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Recessions, Reeling Markets, and Retiree Well-Being

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I. INTRODUCTION

When older workers retire, their ability to control their level of income declines considerably. Earnings disappear; they could be replaced by re-entering the labor market, but this outcome is relatively uncommon. Without earnings, options to save or add to defined contribution retirement accounts are limited. Retirees draw down their savings (to the extent they exist) during this period rather than adding to them. Social Security and defined benefit pension payments are fixed in either real or nominal terms. Taken as a whole, it is difficult for retirees to adjust their incomes should they desire to do so.

As a result, factors that affect the sources of a retiree's income have the potential to have very long-lasting effects even if they occur prior to retirement. Older workers who are nearing retirement age, for instance, run the risk of 20 or more years of diminished economic well-being if they face a shock to their savings, pension, or Social Security benefits. In essence, the economic conditions that occur in the period leading up to a worker's retirement may alter his or her economic well-being for the remainder of his life. Initial conditions may matter a great deal.

This feature of retiree income has taken on particular emphasis in response to the current economic crisis. With stock market declines on the order of a third or more, workers nearing retirement age who had planned to live off of the flow from their savings in retirement or other investment accounts now have access to smaller nest eggs to draw from. Delaying retirement is certainly a possibility; our past research suggests that this behavior is evident among more-skilled older workers (Coile and Levine, 2009).¹ This course of action will enhance subsequent retirement income both by reducing the period of time over which support is needed and perhaps by providing an additional opportunity to replenish diminished savings. Nevertheless, if they do

¹ In other past work (Coile and Levine, 2006), we find no evidence that short-term market fluctuations alter retirement decisions, but our more recent work indicates that individuals facing long-term changes in security prices do alter the decision of more-skilled workers to withdraw from the labor market.

not stay in the labor force long enough, retiring workers risk reduced income in retirement. They can increase the draw from their savings, if available, but then they run the risk of having the money run out. With limited alternatives to replace that lost income, retirees are at-risk of reduced economic well-being for the remainder of their lives in response to plunging equity prices in the period leading up to their retirement.

Skyrocketing levels of unemployment also threaten the economic well-being of those nearing retirement age both contemporaneously and for the remainder of their lives.² Some older workers will lose their jobs over the course of a recession and may struggle to find new work. Rather than fight through what may be a long and frustrating job search, they may choose to withdraw from the labor force instead. The availability of Social Security benefits at age 62 may increase the likelihood of this course of action. Those needing immediate income support may choose to begin claiming Social Security benefits early and retire. In previous work (Coile and Levine, 2007 and 2009), we have documented that older workers are subject to retiring earlier in response to an economic downturn; this pattern of behavior is restricted to those who have already turned age 62, once Social Security benefits become available.

Although claiming Social Security benefits may be necessary to provide income support during difficult economic times, it has long-term implications for retiree well-being as well. Those who retire at 62 rather than at older ages receive lower monthly benefits for the remainder of their lives. These benefits are actuarially fair, so that lifetime Social Security receipt would be the same, based on life expectancy, either way. But the additional years of benefits necessitates

² Plunging home prices could similarly alter retirement decisions and subsequent well-being in retirement. We have chosen not to incorporate home prices into our analysis, though, based on the results of previous research. In our own work (Coile and Levine, 2009) we find that home price fluctuations are unrelated to retirement decisions. Moreover, previous research shows that individuals are unlikely to base consumption decisions on the value of their homes (Venti and Wise, 2001 and 2004).

a benefit cut in each period. Those who retire at age 62 rather than at, say, age 65 historically have faced a 20 percent benefit reduction.³

The purpose of this paper is to explore the impact of economic fluctuations around the time of retirement on the well-being of retirees well past their exit from the labor force. We will consider the impact of shocks to the financial system that lower investment returns and labor market shocks that increase the chance of unemployment around the time of retirement. In our analysis we rely on data from the 2000 Census and the 2001 through 2007 American Community Surveys (ACS). We examine income levels by type as well as total personal income received by those between the ages of 70 and 79, relating them to market conditions around the time of retirement. We also separately examine these effects by the retiree's location in the income distribution.

The results of our analysis suggest that equity and labor market conditions around the time of retirement have effects on economic well-being even after a decade or so. Workers who face a weak labor market around the period of labor force withdrawal receive lower Social Security payments. This effect is concentrated among lower income and middle class retirees. Those who experience below average stock market returns in the years leading up to retirement are less likely to receive any investment income in retirement. Higher income retirees face this problem. Combined with the results of our earlier analyses (Coile and Levine, 2006, 2007, and 2009), these results strengthen our conclusion that greater public attention should be paid to the problems that older workers face in the labor market in the current economic crisis.

II. LITERATURE REVIEW

³ This figure is true for the 1937 and earlier birth cohorts. Older birth cohorts are subject to larger benefit reductions in relation to the changing normal retirement age, which will increase to age 67 for those born in 1960 and later. These younger cohorts will experience a 30 percent reduction in benefits if they retire at 62 rather than 67.

No past work of which we are aware has addressed the specific question we seek to answer in this paper. Nevertheless, there are a number of related literatures that we can use to inform the discussion that follows. In this section of the paper, we will review the relevant evidence from these related questions.

A. Impact of Labor Market Conditions at Labor Force Entry

This research shares a strong conceptual connection to an existing literature on the impact of economic conditions at the time of labor market entry on subsequent career outcomes. Previous studies find that the disadvantage new entrants experience by entering the labor market during a recession persists long after the economy rebounds due to frictions in the labor market (cf. Beaudry and DiNardo, 1991; Oreopolus, et al., 2006). Similar reasoning can be applied to labor market conditions at the time of retirement. In fact, one could argue that the problem that older workers face is even greater than that younger workers may experience. Younger workers are likely to be more willing to invest in additional human capital or wait out the storm, eventually regaining their earnings capacity. Older workers are less flexible, both because additional human capital investments would have lower rates of return and their time horizon in the labor market is short enough that they may choose not to wait out the storm. This existing research shows that initial conditions at labor market entry make a difference. The purpose of this paper is to determine whether initial conditions at labor market exit make a difference.

