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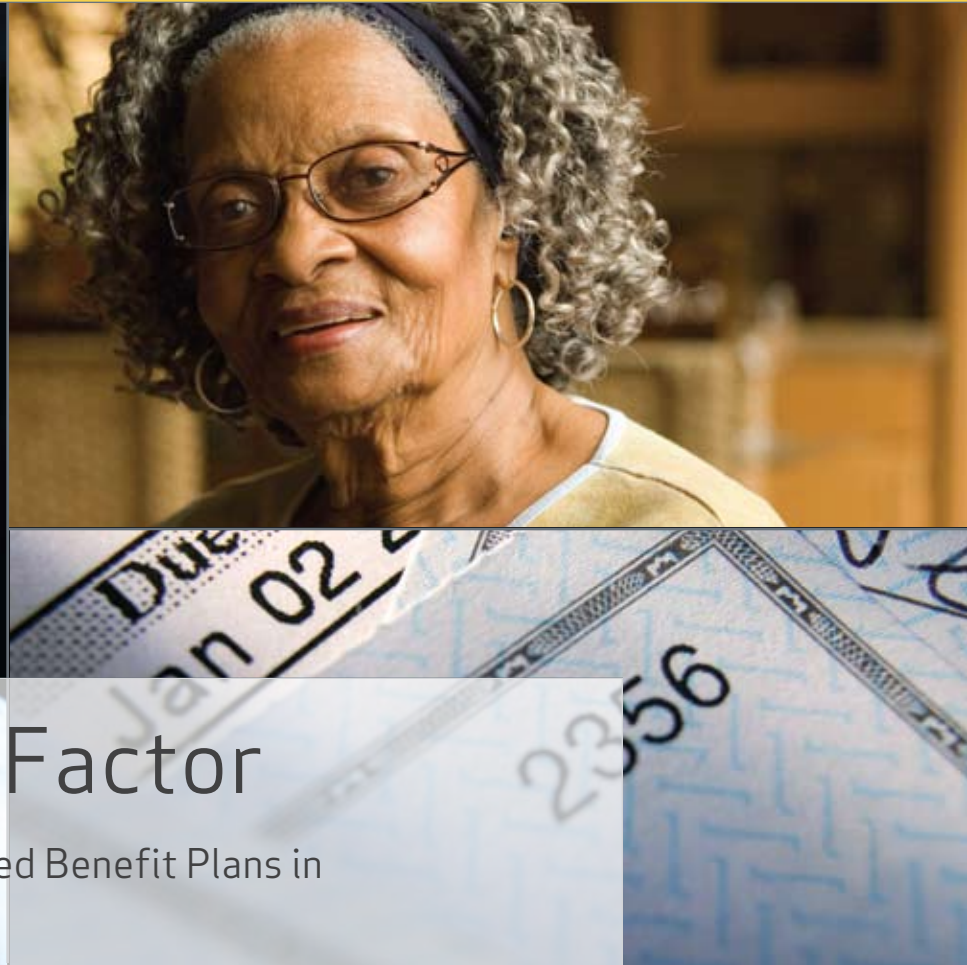
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The Pension Factor

Assessing the Role of Defined Benefit Plans in
Reducing Elder Hardships

by Frank Porell, Ph.D and Beth Almeida

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EXECUTIVE SUMMARY

Recent turmoil in financial markets has substantially reduced the retirement savings of many workers and retirees alike. This has heightened public concerns that many older American households will not accumulate sufficient retirement savings to meet their needs in retirement. Fortunately, about half of older American households count on income from a defined benefit (DB) pension.

The predictable monthly benefits provided by DB plans remain a source of security to these retired households, enabling millions of Americans to remain secure and independent in old age. This study analyzes the contribution of DB pensions to the economic security of older American households.

Our findings indicate that DB pension income plays a vital role in reducing the risk of poverty and material hardships among older Americans. Rates of poverty among older households without DB pension income were approximately six times greater than the rate among older households with DB pension income. Older households with DB pension income also were far less likely to experience food, shelter, and health care hardships. In addition, DB pension recipient households were less reliant on means-tested cash and non-cash public assistance.

While households with DB pension income generally fared better than households without pension income, DB pensions appear to have particularly improved the economic security of more vulnerable subpopulations of elder households. Our analysis suggests that common gender and racial disparities in rates of poverty, material hardships, and dependence on public assistance are greatly diminished, and in some cases nearly eliminated, among households receiving DB pension income.

Even after controlling for a range of socio-demographic factors such as education, race, gender, and work history, we find that households with a pension fare better than those without. In other words, DB pensions appear to exert an independent, positive effect on older Americans' economic well-being – an effect we call the “pension factor.”

This “pension factor” has helped substantial numbers of older American households avoid material hardships associated with inadequate food, shelter, and health care and to avoid having to rely on public assistance. More specifically, we estimate that in 2006, DB pension receipt among older American households was associated with:

- 1.72 million fewer poor households and 2.97 million fewer near-poor households
- 560,000 fewer households experiencing a food hardship
- 380,000 fewer households experiencing a shelter hardship
- 320,000 fewer households experiencing a health care hardship
- 1.35 million fewer households receiving means-tested public assistance

We calculated a savings of some \$7.3 billion in public assistance expenditures in 2006, not counting Medicaid reimbursements for acute and long-term medical care, which can be attributed to receipt of DB pension income. Our estimates of savings represent about 8.5 percent of aggregate public assistance dollars received by all American households in 2006 for the same benefit programs. This amount is significant, particularly given the pressures on safety net programs during the current fiscal crises experienced at all levels of government throughout the country.

INTRODUCTION

Traditional defined benefit (DB) pension plans have long been an important source of income for elder households seeking to maintain a middle-class standard of living after a lifetime of work. Under traditional DB plans, retirees receive a guaranteed, regular stream of income after retirement that continues until death.

The monthly pension benefit is typically based on years of service to the employer, age, and salary history. Retirees also have the option to elect a joint-and-survivor benefit, to ensure that pension payments continue to a surviving spouse. DB plan participation rates among private sector American workers have sharply decreased from about 38 in 1980 to 20 percent in 2008.¹ DB plan coverage in the public sector has not followed this same trend. Overwhelmingly, employees of local, state or federal government are covered by a traditional pension plan. For the same time period, the percentage of private sector workers covered by a defined contribution (DC) retirement plan, such as 401(k) plans, rose from 8 to 31 percent. Under such DC plans, employers and/or employees make contributions to a retirement savings account. Employees typically need to decide how to invest these sums in order to produce accumulated savings for income at retirement.

Recent turmoil in financial markets has substantially reduced the DC plan retirement savings of many workers and retirees alike. This has heightened public concerns that many older American households will not accumulate sufficient retirement savings to meet their needs in retirement. Although investment losses certainly have adversely affected the funding of many DB plans, the predictable monthly benefits of DB plans remain a source of security to retired households who have these plans.²

Evidence of the contributions of DB pensions to the retirement readiness of households has been noted long before the current crises in financial markets. For example, projections by Munnell, Webb, and Golub-Sass show that households with heads born after 1945 with a DB plan are about twice as likely than their counterparts with only a DC plan or no retirement plan at all, to have adequate replacement retirement income

at age 65, or income that is sufficient for roughly maintaining one's pre-retirement standard of living.³ Other experts have shown that DB pensions are a major income component for both middle and upper income retirees.⁴ Whereas DB pension income comprised only about 3 percent of total household income among the poorest elderly households in the bottom quartile of the household income distribution in 2007, it comprised about 21 percent and 15 percent of income among households in the top two household income quartiles, respectively.⁵

A review of the evidence in studies such as those noted here finds a compelling case for the vital role that DB pensions play in ensuring economic self-sufficiency of retired American households.⁶ Several distinctive features of DB pensions should be noted as contributing factors. First, eligible employees are automatically included in DB plans and do not face decisions about whether to participate, how much to save, and how to invest the savings. Second, DB plans better protect retirement wealth from pre-retirement "leakages" due to borrowing or pre-retirement withdrawals. Third, DB pension recipients can't outlive their retirement benefits, and a spouse's access to this pension income is protected after one's own death. Because of these unique features of DB pension plans, older American households with pension income should have greater economic security than their counterparts without such income. However, this proposition has not been examined empirically in past research.

In this report we undertake an empirical examination of the contribution of DB pension income in enhancing the economic welfare of older American households. We use data from the U.S. Census Bureau's Survey of Income Program Participation (SIPP) to examine who receives pension income,

how much, and how this has changed over time. We then assess the extent to which DB pension income has protected older American households from poverty in general, and also from experiencing various food, shelter, and health care hardships. We provide descriptive statistics for the older population as a whole, as well as for distinct demographic groups. Lastly, and perhaps most importantly, we derive estimates of the effect of DB pension receipt in reducing older households' reliance on public assistance, and the associated savings to governments in public assistance expenditures.

Data Source and Study Sample

The study data were drawn from 1996, 2001, and 2004 panels of the SIPP.⁷ Each SIPP panel is a representative national sample of the civilian population not living in institutions. SIPP Panel members are interviewed at four-month time

intervals over 3-4 year time spans, so the 2004 SIPP panel, for example, incorporates data from 2004 through 2006. A core set of income, labor force, and program participation questions are asked at each interview. Additional questions on a variety of topics such as pension plan coverage, adult well-being, employment history, or health are also asked at specific interviews in the form of topical modules. Topical module questions are asked in only one of the 9-12 interviews conducted during the multi-year span of the panel survey. For this study, core interview variables were used from questions asked in the same month of the Retirement and Pension Plan Coverage topical module. Material hardship variables were obtained from the Adult Well-Being topical module conducted in a different month. The study sample included all SIPP respondents age 60 years or older and all households with a head age 60 and older, respectively, who had records in both the Pension and Adult Well-Being topical modules.⁸

PENSIONS REMAIN AN IMPORTANT SOURCE OF INCOME FOR MIDDLE-CLASS RETIREES

Table 1 presents descriptive statistics about persons who have received DB pension income, how much they received, and how this has changed over time from SIPP data. Receipt of a DB pension is defined here as receiving regular pension income from a former employer for reasons of retirement, disability, or survivorship that are expected to last for the remainder of one's life.

