and gap-5 options, beneficiaries who would have claimed benefits at age 62 under current law would no longer be eligible for a benefit (a 100 percent benefit reduction) when they are younger than the new EEA in 2070. However, once those individuals reach the new EEA and claim benefits, they would have fewer months of early retirement under the gap-4 and gap-5 options than they would under the growing-gap option.

As shown in Table 7, 6.3 percent of beneficiaries in the youngest age group would completely lose their benefit under the gap-4 option, while 3.1 percent would completely lose their benefit under the gap-5 option.[15] No beneficiaries in the older age groups (70–79, 80–89, and 90+) would lose their benefits if the EEA increases because they would already be older than the new, higher EEA. Under payable benefits, no beneficiaries

Table 6.
Beneficiaries aged 60 or older who receive a benefit increase under the gap-4 option compared with scheduled benefits in 2070, by beneficiary type

Beneficiary type	Median percentage change in benefits	Scheduled benefits: Median: Claim age	Scheduled benefits: Median: FRA	Scheduled benefits: Number of early retirement months	Gap-4 option: Median: Claim age	Gap-4 option: Median: FRA	Gap-4 option: Number of early retirement months
Retired worker	+6	62 and 1 month	67	59	64 and 6 months	68 and 6 months	48
Spousal and worker	+6	62 and 1 month	67	59	64 and 6 months	68 and 6 months	48
Spousal only	+4	62 and 1 month	67	59	64 and 2 months	68 and 6 months	52
Survivor and worker	+4	62 and 1 month	67	59	64 and 5 months	68 and 2 months	45
Survivor only	+2	70 and 3 months	67	0	70 and 3 months	68 and 2 months	0

SOURCE: Author's calculations using MINT6 data.

Table 7.
Percentage of beneficiaries who would lose their entire benefit in 2070 relative to scheduled benefits, by age group

Age group	Growing-gap	Gap-4	Gap-5	Payable benefits
60–69	0.8	6.3	3.1	0.0
70–79	0.0	0.0	0.0	0.0
80–89	0.0	0.0	0.0	0.0
90+	0.0	0.0	0.0	0.0

SOURCE: Author's calculations using MINT6 data.

would lose their benefits completely because this option would reduce the monthly benefit calculated under current law for all beneficiaries proportionally based on what incoming payroll tax revenues could fund.

Increases in the Poverty Rate Under All Three Retirement-Age Options in 2070

Each retirement-age option would increase the overall poverty rate of 1.2 percent under scheduled benefits by 0.2 to 0.3 percentage points (see Table 8). Poverty would increase more under payable benefits because the median benefit reductions needed to achieve system solvency would be much higher than under the options (see the next section for more information on system solvency). Poverty increases under the three options would be larger for beneficiaries in the younger age groups because they include those beneficiaries who temporarily lose their entire benefit, as discussed previously. For example, under the gap-4 option, the poverty rate would increase by 0.7 percent for beneficiaries aged 60–69 in 2070, compared with a 0.1 percent increase for those in the other age groups.

Table 8.
Poverty rates for beneficiaries in 2070 compared with scheduled benefits, by age group (in percent)

Age group	Scheduled benefits	Growing-gap	Gap-4	Gap-5	Payable benefits
All	1.2	+0.2	+0.3	+0.2	+1.1
60–69	1.5	+0.3	+0.7	+0.4	+1.3
70–79	1.1	+0.3	+0.1	+0.1	+1.1
80–89	0.9	+0.2	+0.1	+0.1	+1.0
90+	0.7	0.0	+0.1	0.0	+0.7

SOURCE: Author's calculations using MINT6 data.

Improving System Solvency

Each of the three retirement-age policy options discussed in this article would improve system solvency about 17–20 percent by reducing scheduled benefits (see Table 9). The *2011 Trustees Report* estimates that Social Security has a long-run deficit equal to 2.22 percent of taxable payroll. This means that restoring the system to solvency would require benefit reductions, tax increases, or a combination of the two that would be equal to 2.22 percent of taxable wages over the next 75 years. The growing-gap option would improve the long-range actuarial balance of -2.22 percent to -1.78 percent of taxable payroll, while the gap-4 option would improve the actuarial balance to -1.77 percent and the gap-5 option would improve it to -1.85 percent. The early retirement reductions in benefits under current law are actuarially fair.[16] This means that regardless of the age at which benefits are claimed, the present value of lifetime benefits would be the same for a person living to his or her normal life expectancy. All three options would have similar

Table 9.
Financial effects of each retirement-age option

Effect	Growing-gap	Gap-4	Gap-5
Change in actuarial balance as a percentage of taxable payroll	+0.44	+0.45	+0.37
Percentage of long-range actuarial imbalance, fixed	19.8	20.2	16.7
Percentage of annual shortfall in the 75th year, fixed	35.6	33.7	28.8

SOURCE: SSA, Office of the Chief Actuary: estimates of the financial effect on the Old-Age, Survivors, and Disability Insurance (OASDI) program over the long-range period (the next 75 years) and for the 75th year. Information given for the three retirement-age policy options—growing-gap (C1.3), gap-4 (C2.2), and gap-5 (C2.3)—is available at http://www.socialsecurity.gov/oact/solvency/provisions/retireage.html.

effects on Social Security solvency because the reductions for early retirement under those options would continue to be actuarially fair. However, as modeled by OCACT, the gap-5 option includes a hardship exemption that would account for the slightly smaller effect on solvency. (The hardship exemption was not modeled for this analysis to make comparisons with the other options more straightforward.) Although all three options would improve system solvency by similar proportions, their effect on individual beneficiaries would vary across the population. This fact highlights the importance of distributional analysis to understanding the impact these varying reforms would have on Social Security beneficiaries.

Notes

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[1] For more information on the PIA, see http://www.socialsecurity.gov/OACT/COLA/piaformula.html.

[2] The report, *Social Security: Why Action Should Be Taken Soon*, by the Social Security Advisory Board, is available at http://www.ssab.gov/Documents/Sooner_Later_2010.pdf. Actual start years were updated from those listed in the report to match the options as scored by the Social Security Administration's Office of the Chief Actuary.

[3] The simulations of the policy options use data from the MINT6 model and are compared with benefits scheduled to be paid under current law (scheduled benefits) and benefits payable without any other changes to current law (payable benefits). The MINT model is based on Social Security administrative data matched to the Survey of Income and Program Participation (SIPP). Work, marriage, retirement, and death are projected for real and imputed individuals based on real earnings, marital histories, and education levels. The comparison is a static one with no behavioral response to the policy options' effect on benefits or income. For more information, see http://www.socialsecurity.gov/retirementpolicy/projection-methodology.html.

[4] In addition to benefit claiming age, beneficiary status could change because of the new EEA and FRA (for example, from a beneficiary to a nonbeneficiary), and beneficiary type could change (for example, from a retired-worker to a widow beneficiary). However, there are no changes relative to disability benefits; that is, we do not change the type of benefits for which people apply.

[5] For more information on payable benefits, see http://www.socialsecurity.gov/retirementpolicy/projections/scheduled-payable.html.

[6] Both the MINT6 assumptions and the retirement-age provisions available on Social Security's OCACT website are based on the *2011 Trustees Report*, available at http://www.socialsecurity.gov/OACT/TR/2011/index.html.

[7] The reduction factor is 0.555 percent for each of the first 36 months and 0.416 percent for each of the next 24 months. If the difference between the EEA and the FRA increases beyond the 5 years in current law, the reduction for each month between 61 and 84 would be 0.376 percent; beyond 7 years, the reduction would be 0.333 percent per month. For more information on claiming benefits early, see http://www.socialsecurity.gov/retire2/agereduction.htm.

[8] For more information on the current-law EEA and FRA for survivor beneficiaries, see http://www.socialsecurity.gov/survivorplan/survivorchartred.htm.

[9] For more information on DRCs, see http://www.socialsecurity.gov/retire2/delayret.htm.

[10] These changes would occur if Congress amends the calculation of the average indexed monthly earnings (AIME) to correspond with the increasing EEA. For more information on the AIME, see http://www.socialsecurity.gov/OACT/COLA/Benefits.html#aime.

[11] For more information on how changes to the EEA affect other aspects of the Social Security program, see http://www.socialsecurity.gov/policy/docs/policybriefs/pb2007-01.html.

[12] For further discussion of the distributional analysis of increasing only the FRA, see http://www.socialsecurity.gov/policy/docs/policybriefs/pb2011-01.html.

[13] The median claiming age under scheduled benefits in 2070 may seem high, given that MINT projects that 40 percent of retired-worker beneficiaries would claim benefits at age 62. However, those numbers are similar to today's program data. For example, the average age of male retired-worker beneficiaries who claimed benefits in 2010 was age 63.8, with 43.6 percent claiming at age 62 (see Table 6.B5.1, http://www.socialsecurity.gov/policy/docs/statcomps/supplement/2011/6b.html).

[14] If beneficiaries in the future choose to claim benefits later to avoid the increasing early retirement reductions under the options, they would still be subject to benefit reductions because they are forgoing benefit payments in those months when they would have received a benefit under current law.

[15] A very small percentage of beneficiaries lose their benefits completely under the growing-gap option, which is the result of the interaction with the retirement earnings test (RET). For more information on how the RET can affect distributional analysis, see Appendix C, http://aging.senate.gov/crs/ss7.pdf.

[16] For more information on the actuarial fairness of the EEA and early retirement reductions, see http://crr.bc.edu/briefs/can-the-actuarial-reduction-for-social-security-early-retirement-still-be-right/.

How Did the Recession of 2007–2009 Affect the Wealth and Retirement of the Near Retirement Age Population in the Health and Retirement Study?

by Alan L. Gustman, Thomas L. Steinmeier, and Nahid Tabatabai*

This article uses household wealth and labor market data from the Health and Retirement Study (HRS) to investigate how the recent "Great Recession" has affected the wealth and retirement of those approaching retirement age as the recession began, a potentially vulnerable population. The retirement wealth of people aged 53–58 in 2006 declined by a relatively modest 2.8 percent by 2010. Relative losses were greatest among those with the highest wealth when the recession began. Most of the loss in wealth is due to a declining net value of housing, but several factors may provide this cohort with time to recover its housing losses. Although unemployment rose during the Great Recession, that increase was not mirrored by flows out of full-time work or partial retirement. To date, the retirement behavior of the Early Boomer cohort does not differ much from that of older cohorts at comparable ages.

Introduction

This article uses household wealth and labor market data from the Health and Retirement Study (HRS) to investigate how the "Great Recession" of December 2007–June 2009 has affected the wealth and retirement of people who were approaching retirement age as the recession began. Near-retirees would seem to be highly vulnerable to an unexpected downturn, as they have very few effective options for adjusting their behavior in the short term. They can postpone retirement and save at a higher rate, but postponing retirement is of little help to those who have lost their jobs. Moreover, there is little time to increase savings, so any large losses from the recession are likely to be permanent, affecting welfare throughout retirement.

HRS data enable us to introduce four analytical innovations. First, the HRS provides panel data that allow us to calculate changes in key outcomes for the same individuals over the full course of the recession. Second, HRS data enable us to compare the changes in outcomes between cohorts—during the recession for those nearing retirement age at its onset, and over a comparable age span for members of older cohorts. Third, we can identify the prevalence of those who gained or lost wealth in the recession according to their place in the wealth distribution. Fourth, although speculation about the recession's effects usually focuses on

Selected Abbreviations

DB	defined benefit
DC	defined contribution
HRS	Health and Retirement Study
IRA	individual retirement account
SCF	Survey of Consumer Finances

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measures of retirement expectations, the HRS provides detailed data on actual retirement outcomes.

Our analysis measures wealth comprehensively, accounting for the values of defined benefit (DB) and defined contribution (DC) pensions, lifetime Social Security benefits, individual retirement accounts (IRAs), the net value of housing, and other accumulated financial and nonfinancial wealth. With these data, we measure the extent to which the recession's effects on volatile assets were cushioned by more stable assets.