B. Impact of Job Loss on Earnings over the Long Term

A small body of previous literature has established that job loss is relatively common for older workers (c.f., Farber, 2005; Munnell et. al., 2006) and has long-lasting negative consequences for employment and wages (c.f., Chan and Stevens 1999, 2001, and 2004; von Wachter, et al., 2008). Some of these studies compare the outcomes of workers who were laid

off to those of workers who were not. One problem with them is the likelihood that layoffs are correlated with other characteristics that affect retirement. Von Wachter, et al. (2008) focuses on the response to mass layoffs, which are more plausibly exogenous to the individual. He similarly finds large, long-lasting negative consequences on the employment and earnings of older workers. Our approach is somewhat broader, considering reduced form models of the impact of aggregate changes in labor market conditions, as measured by the state/year level unemployment rate.

C. Impact of Economic Conditions on Retirement

Although our focus in this paper is on the impact of economic conditions around the time of retirement on retiree well-being, research has been conducted on the impact of current economic conditions on the likelihood of retirement. We believe that our earlier work (Coile and Levine, 2006, 2007, and 2009) has made important contributions in this area. Coile and Levine (2009), in particular, provides additional analyses and summarizes our thinking on this question. That paper examined the impact of the current economic crisis on retirement behavior. We focused on the collapses that took place in the labor, housing, and stock markets and estimated their impact on the likelihood that workers will delay retirement or choose to work longer. Plummeting house prices and stock market indices suggest that individuals may choose to work longer because their stock of retirement wealth has been depleted. Job loss and rising unemployment suggest that older workers may lose their jobs, be unable to locate new ones, and be forced to retire earlier than expected as a result.

We find no support for the notion that falling home prices matter. On the other hand, we find that long-term declines in stock prices do have the effect of delaying retirement.⁴ We also find that rising unemployment leads to an increase in the likelihood of earlier retirement.⁵ The timing of these earlier retirements coincides with the availability of Social Security retirement benefits at age 62. We also simulate the magnitudes of these effects in the current economic crisis and predict that the increase in unemployment associated with the recession will lead to more earlier retirements than the fall in the stock market will lead to delayed retirements. On net the retirement rate will increase. We also find important distributional consequences. The early retirements are concentrated among less-skilled workers and the delayed retirements are concentrated among more-skilled workers.

These findings have direct implications for the analysis we conduct in this paper. They suggest that the early retirements may reduce the subsequent Social Security benefits of those towards the lower end of the economic distribution. The delayed retirements at the higher end of the income distribution suggest that it is not clear what impact the declining stock market will have on subsequent well-being in retirement. If individuals delay retirement long enough, they could restore their lost wealth and have comparable levels of income in retirement to what they would have had otherwise. If not, their retirement income may fall as a result.

III. DATA AND METHODS

Our analysis will rely on data from the 2000 Census and the 2001 through 2007 American Community Surveys (ACS). We augment these data with external sources of

⁴ Coile and Levine (2006) and Hurd, et al. (2009) focus on short-run market changes and find no such effect. Coronado and Perozek (2003) find a very small increase in retirement associated with large unexpected gains in the market.

⁵ Von Wachter (2007) also obtains this result, as does Hallberg (2008) using data from Sweden.

information on market conditions in equity and housing markets. We begin this section by detailing the data issues relevant to this exercise and then continue with a description of the methodological approach that we used to estimate our econometric models.

A. Data from the Census and the American Community Surveys

Intuition and our past work suggest that any impact of market conditions on retirement will not be that large in the aggregate. For instance, a major recession would result in, say, an additional five percent of older workers losing their jobs. Only some fraction of those workers will change their retirement behavior as a result. This means that only a small share of the total population is at risk of facing income loss associated with weak market conditions. The losses may be significant for those affected, but in the aggregate it will be hard to identify this effect. This situation suggests that large amounts of data are required to do so.

We take advantage of microdata from the United States Census conducted in 2000 augmented with additional microdata from the 2001 through 2007 ACS. The Census provides a very large number of observations; 5 percent of the U.S. population. To obtain time series variation, we augment these data with the ACS data. The ACS is modeled after the Census, with similar variables and coding. The Minnesota Population Center provides unified Census/ACS extracts through their IPUMS USA project; we take advantage of those data.⁶ ACS data are available through IPUMS beginning in 2000. The 2000 through 2004 surveys were nationwide demonstrations geared to provide lessons for full implementation of the survey beginning in 2005 (for household units – group quarters were not fully incorporated until 2006). Once fully implemented the ACS contains data for one percent of the population.

In the end, we use data from the 2000 Census and seven ACS samples beginning in 2001, providing income data for 1999 through 2006 (since the last currently available ACS at the time

⁶ For more detail, see Ruggles, et al. (2009). The URL for these data is <http://usa.ipums.org/usa/>

of our analysis is from 2007). Over this period, data are available for around 1.68 million respondents between the ages of 71 and 80. Their reported income represents values from the preceding calendar year when the respondents would have been between 70 and 79. All income figures are adjusted to 2007 dollars. In each of these surveys, respondents provide data on a variety of specific components of income. We focus on income from Social Security, pensions, investment income, and total personal income.⁷

We place two other sample restrictions on our data that reduce the final sample size. First, our focus is on income in retirement, so we restrict the sample to those individuals who have already left the labor force. This is not a major constraint given the age composition of the sample. Only 11 percent of respondents are still working; imposing this restriction reduces the sample to around 1.49 million.

We also restrict our attention to the incomes of men. Our decision to do so is largely related to program rules and data availability. For instance, most women in these birth cohorts are likely to receive Social Security payments as a function of her husband's benefit level, either because her work history is insufficient or because the function of her husband's benefit is greater than that which she would receive on her own. This means that it is the market conditions present around the time that he retired that may matter, not when she retired. For those women who have become widowed, we have no data on the age of her husband.⁸ Imposing this restriction reduces our sample to 600,211; this is our final sample size.