Similar to past research using SIPP data,⁹ lump sum pension distributions are not counted as DB pension income. According to these data, about 31.5 percent of persons age 60 or older in the U.S. received DB pension income from a former employer of their own in 2006. The mean and median annual pension amounts received in 2006 were about \$15,784 and \$11,467, respectively.¹⁰ While appropriate for many purposes, this definition of pension receipt does not include survivors who receive DB pension income from a job held by a former

decedent spouse, or persons who benefit from the DB pension income of their current spouse. When these sources of DB pension income are also counted, the 2006 estimated rate of DB pension receipt increases to 48.2 percent of persons age 60 or older, with mean and median annual pension amounts per recipient of \$18,195 and \$12,480, respectively. The higher mean and median pension amounts under this broader definition of DB pension receipt are the result of counting both pension incomes of dual-recipient married couples.¹¹

Table 1: **DB Pension Income Among Persons Age 60 or Older, 1998, 2003, and 2006**

		Persons Age 60 or Older with DB Pension Income from Own Former Employer	Persons Age 60 or Older with DB Pension Income from Own or Spouse's Former Employer
2006	Percent of Persons with DB Income	31.5%	48.2%
	Mean Pension Amount ^a	\$15,784	\$18,195
	Median Pension Amount ^a	\$11,467	\$12,480
2003	Percent of Persons with DB Income	34.1%	51.8%
	Mean Pension Amount ^a	\$14,592	\$16,960
	Median Pension Amount ^a	\$10,477	\$12,255
1998	Percent of Persons with DB Income	33.5%	51.8%
	Mean Pension Amount ^a	\$12,987	\$14,696
	Median Pension Amount ^a	\$9,257	\$10,603

Source: Tabulations from the 1996-98, 2001-03, and 2004-06 Surveys of Income and Program Participation, Core wave 7 and Topical Module 7
 a All Dollars are in 2006 dollars.

Although there have been dramatic declines in DB pension plan participation among private sector workers since the early 1980s,¹² the data in Table 1 suggest that these declines in plan participation have not yet produced sharp declines in rates of actual DB pension income receipt among older Americans. A fairly modest decline is observed in the percentage of persons aged 60 or older receiving DB pension income between 1998 and 2006. The similar estimated rates of DB pension receipt in 1998 and 2003 are only about 2 to 3 percentage points higher than the 2006 estimates, regardless of how broadly pension receipt is defined. In all three years prevalence rates of DB pension income receipt are about 16 to 18 percentage points higher when spousal sources of pension income are considered relative to when they are not. Since many workers affected by the shift toward DC plans over the last two decades may have not yet retired from the labor force, future data may show more marked declines in DB pension receipt than is apparent in 2006 data.

Gender and Race

Table 2 shows how rates of DB pension income receipt varied with selected characteristics of older Americans in 2006.¹³ Older men are nearly twice as likely as women to report DB pension income from a former employer (42.0 percent vs 23.3

percent) and the amounts received are substantially larger as well. The mean annual pension from a former employer among older men of \$18,040 is more than 40 percent greater than the mean of \$12,589 among women. These gender differences reflect the historical lower rates of labor force participation and earnings of women relative to men for this older population cohort.¹⁴ When spousal sources of pension income are counted in the broader definition of DB pension receipt, the gender disparity in pension amounts received are substantially reduced and the gender disparity in DB pension receipt is nearly eliminated (49.8 percent vs 46.9 percent). A little more than 60 percent of the marginal increase in the rate of DB pension receipt among women under the broader definition stems from being a current spouse of a current DB pension recipient, with the rest attributable to counting DB pension survivor benefits.

Table 2 also indicates there are notable racial/ethnic disparities in DB pension income receipt among older Americans. However, the pattern of changes in race/ethnic disparities under the alternative definitions of DB pension receipt differ from those found for gender. When DB pension receipt is based only on pension income from one's own former employer, rates of DB pension receipt among older non-Hispanic White and Blacks were similar (32.7 percent vs 32.0 percent) and were

Table 2: **DB Pension Income Among Persons Age 60 or Older by Selected Characteristics, 2006**

	Number of Persons (millions)	DB Pension from Own Former Employer Only			DB Pension from Own or Spouse's Former Employer		
		Percent	Mean Pension Amount ^a	Median Pension Amount ^a	Percent	Mean Pension Amount ^a	Median Pension Amount ^a
All	48.6	31.5%	\$15,784	\$11,467	48.2%	\$18,195	\$12,480
Gender							
Male	21.4	42.0%	\$18,040	\$13,509	49.8%	\$19,906	\$14,364
Female	27.2	23.3%	\$12,589	\$8,400	46.9%	\$16,763	\$11,664
Race/Ethnicity							
Non-Hispanic White	39.1	32.7%	\$16,136	\$11,730	50.7%	\$18,609	\$12,908
Non-Hispanic Black	4.2	32.0%	\$13,857	\$9,592	42.8%	\$15,565	\$11,042
Other Race/Ethnicity	5.3	22.6%	\$14,225	\$10,629	34.0%	\$16,298	\$11,976
Annual Household Income^b							
Lowest Quintile	10.9	15.6%	\$4,330	\$2,952	24.4%	\$4,782	\$3,283
2nd Quintile	12.7	32.1%	\$9,231	\$7,665	49.7%	\$9,193	\$7,656
3rd Quintile	11.2	40.3%	\$15,597	\$13,173	61.7%	\$17,493	\$15,600
4th Quintile	8.0	39.1%	\$23,487	\$20,359	59.1%	\$28,769	\$27,950
Highest Quintile	5.8	32.6%	\$27,933	\$23,952	47.8%	\$35,335	\$30,574
Census Region							
Northeast	9.6	34.4%	\$14,015	\$9,796	50.7%	\$16,225	\$10,800
Midwest	11.1	32.4%	\$14,191	\$10,536	50.3%	\$16,127	\$11,760
South	18	29.3%	\$15,428	\$11,161	45.8%	\$17,895	\$12,144
West	9.9	31.8%	\$20,036	\$14,364	47.6%	\$23,188	\$16,462
Employment Sector							
Private Only	9.8	63.6%	\$11,183	\$7,782	14.7%	\$12,282	\$8,739
Public Only	4.5	29.2%	\$21,916	\$18,563	35.0%	\$25,130	\$20,947
Both	1.1	7.1%	\$32,068	\$26,633	50.3%	\$34,429	\$29,172

Source: Tabulations from the 2004-2006 Survey of Income and Program Participation, Core wave 7 and Topical Module 7

a All Dollars are in 2006 dollars.

b Quintile ranges are those reported by the U.S. Bureau of the Census for households with heads of all ages. Quintile boundaries (lowest to highest) are: \$20,135; \$37,774; \$60,000; \$97,032.

much higher than for persons of other race/ethnicity (22.6 percent). When spousal sources of DB pension income are counted, a White-Black racial disparity in DB pension receipt emerges (50.7 percent vs 42.8 percent). However, the mean and median income received by White pension recipients

exceeded that pension recipients of all other race/ethnic groups regardless of whether spousal pension income is counted or not. These data suggest that there may be disproportionately more married persons and persons with DB survivor benefits among older Whites relative to Blacks.

Income and Geography

When the data are displayed by household income quintiles in Table 2, they show the expected results that older persons with lowest household incomes are least likely to have DB pension income and, on average, receive the smallest pension amounts. Similar to other researchers,¹⁵ SIPP data suggest that DB pension income is a particularly important income component for middle-class older Americans. Whereas mean and median pension amounts received increase monotonically from the lowest to the highest household income quartiles, rates of DB pension income receipt are highest among older persons in the third and fourth quintiles of the national distribution of annual household income.

Table 2 also contains data on the geographic variations in rates of DB pension receipt and pension amounts. Although regional disparities are generally modest, lower rates of DB pension receipt are found among older persons living in the South relative to other regions, and recipients living in the West receive larger pensions relative to other regions. These regional disparities are not surprising given the history of lower rates of unionization in the South and the higher living costs and wages of workers in the West region of the United States.¹⁶

Public and Private Sector

Finally, Table 2 shows the number of older persons with private and public DB pension income and the amounts received. Public pensions include civilian and military federal government, state government, local government, and Railroad Retirement Board pensions. Private pensions include company, union, and other nongovernment retirement pensions. Regardless of how pension receipt is defined, private DB pension recipients greatly outnumbered public DB pension recipients in 2006. Almost 71 percent of DB pension recipients in 2006 received some private pension income, either alone (63.7 percent), or with public pension income (7 percent). A little more than 36 percent of DB pension recipients received some public pension income, either alone (29.2 percent), or with private pension income (7 percent). When spousal sources of pension income are also considered, the percentage of the much larger pool of pension recipients with some public DB pension income remains about 36 percent, while the percentage of pension recipients with some private DB pension income increases to 74.5 percent.

While far fewer in number, public DB pension recipients generally received far greater annual pension income than their private DB pension recipient counterparts. The mean and median annual amounts of pension income of \$21,916 and \$18,563 among recipients with only public pensions were roughly 2 and 2.4 times greater than the mean (\$11,183) and median (\$7,782) amounts received by DB pension recipients with only private pensions in 2006.¹⁷ The relatively small pool of DB pension recipients with both private and public pensions received much larger pension incomes than their counterparts with only public or private pension income even when pension receipt is based solely upon one's own former employment. When spousal sources of pension income are also considered, there is a modest increase in the disparity between private and public pension amounts received by recipients. Similar disparities in the size of public and private DB pensions have also been documented by others.¹⁸ The greater income received by public relative to private DB pension recipients reflects the fact that nearly all state and local government employees contribute to their pensions, while employees in the private sectors do not.¹⁹ Also, because many state and local employees are not covered by Social Security, these DB pensions compensate for that lack of coverage. Other factors that also play a role are lower job turnover and longer employment tenure among government employees, as well as their occupational mix and higher education levels.²⁰

Pension Income Compared to Other Retirement Income

Some perspective on the magnitudes of both the rates of DB pension receipt and amounts received by older persons can be found in Table 3. This table presents comparative data on estimated receipt rates and the mean and median annual amounts of DC and Social Security income received by older Americans in 2006. These data show that DC income receipt rates were much lower than the receipt rates of both DB and Social Security income, and the rate of Social Security income receipt was highest among the three sources of retirement income. While the mean annual income received was greatest for DC income recipients and lowest for Social Security income recipients, these rankings are reversed when median amounts received are considered.²¹ The median annual amount of Social Security income among recipients exceeded that for both DB and DC income recipients. For both DB and DC income, the mean amounts received are much larger than their median amounts. This differential suggests that the

distributions of amounts received by DB and DC recipients are more heavily skewed than for Social Security recipients. This

typically results when a relatively small fraction of individuals is receiving very large annual amounts relative to others.