Measures of employment-related outcomes reported by the HRS include the extent of full-time work, full and partial retirement, hours of work, and unemployment, as well as the number of people who report themselves being not retired but also not working. We measure flows among these statuses between 2006 and 2010. The HRS data also allow us to understand what underlies changes in employment patterns and how conditions in the job market affect retirement flows. For example, the HRS reports involuntary layoffs, as well as other reasons for changes in employment status, including anticipation of a job loss. It also reports enrollment in disability programs.

When we examine the cohort approaching retirement age during the Great Recession, we find that on average their real wealth fell by 2.8 percent. When members of cohorts 6 and 12 years older were the same age (53 to 58), their wealth increased about 5 percent in real terms. To be sure, the economic environment facing the Great Recession's near-retirees differed from that experienced by cohorts who approached retirement in more stable economic times. Workers nearing retirement 6 and 12 years before the Great Recession benefitted disproportionately from the boom in housing prices and the stock market. Nevertheless, the comparison suggests that the recession depressed the wealth of near-retirees by at most 8 percent.

As for labor market outcomes, although the data suggest high layoff rates during the Great Recession, they were only slightly higher than the rates experienced by members of older cohorts when they were the same ages. Much has been written about changes in retirement behavior induced by the recession, but individuals aged 53–58 when the recession began retired at roughly the same pace as did members of older cohorts at comparable ages.

The article proceeds in five sections. The first measures the distribution of changes in the various components of wealth over a period spanning the recession. The second compares the changes in wealth experienced by the retirement-age population during the Great Recession with the changes experienced by members of older cohorts at comparable ages. The third section distinguishes those who gained wealth from those who lost. The fourth examines changes in labor market outcomes, including the numbers in various labor market statuses, flows among those statuses (including flows into retirement and reversals in retirement status), and reasons for status changes. The fifth section concludes.

Changes in Wealth Between 2006 and 2010 for Near-Retirees

We begin by describing the components of total wealth and the characteristics of the study sample. We then discuss how the wealth component values changed over the course of the recession for those who approached retirement age as it began.

Components of Total Wealth

The basic elements of wealth include the present value of projected lifetime Social Security benefits; pension benefits; the value of the primary home, net of mortgage debt; and the value of other real estate (primarily second homes), business assets, vehicles, financial assets (including direct stock holdings), and assets in IRAs. We calculate pension benefit wealth separately for DB and DC plans, with detail for DC plans from current and previous jobs and for stock holdings in all DC plans. Social Security benefit calculations are described below; the Appendix describes the calculations of the other components of wealth and the imputation procedures used when values for specific components are missing.[1]

Projected lifetime Social Security benefits include an individual's own earned benefits plus spouse and survivor benefits (where eligible), calculated under specific life expectancy assumptions. The calculations assume that the respondent stops working and claims benefits as soon as eligible (the "claim now" scenario). Our calculations are from Kapinos and others (2008), which assumes that earnings end in 2004, when many people in our study sample were a number of years from being able to claim their Social Security benefits at age 62. With work assumed to end in 2004, projected benefits are not adjusted to reflect earnings between 2005 and 2010. We adopt this rough approximation when calculating Social Security wealth because we do not have adequate data with which to update the claim-now values for Social Security that

would be associated with additional work after 2004. The mean of the ratio of claim-now benefits to benefits claimed at full retirement age is 0.87; the ratios vary between zero and 1.6, with one extreme value equal to 2.6. We include the actual benefit amount for those already receiving benefits in the base year.[2]

Sample Characteristics

The study sample comprises HRS participants who are members of the Early Boomer cohort; that is, those residing in households with at least one member aged 53–58 in 2006. The analysis includes only respondents who participated in both the 2006 and 2010 surveys and whose household structure remained unchanged over the 4 years. We excluded households reporting wealth within the top or bottom 1 percent of households in the relevant year.[3] Table 1 reports average values, weighted using 2006 as the base year.[4] Values for households in the median 10 percent of wealth are reported in Table 2, and Table 3 reports results for those in the bottom quartile of total wealth.

Components of Wealth in 2006

Table 1 reports values for 2006 and 2010, with 2006 values adjusted to 2010 dollars to enable meaningful comparisons. The total wealth of the Early Boomer population is 2.8 percent lower in 2010 ($847,000) than it was in 2006 ($871,000). Thus, the cohort approaching retirement age has experienced a modest reduction of total wealth during the recession. The story is similar for households in the median 10 percent of wealth (Table 2): total wealth in 2010 ($621,000) is 4.3 percent lower than in 2006 ($649,000). However, for households in the bottom quartile (Table 3), wealth declines only 0.8 percent between 2006 ($124,000) and 2010 ($123,000).

Table 1.
Effect of the Great Recession on the average value of wealth in Early Boomer households, by component: 2006 (adjusted) and 2010

Component	2006		2010		Ratio of values, 2010 to 2006
	Mean value (thousand dollars)	Percent of total	Mean value (thousand dollars)	Percent of total	
Total	871	100.0	847	100.0	0.97
Social Security plus pensions	476	54.6	473	55.8	0.99
Social Security benefits [a]	256	29.4	256	30.2	1.00
All pensions	220	25.3	218	25.7	0.99
DB plans	150	17.3	141	16.6	0.94
DC plans	70	7.9	78	9.2	1.11
DC plan from previous job	18	2.0	28	3.3	1.56
DC plan from current job	53	6.0	51	6.0	0.96
Current-job DC plan stock holdings	33	3.7	25	3.0	0.76
Net housing value	167	19.2	128	15.1	0.77
Real estate	35	4.1	26	3.1	0.74
Business assets	38	4.4	31	3.7	0.82
Net value of vehicles	20	2.3	17	2.0	0.85
Financial assets	78	9.0	84	9.9	1.08
Direct stock holdings	38	4.4	42	5.0	1.11
IRA assets	58	6.7	87	10.3	1.50
IRA stock holdings	43	4.9	56	6.6	1.30
IRA plus stock holdings plus DC in stocks	123	14.1	137	16.2	1.11

SOURCE: Authors' calculations using HRS.

NOTES: Based on 1,949 observations. Sample excludes households in the top and bottom 1 percent of wealth in each survey year. Data are weighted.

Early Boomer households are those with at least one member born during 1948–1953.

Subtotals do not necessarily equal the sum of rounded components.

All values are 2010 dollars.

a. Social Security wealth is held constant in real terms by construction.

Trends in Components of Total Wealth

As seen in Table 1, pensions and Social Security are the two most important asset categories in 2006, together accounting for 54.6 percent of total wealth. The corresponding value for households in the median 10 percent of total wealth is 64.0 percent (Table 2) and for those in the bottom quartile it is 83.7 percent (Table 3). These results illustrate a well-known pattern in which Social Security accounts for a larger share of total wealth among those toward the bottom of the wealth distribution, a relationship not fully offset by the increasing importance of pensions among those toward the top of the wealth distribution. For households in the Early Boomer cohort, Social Security accounts for 29.4 percent of household wealth on average, for 43.9 percent of total wealth among median-wealth households, and for 79.2 percent of total wealth for bottom-quartile households. In 2006, pensions accounted for roughly one-quarter of total wealth at the mean, one-fifth for median households, and one-twentieth for households in the bottom quartile.

The net value of housing is the next largest component of total wealth. On average, it accounts for 19.2 percent of total wealth in 2006. Net housing value respectively accounts for 21.0 percent and 10.5 percent of wealth for households in the median 10 percent and in the bottom quartile of total wealth.

Financial and IRA assets together account for 15.7 percent of total wealth at the mean. For median-wealth households, they account for 7.9 percent of total wealth, while for those in the bottom quartile, debt cancels out the combined value of checking and savings accounts, DC plans, bonds, treasury bills, and other assets.

Table 2.
Effect of the Great Recession on the average value of wealth in Early Boomer households in the median 10 percent of wealth, by component: 2006 (adjusted) and 2010

Component	2006		2010		Ratio of values, 2010 to 2006
	Mean value (thousand dollars)	Percent of total	Mean value (thousand dollars)	Percent of total	
Total	649	100.0	621	100.0	0.96
Social Security plus pensions	415	64.0	420	67.6	1.01
Social Security benefits	285	43.9	284	45.7	1.00
All pensions	130	20.1	136	21.9	1.05
DB plans	94	14.5	90	14.5	0.96
DC plans	37	5.7	46	7.4	1.24
DC plan from previous job	8	1.2	15	2.4	1.88
DC plan from current job	29	4.5	31	5.0	1.07
Current-job DC plan stock holdings	20	3.1	18	2.9	0.90
Net housing value	137	21.0	88	14.2	0.64
Real estate	18	2.8	9	1.4	0.50
Business assets	9	1.4	21	3.4	2.33
Net value of vehicles	18	2.8	15	2.4	0.83
Financial assets	23	3.4	16	2.6	0.70
Direct stock holdings	7	1.2	10	1.6	1.43
IRA assets	29	4.5	52	8.4	1.79
IRA stock holdings	21	3.3	33	5.3	1.57
IRA plus stock holdings plus DC in stocks	54	8.4	68	11.0	1.26

SOURCE: Authors' calculations using HRS.

NOTES: Based on 200 observations for 2006 and 193 observations for 2010. Sample excludes households in the top and bottom 1 percent of wealth in each survey year. Data are weighted.

Early Boomer households are those with at least one member born during 1948–1953.

Subtotals do not necessarily equal the sum of rounded components.

All values are 2010 dollars.

Changes in Components of Wealth 2006–2010

We examine changes in the components of total wealth by comparing 2006 and 2010 values, using 2010 dollars for both years. Note that the present value of Social Security ($256,000) does not change because we use the 2010 base to calculate the present value no matter the base year of the survey. Otherwise, we would find differences in total wealth between 2006 and 2010 simply because of the passage of time.[5]

Changes in earnings induced by the recession may affect the present value of Social Security benefits. If the recession alters earnings in later years, those differences change the average lifetime earnings on which monthly benefit amounts are calculated. Although we do not have Social Security earnings records for 2010 with which to calculate any resulting differences in benefit amounts, the effect of the recession on Social Security wealth is likely to be very modest.

Benefit adjustments for early and delayed benefit claiming are designed to be actuarially fair, so that changes in Social Security wealth due to additional work and delayed claiming will be much smaller than the associated changes in annual benefits. Recession-induced changes in employment will be the major source of change in Social Security wealth. Even here, for many people the change will mean that earnings from an earlier year will be used in calculating benefits, instead of covered earnings on a job that was lost due to the recession. When we examine the changes in employment and retirement induced by the recession, we find that these changes are very modest, so that the induced change in Social Security wealth should likewise be very modest. Nevertheless, because we calculate Social Security wealth as of claiming age in 2004, we understate the recession's effect on it in 2010. Benefit claiming at the earliest entitlement age also

Table 3.
Effect of the Great Recession on the average value of wealth in Early Boomer households in the lowest wealth quartile, by component: 2006 (adjusted) and 2010

Component	2006		2010		Ratio of values, 2010 to 2006
	Mean value (thousand dollars)	Percent of total	Mean value (thousand dollars)	Percent of total	
Total	124	100.0	123	100.0	0.99
Social Security plus pensions	104	83.7	104	84.7	1.00
Social Security benefits	98	79.2	97	79.0	0.99
All pensions	6	4.5	7	5.7	1.25
DB plans	3	2.3	4	3.0	1.28
DC plans	3	2.2	3	2.6	1.19
DC plan from previous job	1	0.4	a	0.6	1.75
DC plan from current job	2	1.8	3	2.0	1.09
Current-job DC plan stock holdings	1	1.2	11	0.9	0.79
Net housing value	13	10.5	14	11.5	1.08
Real estate	1	0.8	1	0.7	0.90
Business assets	1	0.9	1	0.5	0.55
Net value of vehicles	5	4.1	5	3.7	0.92
Financial assets	-2	-1.5	-4	-2.8	1.75
Direct stock holdings	a	0.2	a	0.3	2.00
IRA assets	2	1.5	2	1.7	1.05
IRA stock holdings	1	0.7	1	1.0	1.33
IRA plus stock holdings plus DC in stocks	3	2.3	3	2.4	1.07

SOURCE: Authors' calculations using HRS.

NOTES: Based on 478 observations. Sample excludes households in the top and bottom 1 percent of wealth in each survey year. Data are weighted.