⁷The survey itself contains a category labeled "retirement income" that is intended to capture income from pensions. It is unclear, however, whether those who receive distributions from defined contribution pension plans would label this as "retirement income" or investment income. The 2000 Census and the ACS survey forms do not clarify this distinction.

⁸We also worry that men may be the primary decision makers regarding retirement within the family and that women's decisions follow those of her husband. Again, this would suggest that it is the conditions present around the time when he retires that matter, not when she retires.

As we describe in more detail subsequently, one key explanatory variable in our analyses is the unemployment rate in a respondent's state of residence at age 62. Ideally we would know the state that individuals lived when they were 62 years old. In practice, all we know is the current state of residence in all survey years; we assume that no mobility has taken place between age 62 and the survey year, assigning the unemployment rate in the year the respondent was age 62 in the respondent's current state of residence.⁹

We also attach to these data stock market conditions that existed around the time that retirement decisions are being made. We create four additional variables based on end of year closing values of the Standard & Poors 500 Index, adjusted for inflation. These variables reflect the five year growth in the index starting in the year the respondent turned age 50, 55, 60, and 65. Our reasoning for choosing these measures is described subsequently.

B. Methods

The main question we seek to address is the long-term impact on retirement income associated with market conditions around the time of retirement. The first issue that is raised by this question is what we mean by "around the time of retirement." In theory, we would be able to observe every individual's complete work history, think about alternative definitions of retirement (departure from "career job," complete labor force withdrawal, etc.), choose an appropriate one for our purposes and assign that retirement date to each record in the data. We could assign the unemployment rate at that time and the stock market return in the preceding five or ten years to each worker's record. In practice, of course, surveys that are conducted of

⁹ The Census data contains current state of residence along with state of residence five years ago. We estimate the likelihood that individuals between the ages of 65 and 69 moved across state lines in the past five years since they were between the ages of 60 to 64. Our results indicate that 83 percent of respondents reside in the same state. Although this is not universal, the vast majority of individuals appear to be geographically stable, so we do not believe this is a major problem.

sufficient size to be useful for this analysis do not contain that level of information on respondents' work histories.

Besides, it is not clear whether we would want to use that information anyway since that definition of the time of retirement would be endogenous. Those who are willing to live on less and who receive greater disutility from work may retire earlier. If those preferences have any time series and/or regional variation, they may be correlated with changes in market conditions. We would rather assign market conditions to workers around the time of retirement using alternative, exogenous measures that still may capture the market constraints workers face when they consider retirement.

To capture labor market conditions, we have chosen to use the state unemployment rate in the year that an individual is 62 years old as our preferred measure. This value has the advantage of being exogenous to individual decision-making and occurs at a time at which previous research has shown that there is a spike in retirement rates anyway, coincident with the initial eligibility of Social Security retirement benefits. Our own past work (Coile and Levine, 2007 and 2009) has shown that the impact of labor market conditions on retirement decisions does not begin until age 62, further supporting this decision.

To capture equity market conditions, we have chosen to use the five year real rate of return in the S&P 500 starting in the year the respondent turned age 50, 55, 60, and 65 (representing returns between 50 and 55, 55 and 60, 60 and 65, and 65 and 70). Our past work shows that retirement decisions are more likely to respond to longer term changes in market returns, including those at a five year interval, which justifies our use of that interval. Our analysis of retirement income focuses on those beginning at age 70, so working backwards from there seems like a reasonable approach.

The value of using multiple five year intervals is that the timing of market returns in the years approaching retirement likely matters for several reasons. If high returns occur in a period in which the base level of investment is relatively low, then they will have a smaller impact on retirement income. If they occur after prior accumulations have become substantial, then they may have a very large impact on retirement income if there are more years for them to compound. Once workers actually approach retirement and in the years subsequent to that, they may choose more conservative investment strategies, suggesting that stock market returns will play less of a role. Taken as a whole, we expect that the impact on retiree income associated with market returns in the years leading up to retirement may have an inverted U shape.

The source of variation that these labor market and stock market variables provide us is somewhat different, but both are based on the differing historical experiences of workers at different ages in a particular survey year. Tables 1A and 1B are designed to clarify this. Both tables present the survey years we are using (2000 through 2007 surveys, representing income from 1999 through 2006) and respondents' ages in those survey years (71 to 80, representing ages 70 to 79 in the years income is measured). Table 1A presents the real percentage increase in the S&P 500 between ages 55 and 60 that was experienced for each cohort. For instance, those respondents who were 79 years old in 2000 would have been 55 years old in 1976. The S&P 500 fell by 29 percent between 1976 and 1981 in real terms. Similarly, a 74 year old respondent in that survey year was 55 years old in 1981; the market rose 68 percent in real terms in the following five years. Looking across the table, there is not only variation across surveys and across ages in the historical stock market returns that respondents' experienced, but also across the interaction of surveys and ages. In the context of panel data methods, we are able to

include both survey year and age fixed effects and maintain our identification based on the interaction of the two.

Table 1B presents a similar story for the unemployment rate respondents experienced at age 62. Each cohort's exposure to the national unemployment rate at age 62 varies from a high of 9.7 percent to a low of 4.5 percent. Levels of unemployment differed across those at different ages and for those in different survey years, but the variation in the interaction of the two is the feature that is important for our analysis. Moreover, differences across individuals in their exposure to labor market conditions can be further disaggregated by geography. In our analysis, we assign to each individual the state unemployment rate that existed when he was 62 years old. Our identification strategy relies on all of these sources of variation in the data.