Table 3: **DB, DC, and Social Security Income Recipients and Amounts – Persons Age 60 or Older**

	Number of Persons Receiving Income (millions)	Recipients as a Percent of All Persons	Mean Annual Amount ^a	Median Annual Amount ^a
DB Pension Income				
Own Former Employer	15.3	31.5%	\$15,784	\$11,467
Own or Spouse's Former Employer	23.4	48.2%	\$18,195	\$12,480
DC Income				
Own	2.5	5.1%	\$24,435	\$11,970
Own or Spouse's	3.5	7.2%	\$21,625	\$9,575
Social Security Income				
Own	37.6	77.4%	\$11,965	\$12,038
Own or Spouse's	39.7	81.6%	\$16,561	\$15,518

Source: Tabulations from the 2004-2006 Survey of Income and Program Participation, Core wave 7 and Topical Module 7

a All Dollars are in 2006 dollars.

HOUSEHOLDS WITH PENSION INCOME FACE FEWER RISKS OF POVERTY, HARDSHIPS

We now turn to the economic welfare of older American households with DB pension income relative to other households. Income offers a means for households to consume goods and services that are necessary to meet their basic needs. Therefore, income is widely accepted as an important indicator of economic well-being.

Comparing household incomes to thresholds, such as federal poverty levels, is a common way to assess the economic welfare of various subpopulations and changes in their economic welfare over time. For example, although poverty among older Americans remains an important policy concern, the percentage of older Americans living in poverty has declined markedly since the 1960's largely because of the growth in Social Security coverage and benefits.²²

Conventional poverty-level measures have a number of acknowledged limitations such as the exclusion of noncash

benefits (e.g., food stamps, housing subsidies) and earned income tax benefits. The measures also do not incorporate adjustments for expenditures that are not directly made for the consumption of necessities, such as childcare, taxes, various work-related expenses, as well as for geographic cost-of-living differentials.²³ Aside from these technical limitations, they measure resources available for consumption rather than consumption itself. Direct measures of material hardships have been developed from reported consumption patterns and physical living conditions judged to be inadequate by societal standards. Despite some shortcomings of their own,²⁴

material hardship measures provide a tangible picture of the actual consequences of inadequate economic resources for households. They are generally regarded as useful supplements to conventional income-poverty indicators for assessing economic well-being.²⁵ In Tables 4 through 6 below, we compare not only poverty rates, but also rates of selected material hardships among households with and without DB pension income.

Households with Pensions Less Likely to be Poor or “Near Poor”

Table 4 shows how poverty rates varied among older households with DB pension receipt status and selected characteristics of the householder. Since federal poverty thresholds of the U.S. Bureau of the Census are measured for families, we analyzed the family income received by SIPP households with a householder age 60 or older rather than income received individually by all older persons. Households with incomes below the federal poverty line (FPL) are classified as “poor.” Households with incomes exceeding the FPL but less than or equal to 200 percent of the FPL are classified as “near-poor,” while households with incomes exceeding 200 percent of the FPL are classified as “not-poor.” DB pension receipt pertains to both the householder and his/her spouse.

We find the expected large gender and racial disparities in poverty rates among older American households. But, the data also suggest that DB pensions can reduce gender and racial gaps.

In 2006 about 9 percent of American households with householders aged 60 or older were poor, and another 25.5 percent of them were near-poor. The poverty rate is much lower among older households with DB pension income relative to their counterparts with no DB pension income. This is not surprising because lower income workers are the least likely to be covered by a pension.²⁶ The poverty rate of 15.1 percent among older households without any DB pension income exceeded the 2.4 percent rate of households with DB pension income by more than a factor of six. In addition, the 33.9 percent rate of near-poverty among households without

DB pension income is more than double the near-poverty rate of 15.1 percent found for those with DB pension income. While still much lower than households with no DB pension income, poverty rates were much higher among households with only private DB pension income relative to those with only public DB pension income and those with both public and private pension income. These results are consistent with the larger pension amounts of public relative to private DB income recipients reported earlier in Table 2.

We find the expected large gender and racial disparities in poverty rates among older American households. But, the data also suggest that DB pensions can reduce gender and racial gaps. As shown in Table 4, older households headed by women generally exhibit higher poverty rates than those headed by men with the same DB pension status. However, female-headed households with DB pension income exhibit lower poverty rates than male-headed households without DB pension income. More importantly, the 4.3 percentage point female disparity in the percentage of poor households without DB pension income (16.8 percent vs 12.5 percent) is nearly eliminated among households with DB pension income (i.e., 2.5 percent vs 2.2 percent). Similar changes in racial disparities in poverty rates are found when DB pension receipt is distinguished. Poverty rates are generally much higher among non-White households relative to their White counterparts. However, the double-digit percentage point White-non-White racial disparity in poverty rates among households without DB pension income (11.5 percent for Whites vs 29.4 percent for Blacks and 24.6 percent for Other Race) is reduced to a disparity of less than 4 percentage points among households with DB pension income (1.9 percent for Whites vs 5.2 percent for Blacks and 4.7 percent for Other Race). These data suggest that DB pensions have helped many older non-white and female-headed households to escape poverty as defined by the FPL.

Households with Pensions Face Fewer Material Hardships

We analyzed three types of material hardships: inadequate food consumption, inability to meet basic expenses associated with shelter, and unmet medical or dental needs. Our selection of these hardship measures was guided by the findings of past research employing SIPP data on material hardships.²⁷ We discuss our empirical findings for each of these material hardship measures in turn.

Table 4: **Percentage of Older Households with Household Incomes Exceeding Poverty Thresholds by DB Pension Income Status and Other Selected Characteristics, 2006**

	Number of Households (millions) ^d	Percent of Households with Annual Income		
		Poor ^c	Near Poor ^c	Not Poor ^c
All Households	31.6	9.0%	25.5%	65.5%
With Own or Spouse Pension Income	15.0	2.4%	16.2%	81.5%
Private Pension	9.4	3.0%	20.9%	76.1%
Public Pension	3.9	1.3%	10.3%	88.4%
Both	1.7	1.4%	3.1%	95.5%
No DB Pension Income	16.6	15.1%	33.9%	51.0%
Gender of Head of Household				
Male				
With Own or Spouse Pension Income	6.9	2.2%	10.4%	87.4%
No DB Pension Income	6.5	12.5%	28.0%	59.5%
Female				
With Own or Spouse Pension Income	8.1	2.5%	21.1%	76.4%
No DB Pension Income	10.0	16.8%	37.8%	45.4%
Race/Ethnicity				
Non-Hispanic White				
With Own or Spouse Pension Income	12.7	1.9%	15.2%	82.9%
No DB Pension Income	12.7	11.5%	33.2%	55.3%
Non-Hispanic Black				
With Own or Spouse Pension Income	1.3	5.2%	23.3%	71.5%
No DB Pension Income	1.8	29.4%	37.8%	32.8%
Other Race/Ethnicity				
With Own or Spouse Pension Income	1.0	4.7%	18.1%	77.2%
No DB Pension Income	2.0	24.6%	35.3%	40.1%
Household Income^{a,b}				
Lowest Quintile				
With Own or Spouse Pension Income	2.2	16.0%	83.0%	1.0%
No DB Pension Income	6.9	35.7%	64.0%	0.3%
Quintile 2				
With Own or Spouse Pension Income	4.6	0.1%	12.3%	87.6%
No DB Pension Income	4.2	0.9%	26.9%	72.3%
Quintile 3				
With Own or Spouse Pension Income	4.2	0.0%	0.6%	99.4%
No DB Pension Income	2.3	0.0%	3.3%	96.7%

Source: Tabulations from the 2004-2006 Survey of Income and Program Participation, Core wave 7 and Topical Module 7.

Older households are defined as those whose head is age 60 or older.

a Quintile ranges are those reported by the U.S. Bureau of the Census for households with heads of all ages.

Quintile boundaries (lowest to highest) are: \$20,135; \$37,774; \$60,000; \$97,032.

b Quintiles 4 and 5 are not reported because nearly all households are classified as "not poor"

c Poor: Income below Federal Poverty Level (FPL); Near Poor: FPL < Income <= 200% FPL; Not Poor: Income > 200% FPL.

d Totals may not add up due to rounding.

Table 5: **Percentage of Older Households Reporting Food, Shelter, and Health Care Material Hardships by DB Pension Income Status and Other Selected Characteristics, 2006**

	Number of Households (millions) ^b	Percent of Households Reporting: ^b		
		Food Insecurity Hardship	One or More Shelter Hardship ^c	One or More Health Care Hardship ^c
All Households	31.6	4.7%	4.6%	6.0%
With Own or Spouse Pension Income	15.0	2.6%	2.4%	4.2%
Private Pension	9.4	3.1%	2.9%	5.0%
Public Pension	3.9	1.9%	1.7%	2.8%
Both	1.7	1.6%	1.6%	2.7%
No DB Pension Income	16.6	6.7%	6.6%	7.8%
Gender of Head of Household				
Male				
With Own or Spouse Pension Income	6.9	2.3%	1.6%	3.8%
No DB Pension Income	6.5	5.7%	5.2%	5.8%
Female				
With Own or Spouse Pension Income	8.1	2.9%	3.1%	4.5%
No DB Pension Income	10.0	7.2%	7.5%	9.1%
Race/Ethnicity				
Non-Hispanic White				
With Own or Spouse Pension Income	12.7	1.9%	1.6%	3.6%
No DB Pension Income	12.7	4.8%	4.4%	6.9%
Non-Hispanic Black				
With Own or Spouse Pension Income	1.3	6.4%	10.1%	6.7%
No DB Pension Income	1.8	13.4%	18.0%	13.1%
Other Race/Ethnicity				
With Own or Spouse Pension Income	1.0	6.5%	2.3%	7.2%
No DB Pension Income	2.0	11.9%	10.1%	8.5%
Annual Household Income				
Lowest Quintile^a				
With Own or Spouse Pension Income	2.2	6.5%	4.7%	7.3%
No DB Pension Income	6.9	10.5%	9.4%	10.3%
Quintile 2				
With Own or Spouse Pension Income	4.6	3.4%	3.1%	5.7%
No DB Pension Income	4.2	5.9%	5.6%	7.7%
Quintile 3				
With Own or Spouse Pension Income	4.2	1.9%	2.0%	2.7%
No DB Pension Income	2.3	2.3%	3.7%	4.5%

Source: Tabulations from the 2004-2006 Survey of Income and Program Participation, Core wave 7 and Topical Module 7.