Early Boomer households are those with at least one member born during 1948–1953.

Subtotals do not necessarily equal the sum of rounded components.

All values are 2010 dollars.

a. Less than $500.

reduces Social Security wealth for families because of the limit on widow's benefits.

We can make a very crude calculation to indicate an upper limit of the likely effect of using the "claim now" scenario. That upper limit is the difference in benefits between the "claim now" scenario, where the individual stops working immediately (overstating the effect of the recession on work), and the early entitlement scenario, where all respondents are assumed to work until early entitlement age (yielding a major overstatement of the change in work due to the recession). For those in our sample who are younger than 62 in 2006, own benefits are $101,000 in the "claim now" scenario, $116,000 if claimed at early entitlement age, and $120,000 if claimed at full retirement age. Again, the overall understatement in the effect of the recession on own benefits will be much less than the 13 percent difference in calculated Social Security wealth between individuals who "claim now" and those who claim at early retirement age. This understatement is likely to be less than 13 percent even when the calculation includes spouse and survivor benefits.

Between 2006 and 2010, the present value of lifetime wealth held in all pensions fell by about 1 percent in real terms, from $220,000 to $218,000. The value of DB plans declined about 6 percent. Conversely, the mean real value of DC plans increased by 11 percent, from $70,000 to $78,000. The real value of DC plans held from previous jobs increased by 56 percent between 2006 and 2010, whereas those provided by current jobs decreased by 4 percent. However, the number of people classified as having a DC plan from a previous job is affected by the number who left their jobs in the previous 4 years. Excluding the plans that entered the previous-job category between 2006 and 2010, the growth in balances of plans from previous jobs would be 20 percent. The 4 percent decline in current-job DC plan balances was cushioned by contributions made over the 4-year period. The value of stock holdings in current-job DC plans fell by about one-quarter. Note that some of the value of DB and DC plans rolled over into IRAs for those with nonretirement separations between 2006 and 2010. Thus, part of the turnover in pension balances is reflected in IRA assets, which increased 50 percent, from $58,000 to $87,000, over the 4-year period. However, a composition effect underlies these changes, as explained below.

Changes between survey years in the composition of households with an IRA influence the apparent broad growth in real IRA balances. In our sample, the 159 households that had no IRA balance in 2006 had an average IRA balance of $178,000 in 2010. By contrast, the 191 households that had no IRA balance in 2010 reported an average balance of $64,000 in 2006. For the 580 households that reported an IRA balance in both years, average balances increased from $139,000 to $216,000, or by 55 percent. Once again, however, these increases are affected by the presence of those who had an IRA in 2006 and also rolled a pension from a current or previous job into an IRA between 2006 and 2010.

Four asset categories suffered major declines in value over the recession: housing, real estate (mainly second homes), business assets, and the net value of vehicles. Housing wealth is the largest of these assets, representing almost one-fifth of total wealth in 2006. In real terms, net housing wealth declined by 23 percent between 2006 and 2010. The decline in net housing wealth is greater than the decline in housing prices because the wealth calculation subtracts any mortgage obligation from the gross value of the house. Thus, net housing wealth is more sensitive to the decline in housing prices than is gross housing wealth. The $39,000 decline in real net housing wealth from $167,000 to $128,000 equals 4.5 percent of total wealth held at the onset of the recession.[6] In fact, the decline in housing wealth exceeds the entire decline in total wealth of households, having absorbed the increases in wealth that accrued from other assets.

Although nearly 30 percent of our sample described their area as a "poor" housing market, negative net housing wealth is not common among members of the Early Boomer cohort. As seen in Table 4, in 2006, 42 out of 1,949 households had negative net housing wealth, averaging -$81,716. In 2010, 92 households had negative housing wealth, averaging -$66,047 per household. Although this is a serious problem for the affected households and the average amount "under water" is quite high, only 5 percent of households in the Early Boomer cohort had negative housing wealth, even by 2010. Only 3.2 percent of homeowners fell behind in their mortgage, with 0.9 percent reporting they faced possible foreclosure. Most had paid off enough of their mortgage by 2006 to avert going under water as a result of the recession. Although multiple adverse events—such as losing a job, being unable to pay the mortgage, and as a result losing a home—are a major issue for younger people, only 0.3 percent of this older sample reported losing a job and facing potential or actual foreclosure.

The decline in housing wealth will affect consumption during retirement less than the fall in housing

values would suggest. Individuals typically hold housing wealth intact throughout most of retirement, spending it only after health deteriorates substantially or family structure changes, as with the death of a spouse or entry into a nursing home (Venti and Wise 2004). This means that most nonhealth-related expenditures over the course of retirement are financed by a combination of Social Security, pensions, and financial assets. In 2010 dollars, average total wealth excluding net housing value actually grew by 2.1 percent over the period of the recession, from $704,000 to $719,000.

Bricker and others (2012) use statistics from the Survey of Consumer Finances (SCF) to examine changes in wealth over the 2007–2010 period. Although comparing results drawn from the HRS with those drawn from the SCF is useful, the comparisons are not straightforward. That study focuses on the full population; in the few results it reports for near-retirees, the age groups most comparable to those in our study are 45–54 and 55–64. In addition, that study's authors calculate wealth differences from cross-sectional data, comparing different people at similar ages at the beginning and the end of the full period of the recession. By contrast, we focus on changes in a panel, comparing wealth levels for the same individuals at the beginning and the end of the recession. In a related paper, Bricker and others (2011) report results for a SCF panel that covers 2006–2009. Thus, their reference period is not identical with this study's 2006–2010, which may be a problem if, as seems likely, some residual adverse effects of the recession extend beyond its formally recognized end date. The SCF panel differs from the HRS panel in other respects as well. [7]

Bearing these differences in mind, we compare specific findings in Bricker and others (2012) with our findings for the HRS population. Mean wealth in 2006, reported in 2010 dollars for members of the panel reported in the present study (where one member of the household is aged from 53 to 58 in 2006), is $871,000 overall and $649,000 for those in the median 10 percent of wealth.[8] Eliminating the DB pension and Social Security categories, mean wealth in the HRS data is $465,000 among all households and $270,000 among households in the median 10 percent of wealth. Mean wealth figures for the HRS are well below the mean values found in the SCF, because the SCF sample heavily weights the high-income oversample. Recalling that the SCF excludes Social Security and DB pensions, mean wealth in the 2007 SCF, reported in 2010 dollars, is $695,000 and $987,000 for those families in 2007 with a head aged 45 to 54, and aged 55 to 64, respectively; the corresponding median values are $194,000 and $266,000. Once the HRS wealth figures are adjusted to eliminate Social Security and DB pension wealth, we see that the median wealth figures for the SCF and HRS are much closer than are the means.

The change in mean wealth, excluding Social Security and DB pensions, is much smaller in the HRS than in the SCF. For those in the SCF aged 45 to 54, mean wealth declines by 17.5 percent; for those aged 55 to 64, mean wealth declines by 10.8 percent. In the HRS, including pensions and Social Security for the panel, mean wealth declines by 2.8 percent. Excluding DB pensions and Social Security, mean wealth falls by 3.2 percent. Remember that the HRS data refer to changes in total wealth experienced over the 4 years

Table 4.
Households with negative net house value, gross house values, and mortgages in 2006 and 2010 (weighted)

Year	Sample size	Households with negative net house value		All households	
		Number	Mean net value ($)	Mean gross value ($)	Mean mortgage ($)
			Full sample		
2006	1,949	42	-81,716	218,409	68,862
2010	1,949	92	-66,047	194,203	66,319
			Households in median 10% of wealth		
2006	200	3	-28,002	198,189	75,791
2010	193	17	-90,817	174,149	86,233
			Households in bottom wealth quartile		
2006	478	11	-77,188	28,605	16,945
2010	478	22	-55,583	33,801	19,683

SOURCE: Authors' calculations using HRS.

by the same individuals, while the changes reported in the SCF are cross-sectional.

Cross-Cohort Comparisons

Next, we consider how changes in wealth for the Early Boomer cohort compare with those observed for earlier cohorts. If we are to determine the full effects of the recession, we need some idea of how wealth would have grown in more stable economic times. To document differences over similar age spans in earlier periods, we examine the cohorts whose members were aged 53–58 in 2000 (the "War Baby" cohort) and those aged 53–58 in 1994 (commonly known as the "original HRS cohort," as this group comprised the study's initial panel).

To be sure, the experiences of the two earlier cohorts may be unusual in their own respects, featuring a stock market boom (1994–1998) and a housing bubble (2000–2004). We also are aware that differences in the path of wealth accumulation between members of the Early Boomer and older cohorts may reflect influences other than the recession, such as long-term demographic, economic, and behavioral trends. Nevertheless, bearing the differences in mind, cross-cohort comparisons are informative.

As we have found, the total wealth of the Early Boomer population declined by 2.8 percent over the period of the Great Recession. By comparison, wealth grew by 7.6 percent for the original HRS cohort and by 3.2 percent for the War Babies at similar ages (Table 5). Thus, with the two earlier cohorts enjoying gains averaging 5.4 percent, Early Boomers' net wealth at the end of the Great Recession would have been about 8 percent higher had it grown at the same rate.

Table 5.
Change in the value of wealth for Early Boomers during the Great Recession compared with the experience of two earlier cohorts at the same ages, by component of wealth

Component	Early Boomer cohort: 2010 value relative to 2006 value	War Baby cohort: 2004 value relative to 2000 value	Original HRS cohort: 1998 value relative to 1994 value
Total	97.2	103.2	107.6
Social Security plus pensions	99.4	95.4	102.2
Social Security benefits [a]	100.0	100.0	100.0
All pensions	99.1	90.8	106.0
DB plans	94.0	90.5	100.6
DC plans	111.4	91.5	129.7
DC plan from previous job	155.6	155.3	177.4
DC plan from current job	96.2	80.0	113.3
Current-job DC plan stock holdings	75.8	--	--
Net housing value	76.6	138.7	106.5
Real estate	74.3	123.8	95.9
Business assets	81.6	97.1	96.8
Net value of vehicles	85.0	105.0	91.3
Financial assets	107.7	104.7	126.5
Direct stock holdings	110.5	93.8	160.0
IRA assets	150.0	90.3	157.1
IRA stock holdings	130.2	--	--
IRA plus stock holdings plus DC in stocks	111.4	--	--
Observations	1,949	2,028	3,401

SOURCE: Authors' calculations using HRS.

NOTES: Data are weighted. For each period, values for the earlier year have been adjusted to the later year's constant-dollar value.

Samples exclude households in the top and bottom 1 percent of wealth in each survey year.

Early Boomer households are those with at least one member born during 1948–1953. War Baby households are those with at least one member born during 1942–1947. Original HRS cohort households are those with at least one member born during 1936–1941.

-- = not available.

a. Social Security wealth is held constant in real terms by construction.

We can also compare changes in the value of pensions and IRAs over the period of the recession with those experienced by members of older cohorts. Trends in pension coverage, rules, and availability by plan type have affected the three cohorts differently. For instance, the share of Early Boomers reporting they lost their pension roughly doubled the shares reported by each of the comparison cohorts (not shown). Early Boomers with DB plans reported more coverage changes than did members of earlier cohorts at comparable ages, and Early Boomers with DC plans reported fewer changes. Although these changes may indicate effects of the recession, some of the differences may instead reflect longer-term trends as well as changes in survey questions over the years.

Table 6 compares the changes in wealth components by cohort. Average pension wealth increased by about 6 percent (from $201,000 in 1994 to $213,000 in 1998) for members of the original HRS cohort, with nearly all of the increase attributable to DC plan holdings. By contrast, total pension wealth remained essentially steady for members of the Early Boomer cohort over the period of the Great Recession, with DB values declining and DC values growing. Remember that rollovers move funds from the pension category to the IRA category. In both periods, the growth in IRA wealth was substantial, expanding by roughly half in a 4-year span.