This discussion leads us to our formal econometric specification. The models we estimate take the form:

$$\begin{aligned} \text{Income}_{i,s,t,a} = & \beta_0 + \beta_1 \cdot \text{UR62}_{s,t,a} + \beta_2 \cdot \text{SP5055}_{t,a} + \beta_3 \cdot \text{SP5560}_{t,a} + \beta_4 \cdot \text{SP6065}_{t,a} \\ & + \beta_5 \cdot \text{SP6570}_{t,a} + \beta_6 \cdot X_{i,s,t,a} + \gamma_s + \gamma_t + \gamma_a + \varepsilon_{i,s,t,a} \end{aligned} \quad (1)$$

In this specification, the dependent variable represents alternative measures of income for individual i who resides in state s in survey year t and is age a in the survey year. In some specifications, we will consider whether a particular form of income is measured at all. In those instances, we estimate linear probability models. In other specifications, we consider the amount of income received, conditional upon receipt; we estimate these models using ordinary least squares. In yet another set of models, we consider the level of income received without regard to receipt. For specific types of income, when a substantial number of zero values are present, we estimate Tobit models. For overall total personal income, few zero values are present so we use ordinary least squares. In all models where the dependent variable is the level of some type of

income, the dependent variable is measured in 2007 dollars, rather than in logs, because we believe the linear specification aids in our interpretation of the results.¹⁰

The explanatory variables represent the unemployment rate at age 62 and the historical values of the S&P 500 index at the respective ages, as described earlier. We also include other individual characteristics (X) as covariates, including race, ethnicity, gender, marital status, and educational attainment. In addition to these variables, we include the contemporaneous unemployment rate as well as fixed effects that generically control for differences across survey years, specific ages at the survey date, and states of residence.¹¹

All of these models are estimated for the full sample of respondents as well as by the respondents' position in the income distribution. Respondents are divided into thirds according to their level of total personal income. We conduct these analyses separately by location in the income distribution because the impact of market conditions around the time of retirement may have differential effects by income level. One potential limitation of this analysis is that we are separating our sample according to one of our dependent variables, suggesting it may be endogenous. In this particular instance, however, we do not believe that this presents much of a problem. As we have discussed previously, income in retirement is very difficult to modify. Moreover, the endogeneity problem would only exist to the extent that market conditions around the time of retirement moved individuals between income categories. Although this possibility

¹⁰ Using linear specifications enables us to include the relatively small number of negative and zero values of total personal income when we estimate models of that form. Once we estimate this model in levels, it makes sense to estimate the remaining models in levels so that we can compare results across income categories. We have also estimated all models with continuous measures of income, conditional upon receipt, using log linear specifications. In all cases, the results are qualitatively similar.

¹¹ In principle, the variation available to us also enables us to estimate models that also include interactions of state of residence and survey year along with state of residence and age in survey year. In the OLS specifications, we have estimated these models as well, which mainly yielded qualitatively similar results, particularly for the impact of labor market conditions. In the Tobit models, however, the estimation procedure had difficulty converging with such a precise identification strategy. Because these additional fixed effects do not substantially change our findings when we are able to include them, we chose to report all of the results from the more parsimonious specifications that exclude them.

exists, we believe that it is unlikely to be common, suggesting it will have little impact on our estimates.¹²

IV. RESULTS

This section will describe the results of the statistical analysis we just described. Before moving ahead with a formal presentation of these econometric results, though, we begin with a descriptive analysis of the income data for retirees that are available to us.

A. Descriptive Analysis of Census and ACS Data

Table 2 presents means of income levels by type for all respondents 70 to 79 years old and for respondents distinguished by their location in the income distribution. For all retirees, we see that total personal income averages \$34,034. On average, Social Security represents around one-third of this amount at \$11,388. Pension and investment income constitute the majority of the remainder, averaging \$10,730 and \$8,066, respectively. These three sources represent almost 90 percent of total personal income, emphasizing our focus on these categories.¹³

Average levels of income across the income distribution obviously vary quite a bit, ranging from \$9,686 for the bottom third of the distribution to \$23,032 for the middle third, and \$68,356 for the top third. The interesting feature of this part of the analysis is that the different

¹² We have also attempted to estimate the exact same models distinguishing workers by the education level rather than their location in the income distribution. Educational attainment is certainly correlated with level of income and is almost certainly exogenous to outcomes so late in a worker's career. The results of these models almost uniformly yielded insignificant coefficients. Our interpretation of this is that education does not adequately distinguish the difficulties that individuals face regarding their retirement income. One way to see this is that the dispersion in income levels across education groups is considerably smaller than that presented subsequently regarding income (see Table 2). Intuitively, particularly among these older cohorts, even less educated workers could have reasonably high retirement incomes and face the same sorts of issues regarding retirement income that more educated workers face.

¹³ Other sources of income reported in these data include: wage and salary income (a negligible total among those currently retired), business and farm income, welfare income, income from the Supplemental Security Income program, and other income.

components of income play such different roles across income categories. For those at the bottom of the income distribution, Social Security represents by far the largest component of their income. For them, 81 percent of their total personal income (\$7,807 of \$9,686) comes from Social Security.¹⁴ For those in the top third of the income distribution, the comparable figure is 20 percent. Because Social Security benefit formulas are progressive in nature, it is not surprising that benefit levels increase relatively little as income rises. Other sources of income increase a lot more. Pension and investment income increases many fold between those at the top and those at the bottom of the income distribution.

These statistics have important implications for what we might expect in the remainder of our analysis. First, the role that stock market fluctuations play in determining the income of retirees must be rather limited for all but those in the very top of the income distribution. Those are the only ones with enough pension and investment income where market fluctuations could make a meaningful impact on their income.¹⁵ Second, the importance of Social Security to those at the bottom of the income distribution is hard to overstate. That is mostly what they have. If labor market conditions lead workers to retire earlier and accept lower Social Security benefits as a result, this could have an important impact on their economic well-being in retirement.