Older households are defined as those whose head is age 60 or older.

a Quintile ranges are those reported by the U.S. Bureau of the Census for households with heads of all ages.

Quintile boundaries (lowest to highest) are: \$20,135; \$37,774; \$60,000; \$97,032.

b Totals may not add up due to rounding.

c See Technical Appendix for definitions of food, shelter and health care hardship indices.

Table 5 shows rates of food hardships among older American households in 2006. Hardships associated with inadequate food consumption were based on a food security scale based on the U.S. Department of Agriculture (USDA) employed in previous research by She & Livermore.²⁸ The scale is derived from responses to five questions about food-related hardships experienced due to lack of money over the last four months: (1) food we bought didn't last, (2) couldn't afford balanced meals, (3) cut size or skipped meals, (4) ate less than felt needed, and (5) didn't eat for a whole day. Households with two or more responses of "yes," "often," or "sometimes" are classified as experiencing a *food insecurity hardship*.²⁹ While the data in Table 5 suggest that overall relatively few older American households experienced food hardships (4.7 percent), there are disparities in rates of food hardships among subpopulations of households distinguished by DB pension receipt. The rate of food hardships among older households without DB pension income (6.7 percent) is more than double that of their counterparts with DB pension income (2.6 percent).

Gender and race disparities in rates of food hardships are apparent in Table 5, but the data also show substantial reductions in these disparities among households receiving DB pension income. For example, the 1.5 percentage point gender disparity in the rate of food hardship (7.2 percent vs 5.7 percent) among households without DB pension income is more than halved (2.9 percent vs 2.3 percent) among households with DB pension income. The 8.6 percentage point Black-White racial disparity in the rate of food hardship (13.4 percent vs 4.8 percent) among households without DB pension income is nearly halved to 4.5 percentage points (6.4 percent vs 1.9 percent) among households with DB pension income. Lastly, while Table 5 expectedly shows much higher risks of food hardships among poorest households, within each income quartile rates of food hardships are considerably lower among households with DB pension income relative to those without such income.

Table 5 also displays rates of shelter expense and health care hardships in 2006. Households reporting that they were unable to pay the full amount of the rent or mortgage, or the full amount of gas, oil, electricity, or telephone utility bills, are classified as having experienced a *shelter expense hardship*. Although the vast majority of Americans 65 years and older are entitled under Medicare, most dental services and some medical expenses are not covered by Medicare and out-of-pocket costs for deductibles and co-payments can impose

a strain on household budgets. Households are defined as having experienced a *health care hardship* if they reported that in the past year one or more household members did not see a doctor or dentist when there was a need to see one. These data show that about 4.6 percent of older American households were unable to fully meet their regular expenses for shelter in 2006. In about 6 percent of households at least one member had to forgo a needed doctor or dental visit during the year. Rates of shelter and medical hardships were much lower among households with DB pension income relative to their counterparts without such income. Whereas only 2.4 percent of households with DB pension income experienced a shelter expense hardship in 2006, about 6.6 percent of households without DB pension income experienced such a hardship. Rates of shelter expense hardships were particularly low among households receiving public DB pension alone (1.7 percent) or both public and private DB pension income (1.6 percent). Similar to food hardships, there are fairly large gender and race disparities in rates of shelter and health care hardships that are attenuated within the subpopulation of households receiving DB pension income. The reduction of these gender and race disparities suggests that DB pension income has disproportionately helped older non-white and female-headed households to avoid these forms of material hardships.

Households with Pension Income Less Likely to Rely on Public Assistance

For many older American households with insufficient retirement income, particularly those unable to work or to find suitable employment, there may be few options other than to seek public assistance to help them meet their basic living needs. Table 6 shows that 10.9 percent of some 31.6 million American households with a head age 60 or older received an average of \$5,373 per household in means-tested cash transfers (e.g., Supplemental Security Income (SSI), general assistance) and/or noncash public assistance (e.g., food stamps, rent subsidies, energy assistance) in 2006. This is a conservative estimate of public assistance receipt since the SIPP definition of means-tested public assistance does not include expenditures made on behalf of Medicaid recipients.

The data in Table 6 suggest that households receiving DB pension income are much less reliant on public assistance transfers than households without pension income. Among households without DB pension income, 16.6 percent received public assistance in 2006. That was more than triple

Table 6: **Percentage of Older Households Receiving Public Assistance and Amount of Assistance by DB Pension Income Status and Other Selected Characteristics, 2006**

	Number of Households (millions) ^b	% Receiving Public Assistance	Mean Amount Received ^c	Median Amount Received ^c
All Households	31.6	10.9%	\$5,373	\$3,779
With Own or Spouse Pension Income	15.0	4.6%	\$4,558	\$2,976
No DB Pension Income	16.6	16.6%	\$5,578	\$3,890
Gender of Head of Household				
Male				
With Own or Spouse Pension Income	6.9	4.6%	\$4,760	\$3,519
No DB Pension Income	6.5	14.0%	\$6,156	\$5,063
Female				
With Own or Spouse Pension Income	8.1	4.6%	\$4,385	\$2,933
No DB Pension Income	10.0	18.3%	\$5,291	\$3,603
Race/Ethnicity				
Non-Hispanic White				
With Own or Spouse Pension Income	12.7	3.4%	\$4,653	\$2,520
No DB Pension Income	12.7	10.6%	\$5,172	\$2,873
Non-Hispanic Black				
With Own or Spouse Pension Income	1.3	12.0%	\$4,019	\$3,070
No DB Pension Income	1.8	36.0%	\$4,988	\$3,708
Other Race/Ethnicity				
With Own or Spouse Pension Income	1.0	9.8%	\$5,005	\$3,897
No DB Pension Income	2.0	36.6%	\$6,846	\$6,431
Household Income				
Lowest Quintile^a				
With Own or Spouse Pension Income	2.2	8.1%	\$2,358	\$1,344
No DB Pension Income	6.9	26.2%	\$4,397	\$3,006
Quintile 2				
With Own or Spouse Pension Income	4.6	5.0%	\$3,966	\$2,520
No DB Pension Income	4.2	12.3%	\$7,647	\$6,240
Quintile 3				
With Own or Spouse Pension Income	4.2	3.3%	\$6,468	\$4,800
No DB Pension Income	2.3	9.8%	\$8,010	\$6,431
Quintile 4				
With Own or Spouse Pension Income	2.6	3.9%	*	*
No DB Pension Income	1.7	8.8%	*	*
Highest Quintile				
With Own or Spouse Pension Income	1.4	3.2%	*	*
No DB Pension Income	1.4	3.1%	*	*

Source: Tabulations from the 2004-2006 Survey of Income and Program Participation, Core wave 7 and Topical Module 7.

Older households are defined as those whose head is age 60 or older.

a Quintile ranges are those reported by the U.S. Bureau of the Census for households with heads of all ages.

Quintile boundaries (lowest to highest) are: \$20,135; \$37,774; \$60,000; \$97,032.

b Totals may not add up due to rounding.

c All Dollars are in 2006 dollars.

the 4.6 percent rate for households with DB pension income. Furthermore, in 2006 public assistance recipients with DB pension received about \$1,020 less, on average, in cash and noncash transfer income than their public assistance recipient counterparts without DB pension income.

Table 6 also shows large gender and racial disparities in rates of public assistance receipt. Among households without DB pension income, non-White households are more than three times as likely to receive public assistance, as compared with White households (36-37 percent vs. 10.6 percent). The rate of public assistance receipt is a little higher among households without DB pension income headed by women (18.3 percent) relative to men (14 percent). But among households with DB pension income, there is no gender disparity. Although a racial

disparity remains in relative rates of public assistance among households with DB pension income, absolute differences between rates of public assistance receipt between nonwhite and white households (10-12 percent vs 3.4 percent) are greatly reduced. These latter results are consistent with the empirical literature on racial differences in participation rates in food stamp and federal welfare programs among households of all ages. Some racial disparities in participation rates generally persist after adjustments are made for need factors affecting welfare participation.³⁰ The reasons for these racial disparities are not fully understood. They have been attributed to lower take up rates among eligible whites due to factors such as inadequate information about programs and eligibility requirements, perceived high costs of participation and lack of need, as well as stigma against use of public assistance.³¹

THE PENSION FACTOR: ISOLATING THE IMPACT OF PENSION INCOME ON ELDER WELL-BEING

The descriptive statistics presented suggest that older households with DB pension income fare much better than households without such income on several indicators of economic welfare.

Relative to households without DB pension income, households with DB pension income are less likely to be classified as poor or near-poor (Table 4), less likely to experience material hardships associated with food consumption, shelter expenses, and foregone medical and dental care (Table 5), and are less likely to rely on means-tested public assistance (Table 6). We now will attempt to quantify these impacts by developing estimates of how many households were able to escape poverty and avoid material hardships as a consequence of their DB pension income. In addition we estimate government savings in the form of reduced public assistance expenditures associated with DB pension income receipt by older households. In order to provide some perspective on the magnitude of these estimated impacts of DB pension income receipt, we develop similar estimates of the impacts of DC and Social Security income receipt.