The housing bubble affected the growth of total wealth experienced by the older cohorts. In broad terms, wealth in the form of housing value increased by 6.5 percent (from $108,000 to $115,000) between 1994 and 1998, grew by 38.4 percent (from $111,000 to $154,000) between 2000 and 2004, and fell 23.4 percent (from $167,000 to $128,000) between 2006 and 2010. More specifically, because housing constituted

Table 6.
Average value of wealth for Early Boomers before and after the Great Recession compared with the experience of two earlier cohorts at the same ages, by component of wealth (thousands of dollars)

	Early Boomers		War Babies		Original HRS	
Component	2006	2010	2000	2004	1994	1998
Total	871	847	866	894	788	848
Social Security plus pensions	476	473	479	457	453	463
Social Security benefits [a]	256	256	239	239	251	251
All pensions	220	218	240	218	201	213
DB plans	150	141	169	153	164	165
DC plans	70	78	71	65	37	48
DC plan from previous job	18	28	11	17	7	14
DC plan from current job	53	51	60	48	30	34
Current-job DC plan stock holdings	33	25	--	--	--	--
Net housing value	167	128	111	154	108	115
Real estate	35	26	42	52	49	47
Business assets	38	31	35	34	31	30
Net value of vehicles	20	17	20	21	23	21
Financial assets	78	84	106	111	83	105
Direct stock holdings	38	42	64	60	35	56
IRA assets	58	87	72	65	42	66
IRA stock holdings	43	56	--	--	--	--
IRA plus stock holdings plus DC in stocks	123	137	--	--	--	--
Observations	1,949		2,028		3,401	

SOURCE: Authors' calculations using HRS.

NOTES: Data are weighted. For each cohort, values for the earlier year are adjusted to the later year's constant-dollar value.

Samples exclude households in the top and bottom 1 percent of wealth in each survey year.

Early Boomer households are those with at least one member born during 1948–1953. War Baby households are those with at least one member born during 1942–1947. Original HRS cohort households are those with at least one member born during 1936–1941.

-- = not available.

a. Social Security wealth is held constant in real terms by construction.

13.7 percent of total wealth ($788,000) in 1994, housing wealth growth accounted for 0.9 percentage points of the 7.6 percent increase in total wealth for the original HRS cohort. For the War Babies, the growth in real housing wealth by itself would have increased real total wealth by 5.0 percent, but because of declines in other categories, total wealth increased only 3.2 percent. For the Early Boomers, the decline in housing value alone would have reduced total wealth by 4.5 percent, but because of modest gains in other categories, total wealth declined by only 2.8 percent.

In sum, this relatively informal analysis suggests that the Early Boomers experienced only a modest decline in total wealth over the period of the Great Recession. They accumulated less wealth over the period of the recession than they would have had they shared the near-retirement economic experience of members of cohorts born 6 or 12 years earlier, but a good part of that difference reflects the fact that members of the War Baby cohort enjoyed an atypical wealth increase from the housing bubble.

Households with Gains and Losses in Wealth

In this section we distinguish between those whose total wealth (and individual assets) gained or lost value over the period spanning the Great Recession. Table 7 reports the percentage of individuals experiencing changes in each of the components of wealth between 2006 and 2010, and the average changes in value. The wealth values in Table 7 differ from those in Table 1, which reflects assets held by all members of the cohort. Thus, Table 1 includes zero values in the averages, while Table 7 includes values only for the subgroup of the population that actually owns the asset.[9]

Of the five assets with the highest values in Table 1, Social Security wealth was held by 98.0 percent of households in 2006, while 71.1 percent held pension wealth, 79.3 percent owned a home, 65.8 percent had financial assets, and 43.3 percent had IRA balances. Nearly 43 percent of households lost more than 5 percent of their total wealth between 2006 and 2010.

Table 7.
Distribution of Early Boomer households by change in value of wealth over the course of the Great Recession, by component of wealth

Component	Percentage of households with any holdings in 2006	Among households holding any wealth in the given component in 2006, percentage as of 2010 with—			Among households holding any wealth in the given component in both 2006 and 2010	
		Loss in value greater than 5%	Growth in value greater than 5%	Change in value between -5% and 5%	Mean value in 2010 (thousands of dollars)	Percent change in mean value 2006–2010
Total	99.8	42.9	39.8	17.3	842	-2.6
Social Security benefits	98.0	[a] 0.0	[a] 0.0	[a] 100.0	261	0.0
All pensions	71.1	49.8	40.3	9.9	328	1.2
DB plans	50.0	69.2	26.1	4.7	314	-0.1
DC plans	49.7	41.5	42.5	15.9	162	6.6
Net housing value	79.3	61.9	32.5	5.7	157	-24.5
Real estate	15.3	76.9	22.4	0.7	214	-15.5
Business assets	11.8	74.1	25.3	0.7	345	-5.4
Net value of vehicles	86.2	60.6	36.9	2.5	20	-16.4
Financial assets	65.8	46.4	50.9	2.5	151	3.5
Direct stock holdings	25.6	73.0	25.2	1.8	194	7.8
IRA assets	43.3	44.8	51.5	3.6	216	40.2
IRA stock holdings	35.5	53.3	43.2	3.5	161	16.5

SOURCE: Authors' calculations using HRS.

NOTES: Based on 1,927 observations. Sample excludes households in the top and bottom 1 percent of wealth in 2006 and in the top 1 percent of wealth in 2010.

Early Boomer households are those with at least one member born during 1948–1953.

Subtotals do not necessarily equal the sum of rounded components.

Calculations are based on 2006 values in 2010 dollars.

a. Social Security wealth is held constant in real terms by construction.

Total wealth increased by more than 5 percent for 39.8 percent of households, and 17.3 percent of households experienced a change of 5 percent or less in real terms. The average real value of total assets fell by 2.6 percent between 2006 and 2010.[10]

For most assets, the share of households experiencing a loss in value of greater than 5 percent exceeds the share for which the asset gained over 5 percent in value. Nearly 50 percent of households with a pension experienced more than a 5 percent loss in pension value, while 40.3 percent experienced a gain of more than 5 percent in value. The remaining 9.9 percent of households experienced a change of less than 5 percent in absolute value. In terms of housing wealth, households losing more than 5 percent in value outnumbered those gaining more than 5 percent by 61.9 percent to 32.5 percent. Among households with a positive value for both 2006 and 2010, net housing value declined by one-quarter. The values of real estate holdings (mainly second homes), business assets, and vehicles also declined. However, the other major asset categories showed gains that were almost large enough to offset those losses. The real value of pensions rose by 1.2 percent; DB plan values were steady and DC plan balances grew with increasing contributions over the period, as well as with real interest and other payments. Financial assets increased by 3.5 percent, and IRA assets gained 40.2 percent. Some of the gain in IRA assets almost certainly reflects the effects of rollovers. Note, however, that with the overall real pension wealth increase of 1.2 percent between 2006 and 2010, the increase in the values of pensions due to contributions and additional work was sufficient to offset the pension value lost to rollovers.

Comparing households that gained or lost DB pension wealth, we begin with the households that had DB pension wealth in 2006. Of the 918 observations with DB pension wealth that changed by more than 5 percent by 2010, 664 experienced a reduction in value, while 254 experienced a gain. Losers experienced an aggregate loss of $76.6 million, while gainers accumulated $43.2 million (not shown). However, when we limit the sample to those who have DB pension wealth in both years, 527 households lost DB wealth totaling $44.6 million, while 254 households gained $43.2 million. Thus, once we condition on having a DB pension asset in both years, although the number of households experiencing losses roughly doubles the numbers of gainers, the dollar value of pension gains and losses roughly balance, with a gain-to-loss ratio of about 0.97.

The gains and losses of DC wealth are less balanced. For households reporting DC wealth in 2006, 394 experienced losses while 396 had gains. Despite those similar counts, aggregate DC pension losses ($45.2 million) were 31 percent greater than gains ($34.4 million). If we restrict the sample to households reporting DC wealth in both 2006 and 2010, 199 households lost DC wealth and almost twice as many, 396, experienced gains. The value of gains was roughly $34.4 million, while losses were $27.3 million, so that gains outstripped losses by about 26 percent.

Also among those holding DC wealth in 2006, stocks comprised roughly the same share of the portfolios of those who experienced gains as for those who endured losses. Stocks accounted for 60 percent of DC value in 2006 for those whose DC wealth dropped during the recession, and 53 percent afterward; the corresponding figures for those who gained DC wealth are 61 percent and 50 percent.

In Tables 8 and 9, we examine the distributions of households experiencing total wealth losses and gains ordered by their wealth decile. Table 8 shows that 39 percent of households in the lowest wealth decile experienced a decline in the total value of their assets. This share increases to 70 percent of the households in the highest wealth decile. Thus, as wealth increases, the proportion of households experiencing a loss grows. This outcome suggests that the sources of wealth held by those in the lowest wealth decile may be much less vulnerable to the recession than are the sources of wealth held by those in the top deciles. A comparison of Table 3 (showing the mean value of holdings for members of the lowest quartile of total wealth) with the mean values for all households shown in Table 1 appears to support that premise, as members of the lower quartile are much less likely to own a house, to have stocks or bonds, or to have pensions. Indeed, 79 percent of the wealth held by members of the lowest wealth quartile is Social Security wealth. Measurement errors, especially errors of omission in the 2006 wealth data, may also play an important role in the pattern of increasing prevalence of losses among the higher wealth deciles, and may affect the ratio of mean wealth in 2010 to mean wealth in 2006.[11]

Table 8 also sorts households according to the proportion of wealth lost. Nineteen percent of households in the lowest wealth decile experienced a loss of up to 10 percent of total wealth, 12 percent experienced a loss of more than 20 percent, and 6 percent experienced a loss of more than half their total wealth.

Table 8.
Distribution of Early Boomer households experiencing a decline in real wealth during the Great Recession by 2006 wealth decile

Decile	Mean wealth in 2006 (thousands of dollars)	Mean wealth in 2010 relative to mean wealth in 2006	Percentage of households experiencing any decline	Percentage of households experiencing a decline of—				
				Up to 10%	10.1% to 20%	20.1% to 30%	30.1% to 50%	More than 50%
1 (lowest)	56	1.46	39	19	6	3	3	6
2	150	1.39	39	26	6	2	3	2
3	256	1.17	45	15	11	5	8	6
4	392	1.08	54	15	15	8	10	5
5	520	1.13	46	21	9	7	8	2
6	661	1.04	56	12	13	11	12	7
7	858	1.11	54	15	11	9	12	7
8	1,097	1.10	52	15	13	7	13	4
9	1,492	0.91	68	16	16	14	10	12
10 (highest)	2,524	0.82	70	12	11	15	20	13

SOURCE: Authors' calculations using HRS.

NOTES: Based on 1,927 observations. Sample excludes households in the top and bottom 1 percent of wealth in 2006 and in the top 1 percent of wealth in 2010.

Early Boomer households are those with at least one member born during 1948–1953.

Subtotals do not necessarily equal the sum of rounded components.

Calculations are based on 2006 values in 2010 dollars.

Table 9.
Distribution of Early Boomer households experiencing an increase in real wealth during the Great Recession by 2006 wealth decile

Decile	Mean wealth in 2006 (thousands of dollars)	Mean wealth in 2010 relative to mean wealth in 2006	Percentage of households experiencing any increase	Percentage of households experiencing an increase of—				
				Up to 10%	10.1% to 20%	20.1% to 30%	30.1% to 50%	More than 50%
1 (lowest)	56	1.46	49	15	4	5	6	19
2	150	1.39	59	20	12	6	8	16
3	256	1.17	54	21	10	3	6	15
4	392	1.08	46	13	8	6	7	12
5	520	1.13	54	17	10	6	8	14
6	661	1.04	45	11	8	7	9	9
7	858	1.11	46	9	9	8	7	13
8	1,097	1.10	49	17	7	5	10	11
9	1,492	0.91	32	11	7	5	4	5
10 (highest)	2,524	0.82	30	13	9	5	2	2

SOURCE: Authors' calculations using HRS.

NOTES: Based on 1,927 observations. Sample excludes households in the top and bottom 1 percent of wealth in 2006 and in the top 1 percent of wealth in 2010.

Early Boomer households are those with at least one member born during 1948–1953.

Subtotals do not necessarily equal the sum of rounded components.

Calculations are based on 2006 values in 2010 dollars.