B. Econometric Analysis

We continue with our analysis of the Census and ACS data by moving onto the estimates obtained from the formal statistical models described earlier. These results, presented in Tables

¹⁴ To put these numbers in perspective, the official poverty thresholds in 2007 for individuals over age 65 were \$9,944 and \$12,533 for those in one and two person households, respectively, without any related children under age 18 in the household. Poverty calculations are based on family income, not total personal income, so married respondents would add their spouse's income. Note that a married man receiving \$7,807 in Social Security who has a spouse receiving half his benefit would receive \$11,711 in total from that source. In both single and married households, this means that Social Security alone puts those even towards the bottom of the income distribution near the poverty threshold.

¹⁵ Gustman and Steinmeier (2008) make a similar point using data from the Health and Retirement Survey and the wealth of data on the net worth of individuals at or near retirement age.

3 through 7, distinguish the impact of labor and stock market conditions on different types of income for all retirees and by their income category.

We begin our presentation by reporting the impact of market conditions around the time of retirement on Social Security, pension, and investment income for all retirees between the ages of 70 and 79 at the time the income was received. We distinguish the results between the likelihood that any income was received from one of these sources, the amount of income received, if any, and then the unconditional amount received. These specifications are estimated using linear probability models, OLS, and Tobit models, respectively.

Columns 1 through 3 focus on Social Security income. Stock market conditions are not found to have any statistically significant effects on the likelihood or level of receipt. Likewise, these results indicate that deteriorating labor market conditions do not have a statistically significant impact on the likelihood of Social Security receipt. This finding is not surprising because 91 percent of all retirees are collecting Social Security. Those remaining are likely to be ineligible for benefits.

Conditional upon receipt, however, we find that a one percentage point increase in the unemployment rate at age 62 reduces subsequent annual Social Security benefits by \$21; this finding is statistically significant. The magnitude of this coefficient is an important issue. Taken at face value, it is very small, certainly with respect to the \$12,530 average level of benefits received. But it is important to recognize that the \$21 figure is the aggregate effect. If the unemployment rate rises by 1 percent, then 99 percent of the workforce is unaffected. For those who lose their jobs, our estimates suggest that Social Security benefits in retirement would drop by \$2,100, which represents about a 17 percent reduction in benefits. This figure is sensible based on the Social Security rules that would apply to workers in this age group. Those workers

who were forced to move up their Social Security retirement claim from age 65 to age 62 would have faced a 20 percent reduction in their benefits. When we incorporate this effect along with an insignificant effect on the likelihood of receipt (albeit with a positive point estimate), we find an unconditional impact on Social Security income that is statistically significant at the 10 percent, but not the five percent level.

The remainder of the table focuses on the receipt and value of pension and investment income. Columns 4 through 6 report our findings for pension income; they indicate no statistically significant effects here. Our estimates regarding the impact of labor market conditions on investment income are also statistically insignificant.

When we focus on stock returns, though, we see that retirees who were exposed to high rates of return in the years leading up to their retirement are more likely to be receiving some investment income. If the market return between ages 55 and 60 were 100 points higher, then the likelihood of receiving investment income between ages 70 and 79 jumps 2.2 percentage points. That same 100 point incremental return between ages 60 and 65 generates a 1 percentage point increase in the likelihood of receiving investment income. The impact of market returns between 50 and 55 and between 65 and 70 are not statistically significant. Taken as a whole, these results support the notion of an inverted U shaped response by age to stock market returns.

Among those retirees who receive investment income, however, higher returns are estimated to generate higher investment income (at least past age 55), but the impact is not statistically significant. Part of the reason for this may be selection. If investment returns rise and more retirees now have investment income available, they are also likely to have less of it as the marginal investment income recipient. When we focus on income received from investments unconditional on receipt, our results indicate that investment income in retirement is higher when

the stock market performs better in the years leading up to retirement (at least past age 55). Incomes for retirees between the ages of 70 and 79 are estimated to be about \$1,750 higher per year if the five year return in the S&P 500 is 100 points higher in the five year period when the worker was between 55 and 60. The comparable estimate is almost \$1,100 for a 100 point higher return between ages 60 and 65. These values represent increases in investment income in retirement of 22 percent and 13 percent, respectively.

We get a clearer picture of the impact of market conditions on retirement income when we distinguish individuals by their location in the income distribution. As before, we divide retirees into those in the bottom third, middle third, and top third of the income distribution and repeat the same analysis just described for each income group separately.

We begin in Table 4 by examining the impact on market conditions on Social Security receipt and income. The top row of the table provides means for each outcome variable by income group. Regarding the likelihood of Social Security receipt, we see that it is high for all three income groups, albeit a bit lower for those in the bottom third of the distribution. Regardless of income, we are unable to find any impact of market conditions on Social Security receipt.

The middle three columns of this table display the impact of market conditions on Social Security income among those who receive benefits. For these workers, we see that higher unemployment generates a fall in the amount of income received from Social Security among recipients for the lowest third of the distribution, but the impact on the middle third is still statistically significant. We find no significant impact on the top third. In terms of the magnitude of the estimated effect, a one point increase in the unemployment rate reduces Social Security income by \$30 and \$21 per year for the bottom and middle thirds of the income

distribution, respectively. For the individual unemployed worker, these figures convert to \$3,000 and \$2,100 per year, reflecting 32 percent and 16 percent of Social Security income received, conditional upon receipt. Although the point estimate is above the 20 percent reduction in benefits that we described earlier which would be associated with retiring at 62 rather than 65, it is not statistically significantly different from that value.¹⁶ When we factor in the combination of the estimated impact on income from Social Security, conditional on receipt, and the probability of receipt, we are unable to identify a statistically significant effect on unconditional Social Security income for any income group.