The estimated impacts of DB, DC, and Social Security income receipt were computed from predictions derived from household-level binary logit or multinomial logit (MNL) models for each of the economic welfare outcomes contained in Tables 4 through 6 — incidence of poverty, hardships, and public assistance receipt. These models enable us to isolate the effect of DB pension receipt on the probability of suffering an adverse outcome. Each statistical model includes a set of “control variables” — household characteristics that, in theory, should also affect the probability that a household will experience the adverse outcome. For example, consider the outcome of a shelter hardship. In order to estimate the effect of DB pension receipt on the probability that a household will experience a shelter hardship, we must control for differences in the education, age, gender, marital status, and race of heads of household, because the risk of experiencing a shelter hardship will be higher or lower depending on these attributes. For

example, a household headed by a better-educated, married, white male may be expected to have a more continuous work history, higher earnings, and greater wealth accumulation than a household headed by a lesser-educated, divorced, Black woman. Since the male should also be more likely to have worked in a job with a DB pension benefit, such potential confounding variables must be specified in statistical model of the risk of shelter hardship. Otherwise, we may erroneously attribute the effects of factors such as higher education, male gender, or race to an effect of DB pension receipt. In each statistical model the probability of experiencing an adverse outcome was specified to be a function of socio-demographic attributes of the household and its head. Depending on the specification, these attributes included age, gender, race, marital status, education level, household size, foreign born, geographic location factors (region and metropolitan residence), employment status (hours worked), and indicators of whether or not one receives DB pension income, DC income, and Social Security income, as well as work history and pre-retirement income.

The estimated coefficients from these statistical models can be used to generate predicted probabilities that households with different characteristics (like those mentioned above) will experience each poverty and material hardship outcome. The coefficient for any particular factor specified in the model, such as DB pension receipt, reflects the independent contribution of that factor to these estimated probabilities after all of the other factors are taken account of. For example, consider two households that have identical socio-demographic and economic attributes and who live in the same geographic region. Neither household receives DC income and both receive some Social Security income. The households differ only in that one of them receives some DB pension income and the other does not. The estimated coefficient for the DB pension receipt variable in the statistical models allows us to estimate how much the probability of each hardship outcome will differ for these two, otherwise identical, households. By extension, these coefficients can also be used to estimate for how much the probability of hardship and poverty outcomes are expected to change, on average, for each household with DB pension income in the sample data if they had not received any DB pension income.

The estimated coefficients from the statistical models were used to generate national predictions of the number of households that would have experienced each adverse outcome, such as a shelter hardship, if no households received any DB pension income. The difference between this adjusted estimate and the national estimate of households actually experiencing the outcome produces a national estimate of the number of households that were able to avoid the adverse economic welfare outcome because of their receipt of DB pension income. Additional details about the analytic strategy, model estimation, and sensitivity analyses conducted to test the robustness of the empirical results can be found in the Technical Appendix.³²

Pensions Help 4.7 Million Americans Avoid Poverty

Table 7 presents national estimates of the impacts of DB pension, DC, and Social Security income on the poverty status of households with a head age 60 or older in 2006. The estimates were derived by employing predicted values from a MNL model which predicted the likelihood of a household being poor, near-poor, or not-poor, based on its socio-demographic characteristics.³³ The estimates suggest that about 4.7 million older households would be added to the count of poor or near-poor households if not for their receipt of DB pension income. An estimated 1.6 million additional households would be similarly re-classified from their not-poor poverty status if not for their receipt of Social Security income. About 90,000 not-poor households would be reclassified as near-poor or poor without their receipt of DC income. The very low rate of DC income receipt relative to DB and Social Security income receipt among older households (see Table 3) certainly contributes to these modest estimated impacts. However, the low rate of DC income receipt is unlikely to fully account for its modest impact. Although nearly twice as many older households received Social Security income than DB income in 2006 (76 percent vs 39 percent), 1.2 million more households are estimated to escape poverty or near-poverty status due to DB income receipt than to Social Security income receipt. However, it is notable that Social Security income receipt appears to protect more older households than does DB pension receipt from more extreme poverty defined solely by the FPL (2.9 million vs 1.7 million). In other words, Social Security is highly effective at helping seniors avoid poverty, but DB pensions enable people to maintain a middle-class standard of living in retirement.

Table 7: Impact of DB, DC and Social Security Income on Older Households' Poverty Level Classifications, 2006

	Number of Poor/ Near-/Not Poor Households (millions)	Net Change in Poor/Near-/Not Poor Households (millions) ^b	% change
Poor Households			
Actual SIPP National Estimate	2.85		
Without DB Pension Income Receipt ^a		1.72	60.4%
Without DC Income Receipt		0.03	1.1%
Without Social Security Income Receipt		2.95	103.5%
Near-Poor Households			
Actual SIPP National Estimate	8.04		
Without DB Pension Income Receipt ^a		2.97	36.9%
Without DC Income Receipt		0.06	0.7%
Without Social Security Income Receipt		-1.30	-16.2%
Not-Poor Households			
Actual SIPP National Estimate	20.68		
Without DB Pension Income Receipt ^a		-4.69	-22.7%
Without DC Income Receipt		-0.09	-0.4%
Without Social Security Income Receipt		-1.64	-7.9%

Source: Analysis conducted on 2004-2006 Survey of Income and Program Participation, Core wave 7, Topical Modules 7 and 8. Older households are defined as those whose head is age 60 or older.

a Results derived from estimated multinomial logit models with dummy variables for DB, DC, and Social Security receipt set to zero, respectively. For details see Technical Appendix.

b Poor: (Income \leq FPL), Near-Poor: (FPL < Income \leq 200% FPL), Not-Poor: (Income > 200% FPL)

Pensions Substantially Reduce Material Hardships

Table 8 contains estimates of the impacts of DB, DC, and Social Security income receipt on the material hardships experienced by older American households. We estimate that more than a half-million additional older households would have experienced food hardships in 2006 if it were not for their DB pension income. While this impact may appear to be modest, it would reflect nearly a 23 percent increase in older households experiencing food hardships, and it is considerably larger than the estimated impacts of DC income receipt. Interestingly, Social Security income receipt was not associated with the risk of food hardships when other factors affecting the risk of food hardships were statistically accounted for.³⁴

Without their DB pension income, we estimate that about 380,000 additional older households would have experienced a shelter hardship in 2006, a 26 percent increase over the actual estimated 1.45 million older households with shelter hardships that year. The estimated impacts of both DC income and Social Security income were far more modest, ranging between 30-40,000 additional households experiencing shelter hardships. We also estimate that additional 320,000 additional households with a head age 60 or older would have experienced a health care hardship in 2006 without their receipt of DB pension income, a 16.5 percent increase over the actual national estimate of 1.9 million older households for that year. Similar to what was found for food hardships, Social Security income receipt was not associated with health care hardships, and estimated impacts of DC income receipt were far more modest than those of DB pension receipt.

Table 8: Impact of DB, DC and Social Security Income on Older Households' Experience of Material Hardships and/or Receipt of Public Assistance, 2006

	Number of Households Experiencing Hardship or Receiving Public Assistance (millions)	Increase in Number of Households with Hardship or Public Assistance (millions)	% change	Aggregate Public Assistance Expenditures (\$ billions)	Increase in Public Assistance Expenditures Hardships (\$ billions)	% change
Public Assistance Receipt						
Actual National SIPP Estimate 2006	3.43			\$18.4		
Without DB Pension Income Receipt		1.35	39.3%		\$7.3	39.3%
Without DC Income Receipt		0.07	2.1%		\$0.4	2.1%
Without SS Income Receipt		1.88	54.8%		\$10.1	54.8%
Food Hardship						
Actual National SIPP Estimate 2006	2.44					
Without DB Pension Income Receipt ^a		0.56	22.8%			
Without DC Income Receipt		0.07	2.7%			
Without SS Income Receipt		0.00	0.0%			
Shelter Hardship						
Actual National SIPP Estimate 2006	1.45					
Without DB Pension Income Receipt		0.38	26.2%			
Without DC Income Receipt		0.04	2.5%			
Without SS Income Receipt		0.03	2.3%			
Health Care Hardship						
Actual National SIPP Estimate 2006	1.91					
Without DB Pension Income Receipt		0.32	16.8%			
Without DC Income Receipt		0.06	3.2%			
Without SS Income Receipt		0.00	0.0%			

Source: Analysis conducted on 2004-2006 Survey of Income and Program Participation, Core wave 7, Topical Modules 7 and 8. Older households are defined as those whose head is age 60 or older.

a Results are derived from binary logit model with dummy variables indicating DB, DC, or Social Security receipt set to zero, respectively. For details see Technical Appendix.

Pensions Keep 1.4 million Americans Off Public Assistance

Lastly, Table 8 also contains national estimates of the impact of DB, DC, and Social Security income receipt upon older households' receipt of means-tested public assistance. We estimate that without their receipt of DB pension income, an additional 1.4 million older American households would be added to the rolls of public assistance recipients in 2006. This represents nearly a 40 percent increase over the 3.4 million older households receiving public assistance in 2006. While a very modest impact was found for DC income receipt, the greatest estimated impacts were associated with Social Security income receipt. We project that an additional 1.9 million older households would place demands on public assistance benefits

if not for their receipt of Social Security income. Employing the mean dollar amount of \$5,373 received by all older households with public assistance in 2006, we estimate that DB pension income and Social Security income receipt reduced claims on governmental public assistance from older households in 2006 by about \$7.3 billion dollars and \$10.1 billion dollars, respectively. These impacts are large, particularly when it is considered that Medicaid expenditures are not included as public assistance in the SIPP data. While our estimates of savings associated with DB pension income are modest in comparison to aggregate total national expenditures by federal, state, and local governments, they represent about 8.5 percent of aggregate public assistance dollars received by all American households in 2006 for the same benefit programs.³⁵

CONCLUSION

This study provides an empirical analysis of the contribution of DB pensions to the economic security of older American households. Our findings suggest that DB pension income plays a vital role in reducing the risk of poverty and material hardships among older households.

In 2006 rates of poverty among older households without DB pension income were approximately six times greater than the rate among older households with DB pension income. Older households with DB pension income were also less likely to experience food, shelter, and health care hardships. In addition, DB pension recipient households were less reliant on means-tested cash and noncash public assistance. While DB pension recipient households fared better than households without pension income generally, DB pensions appear to have particularly improved the welfare of more vulnerable subpopulations of elder households. Our analysis indicates that common gender and racial disparities in rates of poverty, material hardships, and dependence on public assistance are greatly diminished, and in some cases nearly eliminated, among households receiving DB pension income.