In the highest wealth decile, 12 percent of households experienced a loss of up to 10 percent, 48 percent lost more than 20 percent of their wealth, and 13 percent experienced a loss of more than half their assets.

Table 9 examines households gaining wealth between 2006 and 2010. The share of households experiencing a gain in assets increases from the lowest to the second wealth decile, but the share generally declines between the fifth and tenth deciles. Forty-nine percent of households in the lowest wealth decile experience a gain in wealth over the period of the recession, while 30 percent of households in the top wealth decile experience a gain. Thirty percent of households in the lowest decile experienced a gain in wealth of at least 20 percent. Only 9 percent of households in highest wealth decile experienced a gain of at least 20 percent.

Retirement Outcomes

This section analyzes retirement flows for members of the Early Boomer cohort over the period of the recession and compares those flows with the retirement patterns of members of earlier cohorts over the same age span. Retirement behavior differs across cohorts for many reasons, so a simple comparison will not isolate the effects of the recession. Nevertheless, it is useful to consider retirement dynamics within and across cohorts.

Retirement Within the Early Boomer Cohort

Table 10 shows retirement flows between 2006 and 2010 for members of the Early Boomer cohort. Retirement status categories are not retired, partially retired, completely retired, not relevant, and not working-not retired. "Not relevant" comprises

Table 10.
Retirement status of Early Boomers before and after the Great Recession, by sex: 2006 and 2010 (in percent)

Status in 2006	Percentage distribution in 2006	Status in 2010					
		Total	Not retired	Partially retired	Completely retired	Not relevant	Not working-not retired
				Overall			
Total	100.0	100.0	49.2	11.0	21.6	3.8	14.5
Not retired	62.8	100.0	70.0	7.1	11.1	0.2	11.7
Partially retired	10.3	100.0	28.3	44.8	14.9	1.4	10.6
Completely retired	10.7	100.0	2.1	4.6	80.3	7.0	6.0
Not relevant	6.2	100.0	3.8	6.0	34.7	29.9	25.6
Not working-not retired	10.0	100.0	19.2	10.3	23.5	9.3	37.7
				Men			
Total	100.0	100.0	54.6	9.1	21.6	1.2	13.6
Not retired	72.0	100.0	71.0	6.8	11.0	0.0	11.1
Partially retired	6.8	100.0	26.0	45.1	18.4	0.0	10.5
Completely retired	10.4	100.0	2.0	5.2	81.1	3.1	8.6
Not relevant	2.3	100.0	2.1	2.1	56.3	26.1	13.5
Not working-not retired	8.5	100.0	16.7	6.3	31.3	3.0	42.8
				Women			
Total	100.0	100.0	44.3	12.7	21.6	6.2	15.2
Not retired	54.4	100.0	68.6	7.5	11.2	0.4	12.3
Partially retired	13.5	100.0	29.3	44.7	13.3	2.1	10.7
Completely retired	11.0	100.0	2.2	4.1	79.6	10.3	3.9
Not relevant	9.7	100.0	4.2	6.8	30.0	30.8	28.3
Not working-not retired	11.4	100.0	20.9	13.0	18.2	13.6	34.2

SOURCE: Authors' calculations using HRS.

NOTES: Early Boomers were aged 53–58 in 2006.

Rounded components of percentage distributions do not necessarily sum to 100.

individuals such as homemakers or caregivers who indicate that the HRS retirement question is irrelevant because they do not work for pay, or for other reasons. "Not working-not retired" reflects either unemployed and actively seeking a job or willing to accept a job but not actively searching.

We determined retirement status primarily according to the reported number of hours worked. For ambiguous cases, we also considered self-reported retirement status. "Not retired" describes all respondents working 30 or more hours per week and 1,560 or more hours per year, as well as those who declare "not retired" status and report between 1,250 and 1,560 hours worked. "Partially retired" describes respondents working no more than 25 hours per week or between 100 and 1,560 hours per year, except those noted above. "Not working-not retired" describes respondents who report their labor market status as "not working" and their retirement status as either "not retired" or "partially retired." We consider respondents who report a "not working" labor market status and a "retired" status to be "completely retired." Finally, "not relevant" describes those who report a "not working" labor market status and a "not relevant" retirement status.

Table 10 shows that 62.8 percent of the Early Boomers were not retired in 2006 and that the figure fell to 49.2 percent in 2010. Thus, a considerable share of the cohort exited full-time work as its members aged from 53–58 in 2006 to 57–62 in 2010. The share of the cohort that was partially retired remained relatively unchanged, increasing from 10.3 to 11.0 percent, while the percentage that was completely retired increased from 10.7 percent to 21.6 percent. The not working-not retired category—which should capture the involuntarily unemployed along with others who may or may not have realistic job market expectations but who claim to be available for work—increased from 10.0 percent in 2006 to 14.5 percent in 2010.

Notice the reversals in status. Among those completely retired in 2006, 2.1 percent had become not retired in 2010, and another 4.6 percent became partially retired. Among those partially retired in 2006, 28.3 percent were not retired in 2010.

Women are less likely to have worked over their full lifetimes and are more likely to retire at an earlier age when they do work. Although 72.0 percent of men were not retired in 2006, 54.4 percent of women were not retired. Thus, despite the recent upward trend in labor force participation for women and the growing continuity of their time spent at work, women still exhibit lower full-time labor market activity. Consequently, men were less likely to be partially retired (6.8 percent versus 13.5 percent of women), although men and women were almost equally likely to be fully retired (10.4 percent and 11.0 percent, respectively). Over the period from 2006 to 2010, the share of men in the cohort classified as not retired fell by 17.4 percentage points. For women, that share declined 10.1 percentage points. The change in shares that were completely retired were roughly the same for men and women; for men, the share increased by 11.2 percentage points and for women, it increased by 10.6 percentage points. The increase in the fraction who were not working-not retired was slightly higher for men than for women.

Of course, none of these intracohort numbers can tell us the effects of the recession on retirement outcomes or flows. We will attempt some simple cross-cohort comparisons that may hint at the effects of the recession.

Differences in Retirement Flows Between Cohorts

Using HRS panel data, we can examine whether the retirement outcomes for members of the Early Boomer cohort, whose retirement decisions were affected by the recession, differ from those of older cohorts, whose decisions were not. By observing the differences in retirement flows for members of each cohort, we can see the net effect of conflicting influences. For example, the wealth effect of falling assets tends to produce an increase in the average retirement age, while the declining availability of suitable labor market opportunities tends to accelerate retirement. To be sure, as long as there are other forces at work differentially affecting the retirements of members of different cohorts, simple comparisons of labor market flows among members of different cohorts are only a useful first step.

Table 11 replicates Table 10 for the War Baby Cohort, who were aged 53–58 in 2000. Table 12 presents the retirement flows for members of the original HRS cohort, who were aged 53–58 in 1994. By way of background, the unemployment rate was 6.1 percent in 1994, 4.0 percent in 2000, and 4.6 percent in 2006. Thus, the Early Boomers faced an initial unemployment rate that falls between those experienced by members of the comparison groups. After 4 years, the

respective unemployment rates were 4.5 percent in 1998, 5.5 percent in 2004, and 9.6 percent in 2010. The unemployment rate decreased by 1.6 percentage points for members of the original HRS cohort and increased by 1.5 percentage points for members of the War Baby cohort. By contrast, and reflecting the effect of the Great Recession, unemployment increased 5.0 percentage points over the observation period for those in the Early Boomer cohort.

Comparing Tables 10, 11, and 12, the not-retired share of the population at the end of the 4-year observation period is only slightly lower for the Early Boomers exposed to the recession (49.2 percent) than for those in the older cohorts (51.7 percent and 50.6 percent). The percentage of War Babies who are completely retired at the end of the observation period (19.3 percent) is a couple of points higher than for the original HRS cohort (15.8 percent) and a couple of points lower than for the Early Boomers (21.6 percent). Despite the wide differences in the initial levels of and in the changes to the overall unemployment rate, the basic retirement flows look similar between the three cohorts. There is only a small difference in the fraction of respondents who reduced their work effort (transitioning from not retired to partially or fully retired, or from partially retired to fully retired) between the War Baby and Early Boomer cohorts. The fractions working the same amount or increasing their work effort over the 4-year period are also similar between the cohorts.

The percentage of Early Boomers not retired declined by 13.6 percentage points, from 62.8 percent to 49.2 percent, between 2006 and 2010. For the War Babies, the decline in the not-retired share of the population was also 13.6 percentage points. For the original HRS cohort, it was 10.6 percentage points. In each

Table 11.
Retirement status of War Babies in 2000 and 2004 (in percent)

Status in 2000	Percentage distribution in 2000	Status in 2004					
		Total	Not retired	Partially retired	Completely retired	Not relevant	Not working-not retired
Total	100.0	100.0	51.7	11.4	19.3	8.9	8.7
Not retired	65.3	100.0	72.2	8.6	11.2	1.7	6.2
Partially retired	9.4	100.0	23.6	43.2	16.5	5.8	10.9
Completely retired	7.8	100.0	4.8	5.3	69.2	15.4	5.4
Not relevant	10.0	100.0	3.2	4.9	30.5	47.4	13.9
Not working-not retired	7.5	100.0	20.8	11.0	26.8	17.0	24.4

SOURCE: Authors' calculations using HRS.

NOTES: War Babies were aged 53–58 in 2000.

Rounded components of percentage distributions do not necessarily sum to 100.

Table 12.
Retirement status of original HRS cohort members in 1994 and 1998 (in percent)

Status in 1994	Percentage distribution in 1994	Status in 1998					
		Total	Not retired	Partially retired	Completely retired	Not relevant	Not working-not retired
Total	100.0	100.0	50.6	10.8	15.8	16.1	6.6
Not retired	61.2	100.0	74.5	6.8	10.4	3.5	4.8
Partially retired	8.9	100.0	24.0	47.3	9.6	10.6	8.6
Completely retired	10.2	100.0	3.4	4.3	53.5	33.9	5.0
Not relevant	6.0	100.0	3.1	5.0	18.2	65.1	8.6
Not working-not retired	13.8	100.0	17.5	12.6	15.0	41.2	13.7

SOURCE: Authors' calculations using HRS.

NOTES: Original HRS cohort members were aged 53–58 in 1994.

Rounded components of percentage distributions do not necessarily sum to 100.

cohort, the partially retired shares changed little over the observation periods, increasing by 0.7 percentage points for the Early Boomers, by 2.0 percentage points for the War Babies, and by 1.9 percentage points for the original HRS cohort.

The largest differences among the cohorts are in the changes in the shares of respondents in the not working-not retired category. For the Early Boomers, that group increased by 4.5 percentage points over the 4 years. For the War Babies, the increase was a modest 1.2 percentage points, and for the members of the original HRS cohort, the not working-not retired share fell 7.2 percentage points. The wider growth of that category among the Early Boomers suggests an adverse effect of the Great Recession on retirement flows.

Useful cross-cohort analysis might also consider specific measures of employment change over the 4-year reference period, such as changes in hours of work, long-term job tenure, self-reported layoffs or unemployment, accepting a "window" plan from an employer encouraging retirement, or participating in the Social Security Disability Insurance or Supplemental Security Income programs. We observe only two substantial cross-cohort differences (not shown). The first involves the fraction unemployed, which increases by 3.0 percentage points for Early Boomers, declines by 1.5 percentage points for the original HRS cohort, and increases by 0.3 percentage points for War Babies. The second involves the percentage of respondents reporting unemployment at *any* time in the 4-year period, which ranges from about 3.7 percent for the original HRS cohort to 4.5 percent for the War Babies to 7.9 percent for the Early Boomers.

In terms of layoffs, the fraction of Early Boomers reporting they were laid off increased by 2.9 percentage points over the 2006–2010 reference period. The shares of laid off respondents in the original HRS and War Baby cohorts increased by 1.8 percentage points and 0.9 percentage points over the respective reference periods. The change in the share of long-tenure workers retiring over the course of the Great Recession differs little from that of earlier cohorts at similar ages. In all three cohorts, the share of members with 10 or more years in their current jobs at the beginning of the reference period ranged between about 36 percent and 39 percent. Of course, smaller shares were still holding those same jobs at the end of the 4-year reference period; but the Early Boomers' share of long-tenured workers actually declined less than did those of the comparison cohorts.[12] Finally, although the share of Early Boomers participating in Supplemental Security Income and Disability Insurance grows over time, the participation pattern differs little from those of the other cohorts.