Table 5 reports the results of an analogous exercise focusing on pension income. We are unable to find any impact of labor or stock market conditions on any type of pension income measure for retirees in any of the three income categories. This may be attributable to the fact that among workers in this age group, private pensions are largely defined benefit plans rather than defined contribution plans. If so, stock market conditions would not have that much of an impact. Gustman, et al., (forthcoming) provide evidence supporting this assertion. They find that 52 percent of full-time employees between the ages of 53 and 58 in 2006 covered by a pension have a defined benefit plan. Even those covered by a defined contribution pension have only made contributions for ten years, on average, suggesting that the funds in these accounts are not that large. The relative importance of defined benefit over defined contribution plans would be even more dramatic for those who retired 20 years earlier as in our analysis. Taken as a whole, these findings suggests that it may be years before the increased reliance on defined

¹⁶ Selection bias would be another possible reason for this. Although the estimates on the probability of Social Security receipt are not significant, the point estimates are positive, particularly for those in the lowest income group. If additional workers did collect benefits (even if they are observed purely through random variation in our sample), these additional workers would likely receive lower benefit levels, pulling down the average level of income from Social Security brought about by higher unemployment.

contribution plans that has taken place over the past two decades filters through to have a large impact on retiree well-being.

Table 6 reports the results of our analysis of the impact of market conditions on investment income for each income category. As we have described earlier, only retirees in the top third of the income distribution are likely to have any investment income of substance that could lead market conditions to matter. This fact is supported by our empirical findings, which shows that retirees in the bottom two thirds of the income distribution have levels of investment income that are largely unaffected by changes in both labor and stock market conditions.¹⁷

Those in the top third of the income distribution, however, are significantly affected by stock market conditions. We find that higher income retirees are more likely to receive investment income in retirement, and they report receiving higher investment income levels as a group, in response to a bull market occurring past age 55. An incremental increase of 100 points in the S&P 500 experienced between ages 55 and 60 is estimated to result in an additional 3.3 percent of retirees receiving investment income in this income category. On average, this increases the level of retirement income for the group as a whole by almost \$2,300. Run-ups in the market that occur at ages 60 to 65 and ages 65 to 70 also increase the likelihood of investment income in retirement by 2.1 and 0.8 percentage points and increase average investment income by \$2,100 and \$840, respectively. These findings are consistent with the inverted U-shaped pattern of response by age that we hypothesized earlier.

Although large and statistically significant, it is important to place the magnitudes of these estimates in perspective. Investment income increases on the order of \$2,000 are clearly substantial, but they add to an average level of investment income of \$21,000 and total personal

¹⁷We do observe some modest effects for the bottom third of the income distribution in response to market conditions at ages 55 to 60. The relative impact on their income, however, is very small in response to large increases in stock market returns.

income of \$68,000. As a share of total income, these effects are not that large. In comparison, when we focus on the impact of increased unemployment on Social Security income among those receiving benefits, we see dollar estimates of the impact of unemployment of about the same magnitude for the bottom and middle thirds of the income distribution. Their levels of income, though, are considerably lower. They receive \$9,300 and \$13,000 in Social Security income, respectively, and \$10,000 and \$23,000 in total personal income, respectively. The losses of Social Security benefits that these groups experience are quite a bit larger than that associated with the impact of the stock market decline on the top third of the distribution.

Table 7 presents the results of our analysis of the impact of market conditions around the time of retirement on the income of retirees when we combine all sources of personal income. Again, we consider the impact on total personal income for all retirees as well as for each portion of the income distribution separately. In this table, the only statistically significant coefficient (at the 5 percent level) is the impact of the unemployment rate at age 62 in total personal income among retirees in the bottom third of the income distribution. For these individuals, a one percentage point increase in the unemployment rate is estimated to reduce total personal income by \$25. This means that the incremental individual who becomes unemployed at age 62 will experience a reduction in income of \$2,550 a decade or so later. This amounts to about one-quarter of his total personal income. The results presented up to this point suggest that the largest single component of this overall effect is the reduction in Social Security income that would come about by claiming these retirement benefits early.

V. CONCLUSIONS

This study has focused on the subsequent economic well-being in retirement associated with the recent fall in the stock market and increase in unemployment. Our results suggest that the weakness in both markets will have deleterious effects on retirees in the coming years. We find that the income levels of retirees between the ages of 70 and 79 at lower ends of the income distribution are lower when the unemployment rate was higher when they were 62 years old. This effect is driven by a reduction in Social Security benefits; its magnitude is consistent with the benefit reduction rate that is associated with retiring earlier than the normal retirement age. We also find that long-term declines in stock prices for workers in their 50s and 60s lower the incomes of 70 to 79 year old retirees at the top of the income distribution through a reduction in investment income.

These findings provide a consistent story with those from our earlier work on the impact of market conditions on retirement. Collectively, they indicate that falling stock prices harm the well-being of more-advantaged older workers by preventing them from retiring when they want and reducing their retirement income. Rising unemployment harms the well-being of less-advantaged older workers by leading them to withdraw from the labor market sooner than they want and also reducing their retirement income. The number of less advantaged workers whose retirement behavior is affected and the relative impact on their income is larger than those of more advantaged workers. Combining these findings with virtually any social welfare function suggests that the problem we need to be more concerned about regarding the well-being of older workers is the impact of the downturn in the labor market.

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Table 1A: Real Percentage Increase in S&P 500 between Ages 55 and 60,
by Year of Survey and Age in Survey Year

| Age in Survey Year | Survey Year | | | | | | | |
|--------------------------|-------------|-------|------|------|------|------|------|------|
| | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
| 71 | 76.6 | 27.5 | 38.1 | 43.2 | 38.6 | 9.3 | 62.7 | 54.3 |
| 72 | 41.5 | 76.6 | 27.5 | 38.1 | 43.2 | 38.6 | 9.3 | 62.7 |
| 73 | 48.5 | 41.5 | 76.6 | 27.5 | 38.1 | 43.2 | 38.6 | 9.3 |
| 74 | 67.8 | 48.5 | 41.5 | 76.6 | 27.5 | 38.1 | 43.2 | 38.6 |
| 75 | 22.8 | 67.8 | 48.5 | 41.5 | 76.6 | 27.5 | 38.1 | 43.2 |
| 76 | 12.9 | 22.8 | 67.8 | 48.5 | 41.5 | 76.6 | 27.5 | 38.1 |
| 77 | 14.9 | 12.9 | 22.8 | 67.8 | 48.5 | 41.5 | 76.6 | 27.5 |
| 78 | -5.7 | 14.9 | 12.9 | 22.8 | 67.8 | 48.5 | 41.5 | 76.6 |
| 79 | -29.2 | -5.7 | 14.9 | 12.9 | 22.8 | 67.8 | 48.5 | 41.5 |
| 80 | -3.1 | -29.2 | -5.7 | 14.9 | 12.9 | 22.8 | 67.8 | 48.5 |