Quantification of some of the economic welfare benefits associated with DB pensions brings some tangible data supporting the premise that DB pensions enhance the chances that older Americans can be self-sufficient after retirement from the workforce. Our analyses suggest that DB pension income has helped substantial numbers of older American households to avoid material hardships associated with inadequate food, shelter, and health care. More specifically, we estimate that in 2006, DB pension receipt among older American households was associated with:

- 1.72 million fewer poor households and 2.97 million fewer near-poor households
- 560,000 fewer households experiencing a food hardship
- 380,000 fewer households experiencing a shelter hardship
- 320,000 fewer households experiencing a health care hardship
- 1.35 million fewer households receiving means-tested public assistance

Furthermore, not counting Medicaid reimbursements for acute and long-term medical care, we estimate that in 2006 there was about a \$7.3 billion savings in public assistance expenditure associated with DB pension receipt. This represents about 8.5 percent of aggregate public assistance dollars received by all American households in 2006 for the same benefit programs. This amount is significant, particularly given the pressures on safety net programs during the current fiscal crises experienced at all levels of government throughout the country.

While our empirical findings suggest that the impacts of DB pension income on the economic security of older American households are sizeable, they may only scratch the surface in measuring the full magnitude of social welfare benefits. It is well known that health and economic welfare are integrally related, particularly among the elderly. The reduced risks of

poverty, food, shelter, and health care hardships among elder households stemming from the greater economic security associated with DB pension should also produce favorable impacts on the health of older Americans. Having a healthy diet with regular meals, ample heat in one's home in cold weather, and sufficient resources to seek medical care when needed should help older persons to better maintain their health and functional status as they advance in age. This should generate additional societal benefits from reduced demands on acute and long-term care resources over the long run. Although it was beyond the scope of this study to examine such secondary impacts of DB pensions, our study findings nevertheless underscore the vital role that both DB pension and Social Security income play in securing the economic welfare of older American households.

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- 7 For a summary of SIPP content and its history see: U.S. Bureau of the Census. 2006. *Introduction to the Survey of Income and Program Participation*. Washington, DC: U.S. Bureau of the Census.
- 8 Since the Pension and Adult Well-Being module surveys were conducted at different interviews individuals there is some modest sample attrition between these surveys. Population weights from the later topical module were employed in all analyses after adjustments were made to compensate for sample attrition.
- 9 Such as Copeland, C. 2007. Pension income of the elderly and characteristics of their former employers. *EBRI Notes*, 28(3), 2-7.
- 10 Our estimated DB pension rates for 1998 and 2003 are lower than those reported by Copeland (2007) from SIPP data for persons age 65 years and older. The differences between our estimates of pension receipt from one's own former employer and those of Copeland (2007) are entirely explained by our lower minimum age of 60. We obtained the same prevalence rates for 1998 and 2003 as Copeland (2007) when the same age restrictions were employed. Our 2006 estimate is lower than the 34.7 percent reported by Purcell (2008) for persons 65 years and older from 2007 Current Population Survey (CPS) data. While different age ranges should also explain some of the difference, there may be additional residual differences due differences in survey design, data collection, and the timings of the surveys.

- 11 These married couples include those where both persons receive DB pension income from their own former employers, and those where one person receives DB from his/her former employer and the other person receives survivor DB pension income. About 44 percent of households in the 2006 SIPP study sample were married couples. Since about 55 percent of these married couples both persons received some DB pension, dual-recipient households comprise only 22 percent of all households in the SIPP sample in 2006. While the mean total annual pension income received by dual-recipient households was about 60 percent larger than that of households with only one pension recipient in 2006, the data in Table 1 are for older persons rather than households. Both persons of a married couple are counted separately in these data if they are at least 60 years old and their combined DB pension income is assigned to both persons of a married couple.
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- 16 Baldwin, R.E. 2003. *The Decline in U.S. Labor Unions and the Role of Trade*. Washington, DC: Institute for International Economics; and Gittleman, M.B. 2005. Pay relatives for metropolitan areas in the NCS. *Monthly Labor Review*, 128(3), 46-53.
- 17 These median DB pension amounts are a little higher than the median pension incomes for public (\$16,629) and private (\$7,200) pension income among recipients 65 years and older reported by Purcell (2008) from CPS data for 2007. However, the relative sizes of public versus private median amounts are very similar to ours.
- 18 Poterba, J., Venti, S., and Wise, S. 2007. *The Changing Landscape of Pensions in the United States*. Working Paper 13381. Cambridge, MA: The National Bureau of Economic Research; and Purcell, P. 2008. *Income and Poverty among Older Americans in 2007*. CRS Report for Congress RL32697. Washington, DC: Congressional Research Service.
- 19 Munnell, A.H., Haverstick, K., and Soto, M. 2007. *Why Have Defined Benefit Plans Survived in the Public Sector?* Issue in Brief SLP 2. Boston, MA: Boston College Center for Retirement Research.
- 20 Ghilarducci, T. 2006. *Future Retirement Income Security Needs Defined Benefit Pensions*. Washington, DC: Center for American Progress; and Poterba, J., Venti, S., and Wise, S. 2007. *The Changing Landscape of Pensions in the United States*. Working Paper 13381. Cambridge, MA: The National Bureau of Economic Research.
- 21 It is important to note here that DB, DC, and Social Security income receipt are not mutually exclusive. Many households receive income from two of these sources, and some receive income from all three sources. The mean and median amounts are based on the subset of households receiving that type of income regardless of whether they receive income from the other sources.
- 22 Engelhardt, G.V., and Gruber, J. 2004. *Social Security and the Evolution of Elderly Poverty*. Working Paper 10466. Cambridge, MA: National Bureau of Economic Research.
- 23 Citro, C.F., and Michael, T.F., eds. 1995. *Measuring Poverty: A New Approach*. Washington, DC: National Academy Press; and Ouellette, T., Burstein N., Long, D., and Beecroft, E. 2004. *Measures of Material Hardship: Final Report*. Washington DC: U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation.
- 24 An obvious potential shortcoming of material hardship measures is their subjectivity since individual preferences can affect what individuals perceive as basic life necessities. There is no universally accepted standard for what constitute a hardship (See Ouellette, Burstein, Long, and Beecroft 2004).
- 25 Beverly, S.G. 2001. Material hardship in the United States: Evidence from the Survey of Income and Program Participation. *Social Work Research*, 25(3), 143-151; Beverly, S.G. 2001. Measures of material hardship: Rationale and recommendations. *Journal of Poverty*, 5(1), 23-41; and Mayer, S.E., and Jencks, C. 1989. Poverty and the distribution of material hardship. *The Journal of Human Resources*, 24(1), 88-113.
- 26 Purcell, P. 2008. *Income and Poverty among Older Americans in 2007*. CRS Report for Congress RL32697. Washington, DC: Congressional Research Service.
- 27 Beverly, S.G. 2001. Material hardship in the United States: Evidence from the Survey of Income and Program Participation. *Social Work Research*, 25(3), 143-151; Ouellette, T., Burstein N., Long, D., and Beecroft, E. 2004. *Measures of Material Hardship: Final Report*. Washington DC: U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation; Rector, R., Johnson, K., and Youssef, S. 1999. The extent of material hardship and poverty in the United States. *Review of Social Economy*, LVII(3), 351-385; and She, P., and Livermore, G.A. 2007. Material hardship, poverty, and disability among working-age adults. *Social Science Quarterly*, 88(4), 970-989. In particular, Ouellette, Burstein, Long, and Beecroft (2004) conducted a very thorough analysis of various hardship measures using data from the 1996 SIPP Adult Well-Being Topical Module. Durable good hardships (i.e., lack of a refrigerator or stove) were found to be very rare and can only identify the neediest households. Very weak associations were also found between housing safety and overcrowding hardship variables (e.g., holes in walls and/or floors, leaking roof or ceiling, broken window glass, problems with pests) and household income levels. After drawing similar conclusions in our own preliminary analyses of 2004 SIPP data, we did not analyze housing condition hardship measures.

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- 29 We combined the “food insecurity with hunger” and “food insecurity without hunger” categories of the USDA food insecurity scale creating a single category of “food insecurity with or without hunger.”
- 30 Edin, K., and Harris, K. 1999. Getting off and staying off: Racial differences in the work route off welfare. In: Brown, I., ed. *Latinas and African American Women at Work: Race, Gender, and Economic Inequality*. New York: Russell Sage Foundation. 270-301; Kaiser, L. 2008. Why do low-income women not use food stamps? Findings from the California Women’s Health Survey. *Public Health Nutrition*, 11(12), 1288-1295; and Moffitt, R., and Gottschalk, P. 2001. Ethnic and racial differences in welfare receipt in the United States. In: Smelser, N., Wilson, W.J., and Mitchell, F., eds. *America Becoming: Racial Trends and Their Consequences, Volume 2*. Washington, DC: National Academies Press. 152-173.
- 31 Haider, S., Jacknowitz, A., and Schoeni, R.F. 2003. Food stamps and the elderly: why is participation so low? *Journal of Human Resources*, 38(Suppl), 1080-1111; and Moffitt, R., and Gottschalk, P. 2001. Ethnic and racial differences in welfare receipt in the United States. In: Smelser, N., Wilson, W.J., and Mitchell, F., eds. *America Becoming: Racial Trends and Their Consequences, Volume 2*. Washington, DC: National Academies Press. 152-173.
- 32 Although other researchers have employed similar pension dummy variables in models of wealth (for example, Gustman, A.L., and Steinmeier, T.L. 1998. *Effects of Pensions on Savings: Analysis of Data from the Health and Retirement Study*. Working Paper 6681. Cambridge, MA: The National Bureau of Economic Research), there is still some concern about the potential endogeneity of the DB, DC, and Social Security dummy variables in the models. Persons with tastes for savings may self-select employment in jobs with DB pension benefits. If workers no longer have access to DB pension plans, it is possible that they may accumulate greater personal retirement savings during their working lives to compensate. If so, enhanced personal savings for retirement will offset some of estimated effects of DB pension receipt. To date, empirical evidence concerning whether DB and DC plans actually increase total savings is inconclusive. Munnell and Sunden’s 2004 book *Coming Up Short: The Challenge of 401(k) Plans* summarizes this literature and concludes that while there is empirical support for modest offsets, the overall evidence is inconclusive because of the complexity of both conceptual and statistical issues. The recent work of Sorokina, Webb, and Muldoon (2008) is of interest because it specifically examines offsets between DB and DC wealth over time. Their analysis of changes in the expected composition of pension income at age 65 for households aged 51-56 in 1992, 1998, and 2004 showed that the average household in the 2004 cohort could expect about \$3,100 less in annual DB pension income with an offset of about \$800 more in DC income because of shifts between DB and DC plans. While acknowledging that there may be some unaccounted offset effects, these effects should also affect our estimates for DC and Social Security income receipt. In other words, the estimated impacts of DC and Social Security income receipt should be similarly biased if there are substantial offset effects. We also conducted a number of sensitivity analyses testing the robustness of the results. Models were re-estimated with a two-step instrumental variable estimation procedure, and models were estimated for a subset of households for whom there was information about pre-retirement household earnings, years worked at one’s pre-retirement job, and years since retirement. The empirical results were fairly robust. See the Technical Appendix for further detail.
- 33 We also computed impacts simply by subtracting a household’s actual reported DB, DC, or Social Security income from reported total household income to obtain adjusted household incomes that were then compared to the federal poverty line for the household. These estimates differ from the statistical estimates because the simple subtraction of a component of household income takes no account of potential systematic differences in the characteristics of households receiving DB, DC, or Social Security income. While both approaches produced similar national estimates of the impacts of DB and DC income, the estimated impacts for Social Security income receipt were much larger when Social Security income was simply subtracted from household income. In contrast to our MNL model projection of 2.95 million additional poor older households, an additional 10.6 million poor households are added when Social Security income was simply subtracted from household income. The latter result appears implausibly large given the similarity in the projections for DB and DC income receipt when both methods were used.
- 34 Not only was the estimated coefficient for the Social Security income receipt dummy variable not statistically significant, but the actual estimated coefficient was nearly zero as well.
- 35 Employing the same methodology, we estimated that households of all ages received about \$85.6 billion from mean-tested public assistance programs in 2006.