In sum, we observe only a few adverse labor market outcomes due to the Great Recession against a background of little change in the retirement of long-term jobholders, or in the reductions in work effort observed over the period. Nevertheless, unemployment is up; layoffs increase by 1 or 2 percentage points relative to the experience of the War Babies; and the share of the cohort falling in the not employed-not retired category increases.

We next investigate the relationship between the relatively constant share of the workforce working full time or part time over the period of the Great Recession, and the growing share who are not retired-not working. Accordingly, Table 13 examines how a previous layoff experience influences not retired-not working status. We have seen that the increase in layoffs due to the recession is modest. Table 13 shows that a small but increasing share of those who are not retired but not working were previously laid off. In 1998, that share was 13.2 percent; it fell to 9.5 percent in 2004 then rose to 17.4 percent in 2010. Among those presently laid off in 1998, 25.6 percent indicated they were not retired-not working. In 2004, the proportion had risen to 28.0 percent. However, in 2010, 55.0 percent of laid-off workers indicated they were not retired-not working. This trend is unsurprising, as laid off workers who wish to resume working have more difficulty locating a new job. Table 13 also reports the share of the not working-not retired population that experienced a layoff sometime over the past 4 years (two waves): 22.2 percent in 1998, 20.3 percent in 2004, and 26.7 percent in 2010.[13]

We also examined changes that led to an exit from employment that might be considered involuntary. These include instances in which the supervisor or coworkers induced exit, wages or hours were reduced or were about to be reduced, the respondent felt a layoff was imminent, job duties or location changed, pension or health insurance changes induced exit, or an early retirement window induced exit. Although adverse events have received a great deal of publicity, the incidence of such events leading to involuntary exit during the Great Recession does not differ substantially from that of previous years.

Table 13.
Relationship between layoff experience and self-reported "not retired-not working" status: 1998, 2004, and 2010

Status	1998	2004	2010
Total not retired-not working	302	241	409
Total laid off	156	82	129
Laid off and not retired-not working	40	23	71
Percentage of not retired-not working who have been laid off	13.2	9.5	17.4
Percentage of those laid off who are not retired-not working	25.6	28.0	55.0
Laid off at least once in last 4 years and not retired-not working	67	49	109
Percentage of not retired-not working who were laid off at least once in last 4 years	22.2	20.3	26.7

SOURCE: Authors' calculations using HRS.

To summarize, reported unemployment is higher for those experiencing the Great Recession, but other measures of activity or related outcomes do not differ much between Early Boomers and members of older cohorts when they were the same age.

Conclusions

The retirement wealth held by individuals aged 53 to 58 in 2006, just before the onset of the Great Recession, declined by a relatively modest 2.8 percent by 2010. In a time of more typical economic conditions, their wealth would have increased over the 4-year period. Members of older cohorts accumulated approximately 5 percent of additional wealth over the same age span. To be sure, a part of that increase resulted from the housing and stock market bubbles.

The adverse labor market effects of the Great Recession are more modest. Although unemployment grew, that increase was not mirrored by a decline in full-time work or partial retirement. All told, the retirement behavior of the Early Boomer cohort, at least to date, looks similar to that observed for members of older cohorts at comparable ages. Early Boomers nearing retirement age have largely avoided experiencing multiple adverse events. Most of their loss in wealth is due to a fall in the net value of housing. However, very few in this cohort have found themselves owing more on their mortgage than their house is currently worth, and housing is the one asset this cohort is not likely to cash in for another decade or two; therefore, Early Boomers have time to potentially recover their lost housing wealth. The wealth held by poorer households was least affected by the recession. Relative losses were greatest for those who had the highest wealth when the recession began.

Among our specific findings:

1. Social Security and pension benefits, accounting for 55 percent of the total wealth of those approaching retirement at the onset of the recession, retained their value and thus played a major role in cushioning total wealth from the effects of the recession.
2. The real wealth of households in the lowest wealth quartile fell by only 1 percent. In those households, Social Security accounts for 79 percent of total wealth.
3. Although 43 percent of households in the Early Boomer cohort experienced a decline in real wealth of more than 5 percent, another 40 percent experienced an increase of more than 5 percent. Households experiencing losses outnumbered those with gains in all but three asset categories: DC pensions, financial assets, and IRA assets.
4. Thirty-nine percent of households in the lowest decile of real wealth in 2006 experienced a loss in wealth. By contrast, 70 percent of the households in the highest wealth decile experienced a loss. The share of households losing more than 20 percent in real wealth ranges from 12 percent of the households in the lowest wealth decile to 48 percent of households in the highest wealth decile.
5. The share of households experiencing a gain in wealth is 49 percent for those in the lowest real wealth decile in 2006, and falls to 30 percent of the households in the highest wealth decile. Thirty percent of the households in the lowest wealth decile experienced a wealth gain of at least 20 percent, while 9 percent of the households in the highest wealth decile experienced a gain of at least 20 percent.

6. The share of the population not retired, as measured by a combination of hours of work and self-reported status, fell from 62.8 percent of the members of the Early Boomer cohort in 2006 to 49.2 percent in 2010. For men, the share of the population not retired declined by 17.4 percentage points over the 4-year period from a base of 72.0 percent, while for women the share declined 10.1 percentage points from a base of 54.4 percent.
7. The 13.6 percentage point decline in the share of the population classified as not retired in the Early Boomer cohort matches the decline observed for members of the War Baby cohort 6 years earlier, and exceeds the 10.6 percent decline observed for members of the original HRS cohort 12 years earlier.
8. The growth in the shares of respondents who are unemployed and who report they are not employed but not retired were substantially greater during 2006–2010 than in the periods experienced by members of older cohorts at the same ages.

These findings raise two key questions: Why was employment not reduced during the recession, and why were retirements not accelerated, even though unemployment was higher? First, some who could retain their jobs postponed their retirement. Second, those who were laid off were less likely to leave the labor force. Thus, the net increase in the number who remained at work was enough to offset the job losses of those who had been laid off.

Appendix: Procedures Used in Empirical Calculations for Table 1

The sample includes all households with one member aged from 53 through 58 in 2006 who participated in the HRS in both 2006 and 2010. We exclude households in the top and bottom 1 percent in total wealth, as well as those that experienced a divorce, separation, or entry of new spouses or partners during that period.

DB benefits are the sum of expected lifetime benefits. Expected benefits from current jobs are prorated values for the most valuable DB plan based on self-reported data. DB benefits from previous jobs are in current dollars as of 2006 and 2010. For DB plans from current or previous jobs in current-pay status, we calculate the present value of the remaining benefits as of 2006 and 2010. DC balances are the sum of all DC accounts from respondents' current and/or previous jobs.

We impute for missing and refused responses, and for responses of "don't know." We use a variety of imputation methods, depending on the number of observations available. These include a mixed method; a regression which forms the basis for a nearest neighbor imputation; or, when few observations are available, a hot-decking process. We also impute when values are reported only in the form of brackets. The imputation sample includes only those who meet the required conditions. For example, DB values are imputed only from that set of respondents reporting they have a DB plan. The explanatory covariates for pension variables include employment status, age, education, race, earnings, marital status, occupation, industry, union membership, government employee status, and job tenure. For financial assets, we used sex, marital status, and number of earners in the household (one or two).

Notes

[1] For 2006 and 2010, imputations are generated for HRS data. RAND imputations for 2010 wealth data were not available at the time we wrote this article. To isolate the effects of using our imputations rather than RAND's, we calculated total wealth excluding Social Security and pensions for 2006, using the RAND imputes and our imputes. The totals are identical. In calculations where we report wealth changes for members of earlier cohorts at ages 53–58, we use wealth estimates from RAND for both years.

[2] We calculate the present value of lifetime Social Security wealth in 2006 by increasing the present value of lifetime Social Security wealth in 2004 (as calculated by Kapinos and others) to the base year of 2010. To do so, we multiply the 2004 figure by 1.058 to the 6th power. We then divide the 2010 value by 1.028 to the fourth power to reduce it to its 2006 value. In all calculations, we assume a consumer price index annual increase of 2.8 percent and a nominal interest rate of 5.8 percent, approximations used by the Social Security Board of Trustees.

[3] In 2006, 2,544 households had at least one member aged 53–58. Of those, 2,079 households also took part in the 2010 survey, and 1,988 households had the same household structure. We eliminated households in the top 1 percent of wealth in either 2006 or 2010 and in the bottom 1 percent in 2006, leaving 1,949 households.

[4] Although one might consider using different weights for each period, doing so might introduce changes that stem from the differences in the weights, rather than from differences in the underlying asset values for those who have the same type of asset in both years. In other words, we want to know how assets changed for a fixed number of individuals, and not necessarily how average assets of those aged 53–58 in 2006 differ from those of people aged 57–62 in 2010. In

any case, reweighting would likely change the results little, if at all.

[5] Although it is reasonable to calculate present values as of the survey date, and Social Security wealth becomes more valuable as an individual approaches potential beneficiary status, our exercise aims to isolate the differences in wealth over the period of the recession. Accordingly, we evaluate the wealth equivalent of income *flows* as of the same date even though the periods are 4 years apart. Thus, when we compare values in real 2010 dollars, there is no change in the value of Social Security wealth. Past earnings are indexed through age 60, and most members of this cohort cannot change the years of earnings counted through early retirement age by changing claiming behavior. Butrica, Johnson, and Smith (2011) point out that, in computing average indexed monthly earnings, the wage index used by the Social Security Administration to inflate past earnings is reduced for those who reach age 60 after the recession began. We do not make that adjustment.

[6] On average, the gross value of housing declined from $218,409 in 2006 to $194,203 in 2010, a drop of 11 percent. However, mortgage debt averaged $68,862 in 2006 and $66,319 in 2010, so the $24,000 decline in gross housing prices amounted to a 16.2 percent decline in nominal net housing wealth.

[7] Other important differences include the SCF's special oversample of high-income households, producing higher reported wealth levels than those in the HRS. By contrast, we eliminate households in the top (and bottom) 1 percent of reported wealth. Furthermore, both of the studies using SCF data exclude DB pensions from measures of total wealth; yet at the onset of the recession, DB wealth accounted for two-thirds of total pension wealth for those approaching retirement age. In addition, those studies exclude Social Security wealth, which accounts for one-quarter of the total wealth of the retirement-age population. Finally, SCF data report wealth values only when the respondent family holds that component of wealth. By contrast, the asset values shown in Table 1 reflect the total value of the particular asset in the population, and the share of total wealth held by the entire age-relevant population represented by the asset in question.

[8] Because the medians we report for the HRS are the average values for the median 10 percent of all wealth holding households, the value of Social Security and of DB pension wealth can be subtracted from the value of total assets in Table 2, yielding a consistent estimate of wealth held outside those categories. Because the medians reported in Bricker and others (2012) are conditional on the individual owning the asset, one cannot make similarly consistent estimates for other asset types.

[9] Additionally, Table 1's sample excludes households in the top and bottom 1 percent of wealth in 2006 (for 2006 wealth levels) and 2010 (for 2010 wealth levels). Table 7 also excludes the top 1 percent of wealth holding households for both years, but excludes the bottom 1 percent only for 2006. This accounts for the slight difference in number of observations.

[10] Statistics on households with gains and losses should be interpreted with caution, as wealth numbers are subject to significant error. Some respondents may neglect to report an asset in one survey while reporting it in another. When changes are estimated, the reported gain or loss for an individual who neglected to report the asset in one year or another will be equal to the full amount of the asset. Additionally, assets are imputed separately in each year of the survey. Imputations based on cross-sectional data will create very large gains or losses when the same household is not used to impute the missing asset, or asset bracket, in both years. A related problem involves the proper treatment of zeroes versus blanks. When encountering those problems, we have either classified them as "not applicable" and imputed the values for the observations or eliminated them. In addition, we have taken steps to reduce the influence of outliers, and provided supplementary results for medians (by quartile and decile) as well as means.