Table 1B: National Unemployment Rate at Age 62,
by Year of Survey and Age in Survey Year

| Age in Survey Year | Survey Year | | | | | | | |
|--------------------------|-------------|------|------|------|------|------|------|------|
| | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
| 71 | 6.8 | 7.5 | 6.9 | 6.1 | 5.6 | 5.4 | 4.9 | 4.5 |
| 72 | 5.6 | 6.8 | 7.5 | 6.9 | 6.1 | 5.6 | 5.4 | 4.9 |
| 73 | 5.3 | 5.6 | 6.8 | 7.5 | 6.9 | 6.1 | 5.6 | 5.4 |
| 74 | 5.5 | 5.3 | 5.6 | 6.8 | 7.5 | 6.9 | 6.1 | 5.6 |
| 75 | 6.2 | 5.5 | 5.3 | 5.6 | 6.8 | 7.5 | 6.9 | 6.1 |
| 76 | 7 | 6.2 | 5.5 | 5.3 | 5.6 | 6.8 | 7.5 | 6.9 |
| 77 | 7.2 | 7 | 6.2 | 5.5 | 5.3 | 5.6 | 6.8 | 7.5 |
| 78 | 7.5 | 7.2 | 7 | 6.2 | 5.5 | 5.3 | 5.6 | 6.8 |
| 79 | 9.6 | 7.5 | 7.2 | 7 | 6.2 | 5.5 | 5.3 | 5.6 |
| 80 | 9.7 | 9.6 | 7.5 | 7.2 | 7 | 6.2 | 5.5 | 5.3 |

Table 2: Mean Incomes of 70 to 79 Year Old Retired Men,
by Location in Total Personal Income Distribution

| Group | Total Personal Income | Social Security Income | Pension Income | Investment Income | Other Income |
|--------------|--------------------------|---------------------------|-------------------|----------------------|-----------------|
| All | \$34,034 | \$11,388 | \$10,730 | \$8,066 | \$3,850 |
| Bottom Third | \$9,686 | \$7,807 | \$701 | \$306 | \$872 |
| Middle Third | \$23,032 | \$12,673 | \$6,429 | \$2,261 | \$1,669 |
| Top Third | \$68,356 | \$13,621 | \$24,644 | \$21,234 | \$8,857 |

Notes: Reported dollar values represent the mean for each income type in each income level and are reported in 2007\$.

Table 3: Impact of Labor Market Conditions and Stock Market Returns
around the Time of Retirement on Components of Retirement Income for Men in their 70s

| | Any Income from Social Security (1) | Income from Social Security (if received) (2) | Income from Social Security (3) | Any Pension Income (4) | Pension Income (if received) (5) | Pension Income (6) | Any Investment Income (7) | Income from Investments (if received) (8) | Income from Investments (9) |
|----------------------------------|--|---|--|------------------------------|---|--------------------------|------------------------------------|--|-----------------------------------|
| Mean | 90.9% | \$12,530 | \$11,388 | 51.9% | \$20,679 | \$10,730 | 46.5% | \$17,377 | \$8,066 |
| Unemployment Rate at Age 62 | 0.043 (0.044) | -20.841 (7.327) | -11.761 (9.195) | -0.073 (0.067) | 53.059 (49.184) | 12.739 (42.277) | 0.037 (0.061) | 102.870 (61.743) | 79.672 (61.033) |
| S&P 500 Returns, Age 50 to 55 | -0.006 (0.004) | -0.203 (0.824) | -1.210 (0.851) | 0.005 (0.006) | -4.021 (3.135) | --0.941 (3.876) | -0.001 (0.004) | -7.031 (5.035) | -4.369 (4.039) |
| S&P 500 Returns, Age 55 to 60 | -0.003 (0.003) | -0.247 (0.652) | -0.792 (0.826) | -0.002 (0.006) | 0.144 (3.666) | -0.358 (3.724) | 0.022 (0.005) | 0.516 (10.040) | 17.557 (6.116) |
| S&P 500 Returns, Age 60 to 65 | 0.001 (0.002) | -0.371 (0.464) | -0.229 (0.654) | 0.003 (0.005) | 1.500 (2.062) | 2.399 (2.563) | 0.010 (0.004) | 4.370 (4.553) | 10.736 (4.602) |
| S&P 500 Returns, Age 65 to 70 | 0.001 (0.001) | 0.041 (0.199) | 0.238 (0.267) | 0.001 (0.002) | -0.367 (1.170) | 0.092 (1.184) | 0.003 (0.002) | 0.904 (2.731) | 3.212 (1.906) |
| number of obs. | 600,211 | 545,499 | 600,211 | 600,211 | 311,443 | 600,211 | 600,211 | 279,414 | 600,211 |

Notes: Estimates in Columns 1, 4, and 7 are from linear probability models. Coefficient estimates and standard errors in those models are multiplied by 100. Estimates in Columns 2, 5, and 8 are from OLS models. Estimates in Columns 3, 6, and 9 are from Tobit models. Each model contains the variables listed along with the contemporaneous state level unemployment rate, demographic factors (marital status, race/ethnicity), educational attainment, and age, survey year, and state of residence fixed effects. Standard errors are clustered at the state level.