TECHNICAL APPENDIX

Analytic File Construction

For each of the 1996, 2001, and 2004 SIPP panel files, the information needed to conduct the descriptive and multivariate analyses was contained in a Core Wave data file and two topical modules. The Retirement and Pension Plan Coverage Topical Module (Topical module 7 in all panels) served as main file for construction of the analytic research file for each SIPP panel. The Core file for Wave 7 containing the same reference month as Topical module 7 was selected and merged to the Pension topical module. Since the topical module and core data files had the same reference month, all cases were matched in the file merger. The material hardship variables were contained in the SIPP Adult Well-Being Topical Module. These data were contained in Topical Module 8 in the 1996 and 2001 SIPP panels and in Topical Module 5 of the 2004 SIPP panel. Since the reference month of the Topical module differed from that of Topical module 7, a complete one-to-one match of respondents cannot be attained because of changes in the sample due to attrition and the addition of new household members over time in SIPP panel data. The final analysis file for each SIPP panel consisted of the subset of respondents with records in both the Pension and Adult Well-Being Topical modules. The population weights from the Pension Topical module of respondents in the final analytic file were adjusted upward to compensate for the sample attrition resulting from merger of the Adult Well-Being Topical Module.

Study Populations

In the descriptive analyses persons include *all* respondents age 60 years or older and households include all respondents who are a head of household. Person attributes, such as age, gender, and race associated with households are those of the head of the household.

Defined Benefit Pension Status and Income

Receipt of a defined benefit (DB) pension is defined here as receiving pension income from a former employer in the reference month associated with retirement, disability, or survivorship, and lasting for the remainder of one's life. Similar to past research using SIPP data (Copeland, 2007), payments from Social Security, withdrawals from IRA, Keogh and 401K plans, and lump sum pension distributions are not counted as DB pension income. Pension receipt for *persons* is measured in two ways: (1) pension income received from one's own former employer only, and (2) pension income received from both one's own former employer *and/or* from the former employer of a current or decedent spouse. While public and private source of DB pension income cannot be distinguished in the SIPP Retirement and Pension Plan Coverage Topical Module, pension income sources are reported in SIPP Core Interview Waves. Accordingly pension receipt and amounts were determined using information from both the topical module and core wave data files corresponding to the same reference month. Pension income receipt and amounts from the former employer of a spouse/partner were determined in two steps. Since persons age 60 or older may have spouses younger than 60 years old, a separate file containing pension income variables pertaining to one's own former employer, was first created for all SIPP respondents at least 20 years old. The spouse person identifier variable contained from the SIPP core file was then used to merge spousal records with pension variables to all SIPP respondents 60 years old or older. Pension receipt for *households* includes pension income received from *both* the head of household's own former employer *and/or* from the former employer of a spouse.

Annual pension income was estimated by inflating amounts reported for the reference month by a factor of 12. Annualized pension income amounts were then inflated or deflated to constant dollars for January 2003 using the Bureau of Labor Statistics Consumer Price Index (CPI) of the reference month and year (<ftp://ftp.bls.gov/pub/special.requests/cpi/cpi.txt>).

Public versus Private Pension Income

SIPP Core Interview data distinguish among seven types of DB pension income. Public pensions include: (1) Federal Civil Service or other Federal civilian employee pension, (2) U.S. military retirement, (3) state government, (4) local government, and (5) Railroad Retirement Board. Private pensions include: (1) company or union pension, and (2) other nongovernment retirement pensions.

Annual Household Income Quintiles

Annual household income was estimated by inflating the amount reported for the reference month by a factor of 12. Household income quintiles pertain to households with heads of any age as reported in *Historical Income Tables-Households*, U.S. Bureau of the Census (<http://www.census.gov/hhes/www/income/histinc/h01ar.html>), for the calendar year corresponding to the SIPP data reference month and year. The quintile definitions for 1998 are: (below \$16,116) (\$16,116-\$30,408) (\$30,408-\$48,337) (\$48,337-\$75,000) (\$75,000 and above). The quintile definitions for 2003 are: (below \$17,984) (\$17,984-\$34,000) (\$34,000-\$54,453) (\$54,453-\$86,867) (\$86,867 and above). The quintile definitions for 2006 are: (below \$20,035) (\$20,035-\$37,774) (\$37,774-\$60,000) (\$60,000-\$97,032) (\$97,032 and above).

Poverty Class

The SIPP contains a household-level variable containing the dollar amount for the U.S. Bureau of the Census poverty threshold or FPL associated with the respondent household. This threshold is based on household size, age of the head of household (65 years and older versus under 65 years), and number of related children under 18 years old. This variable was used to classify into one of three poverty level classes: (1) *poor* at or below the FPL, (2) *near poor* above the FPL but at or below 200% of the FPL, and (3) *not poor* more than 200% of the FPL.

Material Hardship Measures

We constructed three material hardship measures from SIPP Adult Well-Being Topical Modules similar to the most frequently used material hardship measures in previous research. These include hardships related to: inability to meet basic living expenses, inadequate food consumption, and unmet medical or dental needs. A household is classified as having a *shelter hardship* if it reported that it experienced at least one of the following five hardships in the previous year: (1) did not pay the full amount of the rent or mortgage, (2) was evicted from one's home or apartment for not paying the rent or mortgage, (3) did not pay the full amount of the gas, oil, or electricity bills, (4) gas or electric company turned off service, or the oil company did not deliver oil because of payment problems, and (5) the telephone company disconnected service because payments were not made. *Food hardships* were based on the three-point food security scale of the U.S. Department of Agriculture (She & Livermore, 2007). The scale is based on a count of responses of yes, sometimes, or often to five questions about food-related hardships experienced over the last four months because there was not enough money: (1) food we bought didn't last, (2) couldn't afford balanced meals, (3) cut size or skipped meals, (4) ate less than felt needed, and (5) didn't eat for a whole day. A household is classified as "food insecure with hunger" with a count of 4-5 positive responses, "food insecure without hunger" with 2-3 positive responses, and "food secure" with one or no positive responses. The two food insecurity categories were combined into a single category in our dichotomous measure of food hardships. A household is classified as having a *health care hardship* if it reported that in the previous year a household member needed to see a doctor or dentist but did not go.

Public Assistance Receipt and Amounts

The SIPP contains information about various types of cash and noncash forms of public assistance received by households, as well as the aggregated amount of cash and noncash assistance received. A binary variable indicating the receipt of cash and/or noncash

public assistance receipt was created from two constructed SIPP variables: *THTRNINC*, an aggregated total of household means-tested cash transfers for reference month, and *THNONCSH*, an aggregated total dollar value of noncash public assistance for the reference month. Means-tested cash assistance includes Supplemental Security Income (SSI), Temporary Assistance for Needy Families (TANF) and general assistance. Noncash public assistance includes Women, Infants, and Children Nutrition Program (WIC), food stamps, and energy assistance. While the SIPP contains information about Medicaid eligibility, it is not counted here as public assistance because the SIPP does not have information on dollar amounts of Medicaid reimbursements. The annual dollar amount of public assistance received was computed as the sum of cash and noncash public assistance in the reference month inflated by a factor of 12. Annualized pension income amounts were then inflated or deflated to constant dollars for January 2003 with the CPI of the reference month and year.

Given the relatively low prevalence rate of households receiving public assistance, the sample sizes for some household subgroups in Table 6 are too small to produce reliable estimates of public assistance dollar amounts. More specifically, amounts of public assistance are not reported when either: the sample size for each subgroups was less than 100 respondent households, or when the sample size of one subgroup was less than 30, regardless of the sample size for the other subgroup(s).

Multivariate Analyses

The 2004 SIPP panel data were employed in the multivariate analysis. We report the results on models estimated on a sample of 10,259 households with a head age 60 years and older.

Model Specification

Models were specified for four binary and one categorical dependent variable:

Public assistance	1=household receipt of cash and/or noncash assistance, 0=otherwise
Food hardship	1=household classified with a food insecurity with or without hunger under USDA scale, 0=otherwise
Health care hardship	1=household reports forgoing medical and/or dental services=1, 0=otherwise
Financial hardship	1= household reports one or more of 5 potential hardships associated with making ends meet, 0=otherwise.
Poverty status	1= poor, 2=near-poor, 3=not-poor.

Logistic regression models were first estimated for the four binary dependent variables defined above. A multinomial logit model was used to estimate the model with the categorical dependent variable of poverty status because the proportional odds assumption underlying an ordinal logit model specification were not supported by statistical tests. Observations were weighted by normalized population weights and the standard errors of coefficients were adjusted for the complex survey design of the SIPP by use of the *svylogit* procedure in Stata V10.0.