[11] Such errors are especially likely to understate the share of households in the lower decile that lose wealth because of the recession. Households that actually have higher levels of wealth but fail to report or understate the value of one or more major assets are much more likely to appear in the lowest wealth decile in 2006. Although it may be uncommon to fail to report having a house, even a financially knowledgeable respondent may confuse the net and gross value of a house. If the expected sale price net of the mortgage is reported as a house's gross value, its value will be substantially understated. Such an error might not be repeated in 2010. Thus, if an asset value is understated in 2006, and that understatement is not repeated in 2010, the household will be placed in too low a wealth decile for 2006, and will also exhibit an artificially large gain in assets between 2006 and 2010.

[12] This change is the net result of two forces: job loss resulting from increased layoffs during the recession and the decision to delay retirement by some workers who have experienced a loss in wealth.

[13] One should be careful when drawing conclusions about the total amount of income or wealth lost because of unemployment. To the extent that those with lower incomes or wealth are more likely to become unemployed, the decline in income and wealth will be proportionately smaller than the increase in the share of the labor force unemployed.

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OASDI and SSI Snapshot and SSI Monthly Statistics

Each month, the Social Security Administration's Office of Retirement and Disability Policy posts key statistics about various aspects of the Supplemental Security Income (SSI) program at http://www.socialsecurity.gov/policy. The statistics include the number of people who receive benefits, eligibility category, and average monthly payment. This issue presents SSI data for September 2011–September 2012.

The Monthly Statistical Snapshot summarizes information about the Social Security and SSI programs and provides a summary table on the trust funds. Data for September 2012 are given on pages 68–69. Trust fund data for September 2012 are given on page 69. The more detailed SSI tables begin on page 70. Persons wanting detailed monthly OASDI information should visit the Office of the Chief Actuary's website at http://www.socialsecurity.gov/OACT/ProgData/beniesQuery.html.

Monthly Statistical Snapshot

The most current edition of Tables 1–3 will always be available at http://www.socialsecurity.gov/policy/docs/quickfacts/stat_snapshot. The most current data for the trust funds (Table 4) are available at http://www.socialsecurity.gov/OACT/ProgData/funds.html.

Table 1.
Number of people receiving Social Security, Supplemental Security Income, or both, September 2012 (in thousands)

Type of beneficiary	Total	Social Security only	SSI only	Both Social Security and SSI
All beneficiaries	61,915	53,668	5,468	2,779
Aged 65 or older	40,259	38,181	908	1,169
Disabled, under age 65 [a]	14,032	7,863	4,560	1,609
Other [b]	7,624	7,624	. . .	. . .

SOURCES: Social Security Administration, Master Beneficiary Record, 100 percent data. Social Security Administration, Supplemental Security Record, 100 percent data.

NOTES: Data are for the end of the specified month. Only Social Security beneficiaries in current-payment status are included.

. . . = not applicable.

a. Includes children receiving SSI on the basis of their own disability.

b. Social Security beneficiaries who are neither aged nor disabled (for example, early retirees, young survivors).

CONTACT: (410) 965-0090 or statistics@ssa.gov.

Table 2.
Social Security benefits, September 2012

Type of beneficiary	Beneficiaries		Total monthly benefits (millions of dollars)	Average monthly benefit (dollars)
	Number (thousands)	Percent		
All beneficiaries	56,447	100.0	63,838	1,130.94
Old-Age Insurance				
Retired workers	36,506	64.7	45,141	1,236.52
Spouses	2,286	4.0	1,400	612.53
Children	600	1.1	363	604.92
Survivors Insurance				
Widow(er)s and parents [a]	4,215	7.5	4,901	1,162.85
Widowed mothers and fathers [b]	153	0.3	136	888.08
Children	1,874	3.3	1,470	784.38
Disability Insurance				
Disabled workers	8,786	15.6	9,763	1,111.27
Spouses	164	0.3	49	299.15
Children	1,863	3.3	614	329.86

SOURCE: Social Security Administration, Master Beneficiary Record, 100 percent data.

NOTES: Data are for the end of the specified month. Only beneficiaries in current-payment status are included.

a. Includes nondisabled widow(er)s aged 60 or older, disabled widow(er)s aged 50 or older, and dependent parents of deceased workers aged 62 or older.

b. A widow(er) or surviving divorced parent caring for the entitled child of a deceased worker who is under age 16 or is disabled.

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Table 3.
Supplemental Security Income recipients, September 2012

Age	Recipients		Total payments [a] (millions of dollars)	Average month payment [b] (dollar
	Number (thousands)	Percent		
All recipients	8,247	100.0	4,515	517.7
Under 18	1,307	15.8	843	621.3
18–64	4,863	59.0	2,808	533.8
65 or older	2,078	25.2	864	415.2

SOURCE: Social Security Administration, Supplemental Security Record, 100 percent data.

NOTE: Data are for the end of the specified month.

a. Includes retroactive payments.

b. Excludes retroactive payments.

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Table 4.
Operations of the Old-Age and Survivors Insurance and Disability Insurance Trust Funds, September 2012 (in millions of dollars)

Component	OASI	DI	Combined OASI and DI
		Receipts	
Total	51,211	8,696	59,906
Net contributions [a]	43,002	7,299	50,300
Income from taxation of benefits	14	b	14
Net interest	9	5	14
Payments from the general fund	8,186	1,392	9,577
		Expenditures	
Total	53,928	12,110	66,038
Benefit payments	53,632	11,848	65,480
Administrative expenses	296	262	558
Transfers to Railroad Retirement	0	0	0
		Assets	
At start of month	2,588,653	135,395	2,724,048
Net increase during month	-2,717	-3,414	-6,131
At end of month	2,585,936	131,981	2,717,916

SOURCE: Data on the trust funds were accessed on November 2, 2012, on the Social Security Administration's Office of the Chief Actuary's website: http://www.socialsecurity.gov/OACT/ProgData/funds.html.

NOTE: Totals may not equal the sum of the components because of rounding.

a. Includes transfers from the general fund of the Treasury under the provisions of P.L. 111-312, P.L. 112-78, and P.L. 112-96.

b. Between -$500,000 and $500,000.

The SSI Monthly Statistics are also available at http://www.socialsecurity.gov/policy/docs/statcomps/ssi_monthly/index.html.

SSI Federally Administered Payments

Awards of SSI Federally Administered Payments

Table 1.
Recipients (by type of payment), total payments, and average monthly payment, September 2011–September 2012

Month	Number of recipients				Total payments [a] (thousands of dollars)	Average monthly payment [b] (dollars)
	Total	Federal payment only	Federal payment and state supplementation	State supplementation only		
2011						
September	8,095,000	5,706,884	2,140,867	247,249	4,310,542	498.90
October	8,116,250	5,723,525	2,145,561	247,164	4,307,042	499.10
November	8,130,052	5,733,368	2,149,436	247,248	4,317,569	498.30
December	8,112,773	5,723,660	2,142,730	246,383	4,389,872	501.60
2012						
January	8,156,870	5,761,870	2,154,099	240,901	4,485,655	517.30
February	8,163,730	5,769,485	2,154,099	240,146	4,493,360	515.60
March	8,161,601	5,768,667	2,153,751	239,183	4,507,305	518.60
April	8,185,900	5,980,014	1,981,468	224,418	4,553,734	517.20
May	8,179,285	5,976,689	1,978,456	224,140	4,504,263	516.00
June	8,183,565	5,980,403	1,979,686	223,476	4,494,996	517.80
July	8,225,892	6,014,046	1,988,511	223,335	4,554,428	516.90
August	8,216,619	6,006,681	1,986,567	223,371	4,513,180	517.10
September	8,246,916	6,031,047	1,992,752	223,117	4,515,351	517.70

SOURCE: Social Security Administration, Supplemental Security Record, 100 percent data.

NOTE: Data are for the end of the specified month.

a. Includes retroactive payments.

b. Excludes retroactive payments.

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Table 2.
Recipients, by eligibility category and age, September 2011–September 2012

Month	Total	Eligibility category		Age		
		Aged	Blind and disabled	Under 18	18–64	65 or older
2011						
September	8,095,000	1,187,576	6,907,424	1,268,821	4,769,477	2,056,702
October	8,116,250	1,187,884	6,928,366	1,279,042	4,777,386	2,059,822
November	8,130,052	1,189,695	6,940,357	1,280,341	4,784,690	2,065,021
December	8,112,773	1,182,106	6,930,667	1,277,122	4,777,010	2,058,641
2012						
January	8,156,870	1,184,674	6,972,196	1,291,217	4,801,122	2,064,531
February	8,163,730	1,182,828	6,980,902	1,293,648	4,806,424	2,063,658
March	8,161,601	1,158,789	7,002,812	1,288,548	4,807,814	2,065,239
April	8,185,900	1,156,343	7,029,557	1,301,753	4,821,992	2,062,155
May	8,179,285	1,154,369	7,024,916	1,298,404	4,819,531	2,061,350
June	8,183,565	1,154,725	7,028,840	1,296,051	4,823,143	2,064,371
July	8,225,892	1,157,218	7,068,674	1,305,457	4,849,980	2,070,455
August	8,216,619	1,157,345	7,059,274	1,295,417	4,848,470	2,072,732
September	8,246,916	1,159,205	7,087,711	1,306,587	4,862,627	2,077,702

SOURCE: Social Security Administration, Supplemental Security Record, 100 percent data.

NOTE: Data are for the end of the specified month.

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Table 3.
Recipients of federal payment only, by eligibility category and age, September 2011–September 2012

Month	Total	Eligibility category		Age		
		Aged	Blind and disabled	Under 18	18–64	65 or older
2011						
September	5,706,884	601,053	5,105,831	1,018,213	3,537,525	1,151,146
October	5,723,525	600,768	5,122,757	1,026,735	3,544,200	1,152,590
November	5,733,368	601,716	5,131,652	1,027,626	3,550,053	1,155,689
December	5,723,660	597,588	5,126,072	1,025,120	3,546,247	1,152,293
2012						
January	5,761,870	600,105	5,161,765	1,036,990	3,567,409	1,157,471
February	5,769,485	599,410	5,170,075	1,039,029	3,572,976	1,157,480
March	5,768,667	598,700	5,169,967	1,034,850	3,575,124	1,158,693
April	5,980,014	620,759	5,359,255	1,069,225	3,705,532	1,205,257
May	5,976,689	619,756	5,356,933	1,066,607	3,705,111	1,204,971
June	5,980,403	619,848	5,360,555	1,064,382	3,709,041	1,206,980
July	6,014,046	620,828	5,393,218	1,072,114	3,731,551	1,210,381
August	6,006,681	620,777	5,385,904	1,063,477	3,731,443	1,211,761
September	6,031,047	621,710	5,409,337	1,072,574	3,743,796	1,214,677

SOURCE: Social Security Administration, Supplemental Security Record, 100 percent data.

NOTE: Data are for the end of the specified month.

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Table 4.
Recipients of federal payment and state supplementation, by eligibility category and age, September 2011–September 2012

Month	Total	Eligibility category		Age		
		Aged	Blind and disabled	Under 18	18–64	65 or older
2011						
September	2,140,867	505,717	1,635,150	248,948	1,105,945	785,974
October	2,145,561	506,440	1,639,121	250,739	1,107,144	787,678
November	2,149,436	507,307	1,642,129	251,078	1,108,838	789,520
December	2,142,730	503,839	1,638,891	250,425	1,105,867	786,438
2012						
January	2,154,099	506,553	1,647,546	252,775	1,110,842	790,482
February	2,154,099	505,732	1,648,367	253,139	1,111,028	789,932
March	2,153,751	485,178	1,668,573	252,300	1,110,733	790,718
April	1,981,468	464,224	1,517,244	231,448	1,002,664	747,356
May	1,978,456	463,628	1,514,828	230,607	1,000,704	747,145
June	1,979,686	464,066	1,515,620	230,501	1,000,883	748,302
July	1,988,511	465,637	1,522,874	232,202	1,005,371	750,938
August	1,986,567	465,902	1,520,665	230,737	1,003,971	751,859
September	1,992,752	466,888	1,525,864	232,892	1,006,000	753,860

SOURCE: Social Security Administration, Supplemental Security Record, 100 percent data.

NOTE: Data are for the end of the specified month.

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Table 5.
Recipients of state supplementation only, by eligibility category and age, September 2011–September 2012

Month	Total	Eligibility category		Age		
		Aged	Blind and disabled	Under 18	18–64	65 or older
2011						
September	247,249	80,806	166,443	1,660	126,007	119,582
October	247,164	80,676	166,488	1,568	126,042	119,554
November	247,248	80,672	166,576	1,637	125,799	119,812
December	246,383	80,679	165,704	1,577	124,896	119,910
2012						
January	240,901	78,016	162,885	1,452	122,871	116,578
February	240,146	77,686	162,460	1,480	122,420	116,246
March	239,183	74,911	164,272	1,398	121,957	115,828
April	224,418	71,360	153,058	1,080	113,796	109,542
May	224,140	70,985	153,155	1,190	113,716	109,234
June	223,476	70,811	152,665	1,168	113,219	109,089
July	223,335	70,753	152,582	1,141	113,058	109,136
August	223,371	70,666	152,705	1,203	113,056	109,112
September	223,117	70,607	152,510	1,121	112,831	109,165

SOURCE: Social Security Administration, Supplemental Security Record, 100 percent data.

NOTE: Data are for the end of the specified month.

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Table 6.
Total payments, by eligibility category, age, and source of payment, September 2011–September 2012 (in thousands of dollars)

Month	Total	Eligibility category		Age		
		Aged	Blind and disabled	Under 18	18–64	65 or older
			All sources			
2011						
September	4,310,542	471,167	3,839,376	793,350	2,688,691	828,502
October	4,307,042	470,973	3,836,069	796,666	2,680,977	829,400
November	4,317,569	472,085	3,845,483	794,923	2,690,450	832,195
December	4,389,872	471,847	3,918,025	812,295	2,744,100	833,478
2012						
January	4,485,655	485,641	4,000,013	834,560	2,791,400	859,695
February	4,493,360	483,930	4,009,431	829,122	2,805,835	858,403
March	4,507,305	473,861	4,033,444	840,343	2,805,783	861,179
April	4,553,734	472,480	4,081,255	854,246	2,841,246	858,242
May	4,504,263	471,239	4,033,025	836,006	2,810,846	857,411
June	4,494,996	471,148	4,023,848	840,932	2,795,762	858,301
July	4,554,428	472,715	4,081,712	852,177	2,840,430	861,821
August	4,513,180	472,021	4,041,159	835,979	2,815,453	861,748
September	4,515,351	472,969	4,042,382	843,315	2,808,071	863,966
			Federal payments			
2011						
September	4,013,322	395,621	3,617,701	779,836	2,523,297	710,189
October	4,010,102	395,379	3,614,723	783,169	2,515,977	710,956
November	4,019,326	396,275	3,623,051	781,365	2,524,690	713,271
December	4,090,280	396,173	3,694,107	798,660	2,577,066	714,555
2012						
January	4,188,344	410,163	3,778,181	820,942	2,626,465	740,937
February	4,195,576	408,576	3,787,000	815,496	2,640,350	739,730
March	4,209,479	400,765	3,808,714	826,685	2,640,451	742,343
April	4,269,524	401,949	3,867,575	841,922	2,683,065	744,536
May	4,221,716	400,877	3,820,839	823,837	2,654,041	743,838
June	4,213,739	400,817	3,812,922	828,851	2,640,199	744,689
July	4,270,575	402,084	3,868,490	839,883	2,682,980	747,711
August	4,230,637	401,471	3,829,166	823,909	2,659,044	747,684
September	4,233,203	402,282	3,830,921	831,161	2,652,419	749,624

(Continued)

Table 6.
Total payments, by eligibility category, age, and source of payment, September 2011–September 2012 (in thousands of dollars)—*Continued*

Month	Total	Eligibility category		Age		
		Aged	Blind and disabled	Under 18	18–64	65 or older
			State supplementation			
2011						
September	297,220	75,546	221,674	13,514	165,394	118,313
October	296,940	75,594	221,346	13,497	165,000	118,443
November	298,243	75,810	222,433	13,558	165,760	118,925
December	299,591	75,674	223,917	13,635	167,034	118,923
2012						
January	297,311	75,478	221,832	13,619	164,935	118,757
February	297,784	75,353	222,431	13,626	165,486	118,673
March	297,826	73,096	224,730	13,658	165,332	118,836
April	284,211	70,531	213,680	12,324	158,181	113,705
May	282,547	70,362	212,185	12,169	156,804	113,574
June	281,258	70,331	210,927	12,082	155,563	113,613
July	283,853	70,631	213,222	12,294	157,450	114,109
August	282,543	70,550	211,993	12,070	156,410	114,063
September	282,148	70,687	211,461	12,154	155,651	114,342

SOURCE: Social Security Administration, Supplemental Security Record, 100 percent data.

NOTE: Data are for the end of the specified month and include retroactive payments.

CONTACT: (410) 965-0090 or statistics@ssa.gov.

Table 7.
Average monthly payment, by eligibility category, age, and source of payment, September 2011–September 2012 (in dollars)

Month	Total	Eligibility category		Age		
		Aged	Blind and disabled	Under 18	18–64	65 or older
			All sources			
2011						
September	498.90	396.20	516.60	597.20	514.80	401.90
October	499.10	395.70	516.90	597.70	514.80	401.70
November	498.30	395.90	515.80	592.60	514.70	401.80
December	501.60	397.60	519.40	601.40	517.50	403.20
2012						
January	517.30	408.90	535.70	620.20	533.50	415.20
February	515.60	408.10	533.80	613.60	532.60	414.60
March	518.60	407.90	536.90	624.90	534.40	415.70
April	517.20	406.90	535.40	621.90	533.00	414.60
May	516.00	407.10	534.00	615.90	532.60	414.70
June	517.80	407.30	535.90	623.70	533.40	414.90
July	516.90	407.20	534.90	619.70	532.80	414.80
August	517.10	407.40	535.20	619.80	533.50	415.00
September	517.70	407.60	535.80	621.30	533.80	415.20
			Federal payments			
2011						
September	478.60	357.20	498.60	588.10	495.80	366.10
October	478.80	356.70	498.80	588.50	495.90	365.80
November	477.90	356.80	497.70	583.40	495.70	365.90
December	481.30	358.50	501.30	592.30	498.50	367.30
2012						
January	497.10	369.80	517.80	610.90	514.80	379.50
February	495.40	368.90	515.90	604.40	513.90	378.80
March	498.40	369.00	519.00	615.70	515.70	379.90
April	498.10	369.10	518.50	613.70	515.20	380.00
May	496.80	369.10	517.00	607.70	514.80	380.10
June	498.60	369.30	519.00	615.60	515.70	380.30
July	497.70	369.10	517.90	611.50	515.10	380.10
August	497.90	369.20	518.20	611.70	515.80	380.30
September	498.50	369.40	518.80	613.20	516.10	380.50

(Continued)

Table 7.
Average monthly payment, by eligibility category, age, and source of payment, September 2011–September 2012 (in dollars)—*Continued*

Month	Total	Eligibility category		Age		
		Aged	Blind and disabled	Under 18	18–64	65 or older
			State supplementation			
2011						
September	118.60	127.80	115.50	50.50	124.30	129.60
October	118.40	127.70	115.40	50.40	124.20	129.40
November	118.40	127.70	115.30	50.30	124.10	129.50
December	118.60	128.00	115.50	50.30	124.30	129.70
2012						
January	118.40	127.90	115.30	50.20	124.10	129.70
February	118.30	127.90	115.20	50.20	124.00	129.70
March	118.40	129.30	115.10	50.20	124.10	129.80
April	121.90	130.40	119.10	49.00	129.80	131.30
May	121.80	130.40	119.10	49.00	129.70	131.30
June	121.80	130.40	119.10	49.00	129.70	131.30
July	121.70	130.40	119.00	48.90	129.60	131.30
August	121.80	130.30	119.00	48.90	129.60	131.30
September	121.70	130.40	118.90	48.70	129.50	131.30

SOURCE: Social Security Administration, Supplemental Security Record, 100 percent data.

NOTE: Data are for the end of the specified month and exclude retroactive payments.

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Table 8.
All awards, by eligibility category and age of awardee, September 2011–September 2012

Month	Total	Eligibility category		Age		
		Aged	Blind and disabled	Under 18	18–64	65 or older
2011						
September	83,142	9,819	73,323	16,069	57,114	9,959
October	76,590	9,262	67,328	14,802	52,398	9,390
November	75,818	9,307	66,511	14,913	51,467	9,438
December	89,658	8,857	80,801	17,602	63,052	9,004
2012						
January	80,593	8,814	71,779	16,100	55,531	8,962
February	77,815	9,344	68,471	15,359	52,984	9,472
March	79,400	8,823	70,577	15,892	54,531	8,977
April	91,791	9,481	82,310	18,533	63,606	9,652
May	81,195	9,009	72,186	16,222	55,809	9,164
June	76,499	9,105	67,394	15,605	51,675	9,219
July	90,605	9,458	81,147	18,290	62,701	9,614
August [a]	80,538	9,672	70,866	15,833	54,908	9,797
September [a]	78,272	9,517	68,755	14,573	54,048	9,651

SOURCE: Social Security Administration, Supplemental Security Record, 100 percent data.

NOTE: Data are for all awards made during the specified month.

a. Preliminary data. In the first 2 months after their release, numbers may be adjusted to reflect returned checks.

CONTACT: (410) 965-0090 or statistics@ssa.gov.

Perspectives—Paper Submission Guidelines

The *Social Security Bulletin* is the quarterly research journal of the Social Security Administration. It has a diverse readership of policymakers, government officials, academics, graduate and undergraduate students, business people, and other interested parties.

To promote the discussion of research questions and policy issues related to Social Security and the economic well being of the aged, the *Bulletin* welcomes submissions from researchers and analysts outside the agency for publication in its Perspectives section.

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Papers should be factual and analytical, not polemical. Technical or mathematical exposition is welcome, if relevant, but findings and conclusions must be written in an accessible, nontechnical style. In addition, the relevance of the paper's conclusions to public policy should be explicitly stated.

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To facilitate the editorial process, papers submitted for publication must be prepared in Microsoft Word (**except for tables and charts—see below**) and be formatted as outlined below.

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Title and Author Index for Volume 72, 2012

Titles

Authors

OASDI and SSI Program Rates and Limits, 2013

Old-Age, Survivors, and Disability Insurance

Tax Rates (percent)	
Social Security (Old-Age, Survivors, and Disability Insurance)	
Employers and Employees, each [a]	6.20
Medicare (Hospital Insurance)	
Employers and Employees, each [a]	1.45
Maximum Taxable Earnings (dollars)	
Social Security	113,700
Medicare (Hospital Insurance)	No limit
Earnings Required for Work Credits (dollars)	
One Work Credit (One Quarter of Coverage)	1,160
Maximum of Four Credits a Year	4,640
Earnings Test Annual Exempt Amount (dollars)	
Under Full Retirement Age for Entire Year	15,120
For Months Before Reaching Full Retirement Age in Given Year	40,080
Beginning with Month Reaching Full Retirement Age	No limit
Maximum Monthly Social Security Benefit for Workers Retiring at Full Retirement Age (dollars)	2,533
Full Retirement Age	66
Cost-of-Living Adjustment (percent)	1.7

a. Self-employed persons pay a total of 15.3 percent (12.4 percent for OASDI and 2.9 percent for Medicare).

Supplemental Security Income

Monthly Federal Payment Standard (dollars)	
Individual	710
Couple	1,066
Cost-of-Living Adjustment (percent)	1.7
Resource Limits (dollars)	
Individual	2,000
Couple	3,000
Monthly Income Exclusions (dollars)	
Earned Income [a]	65
Unearned Income	20
Substantial Gainful Activity (SGA) Level for the Nonblind Disabled (dollars)	1,040

a. The earned income exclusion consists of the first $65 of monthly earnings, plus one-half of remaining earnings.

Social Security Administration
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