The key independent variables of interest in all of the models are the receipt of DB pension income, defined contribution (DC) contribution income, and Social Security (SS) income. These variables specified as dummy variables indicating the receipt of such income by the head of household and/or spouse. Based on availability in the SIPP data, additional variables were specified to account for other socio-demographic factors that should affect the poverty status, public assistance receipt, and material hardships among older households. These variables are defined in Table A.1. Several variables were only available for household heads that reported to have retired from a job or business in the past. These variables were only specified in the models used as part of sensitivity analyses of the empirical results obtained from the models estimated on the full sample of 10,259 older households.

Table A-1: **Definitions of Independent Variables**

Variable Name	Definition
DB pension receipt	1=head of household and/or spouse received DB pension income 0=no
DC income receipt	1=head of household and/or spouse received DC income, 0=no
SS income receipt	1=head of household and/or spouse received SS income, 0=no
Current hours worked per week	Hours worked per week in current employment
Age	Age in years
Born outside of US	1= born outside of the U.S., 0=born in U.S.
8 or fewer years of school completed	1= 8 or fewer years of schooling completed, 0=otherwise
9-11 years of school	1=9-11 years of schooling completed, 0=otherwise
High school graduate or GED	1=high school graduate with 12 years or school completed or GED, 0=otherwise
1-3 years of college	1=1-3 years of college completed, 0=otherwise
4+ years of college (omitted reference group)	1= 4 or more years of college completed, 0=otherwise
Male	1=male, 0=female
Widowed	1=widowed, 0=otherwise
Divorced or separated	1=currently divorced or separated, 0=otherwise
Never married	1= never married, 0= otherwise
Married (omitted reference group)	1= married, 0=otherwise
NonHispanic Black	1= nonHispanic Black, 0=otherwise
Hispanic	1= Hispanic, 0=otherwise
Other Race	1=Other race, 0=otherwise
NonHispanic White (omitted reference group)	1- nonHispanic White, 0=otherwise
Household members	Count of household members
Midwest	1= residence in Midwest Census Region, 0=otherwise
South	1= residence in South Census Region, 0=otherwise
West	1= residence in West Census Region, 0=otherwise
Northeast (omitted reference group)	1= residence in Northeast Census Region, 0=otherwise
Metropolitan area residence	1= metropolitan residence, 0=otherwise
Annual preretirement household income ^a	Annual earnings from job or business prior to retirement in \$1,000s
Years since retirement from job ^a	Years since retirement from job or business
Years worked at pre-retirement job ^a	Years worked at job retired from
Pretirement union member ^b	1= union member in pre-retirement job, 0=otherwise

a This variable was only specified in the models estimated on subsample of ever-retired households.

b This variable was only specified in the instrumental variable model estimated on subsample of ever-retired households.

Table A-2: **Unweighted Sample means (n=10,259)**

Variables	Mean	SD
DB pension receipt	0.39	0.49
DC income receipt	0.06	0.25
SS income receipt	0.79	0.40
Current hours worked per week	7.59	16.68
Age	71.79	8.01
Born outside of US	0.07	0.26
8 or fewer years of school completed	0.08	0.27
9-11 years of school	0.07	0.25
High school graduate or GED	0.36	0.48
1-3 years of college	0.29	0.46
Male	0.41	0.49
Widowed	0.34	0.48
Divorced or separated	0.16	0.37
Never married	0.02	0.13
NonHispanic Black	0.12	0.32
Hispanic	0.04	0.19
Other Race	0.04	0.18
Household members	1.76	0.94
Midwest	0.26	0.44
South	0.39	0.49
West	0.18	0.38
Metropolitan area residence	0.72	0.45

Sensitivity Analyses

Since the statistical models are used to estimate the effects of DB, DC, and SS income receipt on adverse outcomes the models should be fully-specified as possible so that effects of other variables are not erroneously attributed to DB, DC, or SS income receipt. Unfortunately the SIPP does not contain information on lifetime earnings and wealth of households. However, the SIPP has some information about work history for individuals who retired from a job or business in the past that were not available for specification of covariates in the models estimated on the full sample of older households. These variables were: pre-retirement annual household income, years worked at pre-retirement job, and years since retirement. The models were re-estimated on the subsample of 5,086 households with a head age 60 years and older who reported that they had retired from a job or business. This allowed us to compare the results of models estimated with and without a richer set of factors affecting poverty status, material hardships, and public assistance for the subsample of ever-retired households. The most notable differences between the estimates for the subsample when the pre-retirement job variables were added were the education dummy variables and only a very modest improvement in model fit. The changes suggested that the effects of pre-retirement work variables on adverse welfare outcome variables were largely captured by the specification of education variables.

Concerns may also be raised about the potential endogeneity problems in the specification of dummy variables for DB, DC, and SS income receipt since persons may self-select employment in jobs with DB pension or DC plans. We attempted to address this concern by re-estimating the models with a two-step probit model instrumental variable estimation procedure (*ivprobit*) where a model of

DB pension receipt is estimated first, and then predicted values from this model are used as instruments replacing the observed DB pension variables in the second-step model of public assistance or hardship outcome. While some caution should always be exercised in making predictions from estimated models, these models did not suggest that selection bias to be a serious problem.

Table A-3: **Multinomial Logit Model Results for Poverty Class (n=10,259)**

Variables	Poor relative to Not-Poor		Near-Poor relative to Not-Poor	
	Odds Ratio	p-value	Odds Ratio	p-value
DB pension receipt	0.09	0.000	0.27	0.000
DC income receipt	0.65	0.108	0.77	0.043
SS income receipt	0.28	0.000	0.96	0.707
Current hours worked per week	0.94	0.000	0.96	0.000
Age	1.00	0.920	1.02	0.000
Born outside of US	1.58	0.007	1.58	0.000
8 or fewer years of school completed	5.90	0.000	7.45	0.000
9-11 years of school	4.73	0.000	5.46	0.000
High school graduate or GED	2.28	0.000	3.68	0.000
1-3 years of college	1.79	0.000	2.63	0.000
Male	0.84	0.035	0.88	0.035
Widowed	0.78	0.050	1.37	0.001
Divorced or separated	1.59	0.001	1.84	0.000
Never married	1.03	0.932	0.97	0.919
NonHispanic Black	3.40	0.000	1.77	0.000
Hispanic	1.76	0.006	1.48	0.016
Other Race	3.11	0.000	1.45	0.031
Household members	0.62	0.000	0.70	0.000
Midwest	0.86	0.329	0.91	0.288
South	1.05	0.699	1.08	0.372
West	0.69	0.028	0.93	0.417
Metropolitan area residence	1.13	0.184	1.09	0.069
Pseudo- R square	0.21			

Estimating of the Impacts of DB, DC, and SS Income Receipt on Welfare Outcomes

After estimating the coefficients for the models described above, we derived estimates of the additional older households that would have experienced the various adverse welfare outcome if it were not for their receipt of DB pension, DC income, and SS income. The estimation approach is described below for receipt of DB pension income and public assistance receipt. The same approach was used for other adverse welfare outcomes, and for estimating the impacts of DC and SS income receipt

1. Predicted values were obtained from the estimated model with actual values for DB pension receipt. These predicted values were multiplied by SIPP population weights and summed to obtain a national estimate of the number of households with DB pensions receiving public assistance.

2. A second set of predicted values were then obtained. For these predictions, the DB pension receipt variable was set to zero for all households with DB pensions rather than their actual value of one. These predicted values were then multiplied by SIPP population weights and summed to obtain a national estimate of the number of households that would be expected to receive public assistance if no households had DB pension income.
3. Since DB pension receipt was negatively associated with public assistance receipt, the difference between these two predicted values is the national estimate of the additional number of households that would be expected to receive public assistance in the absence of DB pension income receipt.

The dollar impact of DB pension receipt of public assistance expenditures was obtained by multiplying the estimate of households from step 3 by the mean annual amount of public assistance received by older households in 2006 from the study data, or \$5,373.

Table A-4: **Logistic Regression Results**

Variables	Public Assistance		Shelter Hardship		Food Hardship		Medical Care Hardship	
	Odds Ratio	p-value	Odds Ratio	p-value	Odds Ratio	p-value	Odds Ratio	p-value
DB pension receipt	0.27	0.000	0.46	0.000	0.51	0.000	0.68	0.003
DC income receipt	0.40	0.000	0.32	0.015	0.36	0.000	0.37	0.000
SS income receipt	0.44	0.000	0.96	0.799	1.00	0.997	1.19	0.252
Current hours worked per week	0.94	0.000	0.99	0.004	0.97	0.000	0.99	0.004
Age	0.97	0.001	0.93	0.000	0.96	0.000	0.94	0.000
Born outside of US	2.04	0.000	0.64	0.034	1.19	0.338	0.89	0.504
8 or fewer years of school completed	5.96	0.000	4.87	0.000	3.60	0.000	3.88	0.000
9-11 years of school	4.56	0.000	3.53	0.000	3.25	0.000	2.91	0.000
High school graduate or GED	2.47	0.000	2.91	0.000	2.12	0.000	2.10	0.000
1-3 years of college	1.90	0.000	3.13	0.000	2.03	0.000	2.41	0.000
Male	0.99	0.903	0.74	0.020	0.80	0.012	0.77	0.020
Widowed	1.46	0.001	1.46	0.009	1.18	0.177	1.42	0.011
Divorced or separated	2.31	0.000	2.19	0.000	2.43	0.000	1.99	0.000
Never married	1.11	0.671	0.99	0.973	0.94	0.820	0.89	0.698
NonHispanic Black	3.07	0.000	3.93	0.000	3.13	0.000	1.44	0.006
Hispanic	2.42	0.000	1.96	0.004	1.99	0.001	0.87	0.527
Other Race	1.92	0.001	1.92	0.010	2.20	0.000	1.17	0.493
Household members	1.56	0.000	1.13	0.012	1.05	0.319	1.17	0.001
Midwest	0.72	0.009	0.75	0.123	0.86	0.323	0.98	0.903
South	0.82	0.077	0.61	0.002	0.73	0.018	1.04	0.773
West	0.78	0.068	0.68	0.063	0.79	0.183	1.09	0.555
Metropolitan area residence	1.06	0.499	0.90	0.244	0.99	0.883	1.07	0.373
Pseudo- R square	0.25		0.14		0.12		0.07	

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