Table 4: Impact of Labor Market Conditions and Stock Market Returns
around the Time of Retirement on Social Security Income of Men in their 70s, by Income Level

| Position in Personal Income Distribution: | Any Income from Social Security | | | Income from Social Security, if Received | | | Income from Social Security | | |
|--|---------------------------------|------------------------|---------------------|---|------------------------|---------------------|-----------------------------|------------------------|---------------------|
| | Bottom Third (1) | Middle Third (2) | Top Third (3) | Bottom Third (4) | Middle Third (5) | Top Third (6) | Bottom Third (7) | Middle Third (8) | Top Third (9) |
| Mean | 83.6% | 95.3% | 93.7% | \$9,343 | \$13,299 | 14,533 | \$7,807 | \$12,673 | \$13,621 |
| Unemployment Rate at Age 62 | 0.095 (0.099) | 0.078 (0.040) | 0.007 (0.042) | -30.064 (9.641) | -20.435 (7.607) | 0.116 (12.472) | -11.966 (12.246) | -7.815 (9.771) | 2.052 (15.576) |
| S&P 500 Returns, Age 50 to 55 | -0.008 (0.007) | -0.006 (0.004) | -0.005 (0.003) | -0.139 (0.911) | -0.480 (1.065) | -1.091 (1.546) | -1.090 (1.237) | -1.420 (1.000) | -1.859 (1.530) |
| S&P 500 Returns, Age 55 to 60 | -0.001 (0.007) | -0.002 (0.003) | -0.010 (0.005) | 0.019 (0.733) | -0.873 (0.952) | -0.906 (1.111) | -0.182 (1.100) | -1.095 (0.953) | -2.562 (1.453) |
| S&P 500 Returns, Age 60 to 65 | 0.006 (0.004) | -0.002 (0.003) | -0.004 (0.004) | -0.557 (0.574) | -0.149 (0.570) | -0.992 (0.984) | 0.169 (0.827) | -0.392 (0.724) | -1.600 (1.396) |
| S&P 500 Returns, Age 65 to 70 | 0.002 (0.002) | 0.000 (0.001) | 0.001 (0.002) | -0.090 (0.314) | 0.212 (0.327) | -0.078 (0.429) | 0.221 (0.417) | 0.134 (0.332) | 0.104 (0.580) |
| number of observations | 198,192 | 197,969 | 204,050 | 165,608 | 188,647 | 191,244 | 198,192 | 197,969 | 204,050 |

Notes: Estimates in Columns 1, 4, and 7 are from linear probability models. Coefficient estimates and standard errors in those models are multiplied by 100. Estimates in Columns 2, 5, and 8 are from OLS models. Estimates in Columns 3, 6, and 9 are from Tobit models. Each model contains the variables listed along with the contemporaneous state level unemployment rate, demographic factors (marital status, race/ethnicity), educational attainment, and age, survey year, and state of residence fixed effects. Standard errors are clustered at the state level.

Table 5: Impact of Labor Market Conditions and Stock Market Returns
around the Time of Retirement on Pension Income of Men in their 70s, by Income Level

| Position in Personal Income Distribution: | Any Pension Income | | | Pension Income, if Received | | | Pension Income | | |
|--|------------------------|------------------------|---------------------|--------------------------------|------------------------|---------------------|------------------------|------------------------|---------------------|
| | Bottom Third (1) | Middle Third (2) | Top Third (3) | Bottom Third (4) | Middle Third (5) | Top Third (6) | Bottom Third (7) | Middle Third (8) | Top Third (9) |
| Mean | 15.9% | 64.3% | 74.8% | \$4,420 | \$9,998 | \$32,927 | \$701 | \$6,429 | \$24,644 |
| Unemployment Rate at Age 62 | -0.053 (0.054) | -0.136 (0.099) | 0.035 (0.087) | 7.684 (19.518) | -8.789 (16.719) | 105.448 (86.774) | -9.252 (19.154) | -28.713 (21.701) | 119.318 (73.761) |
| S&P 500 Returns, Age 50 to 55 | -0.002 (0.008) | 0.007 (0.009) | 0.000 (0.008) | -0.572 (1.463) | 0.628 (1.135) | -10.470 (4.651) | -0.773 (2.688) | 1.549 (1.833) | -9.232 (6.152) |
| S&P 500 Returns, Age 55 to 60 | -0.007 (0.010) | -0.008 (0.008) | -0.008 (0.010) | -1.429 (1.423) | 0.761 (1.692) | -3.364 (6.036) | -3.112 (3.206) | -1.039 (1.867) | -5.515 (6.095) |
| S&P 500 Returns, Age 60 to 65 | -0.004 (0.006) | -0.003 (0.008) | 0.001 (0.005) | -0.285 (0.845) | -0.670 (0.937) | 4.563 (4.272) | -1.336 (1.973) | -1.170 (1.634) | 5.210 (5.519) |
| S&P 500 Returns, Age 65 to 70 | 0.000 (0.002) | 0.001 (0.004) | 0.000 (0.002) | 0.538 (0.425) | 0.555 (0.417) | -0.704 (2.303) | -0.065 (0.811) | 0.487 (0.753) | -0.427 (1.969) |
| number of observations | 198,192 | 197,969 | 204,050 | 31,418 | 127,304 | 152,721 | 198,192 | 197,969 | 204,050 |

Notes: Estimates in Columns 1, 4, and 7 are from linear probability models. Coefficient estimates and standard errors in those models are multiplied by 100. Estimates in Columns 2, 5, and 8 are from OLS models. Estimates in Columns 3, 6, and 9 are from Tobit models. Each model contains the variables listed along with the contemporaneous state level unemployment rate, demographic factors (marital status, race/ethnicity), educational attainment, and age, survey year, and state of residence fixed effects. Standard errors are clustered at the state level.

Table 6: Impact of Labor Market Conditions and Stock Market Returns
around the Time of Retirement on Investment Income of Men in their 70s, by Income Level

| Position in Personal Income Distribution: | Any Investment Income | | | Investment Income, if Received | | | Investment Income | | |
|--|------------------------|------------------------|---------------------|-----------------------------------|------------------------|---------------------|------------------------|------------------------|---------------------|
| | Bottom Third (1) | Middle Third (2) | Top Third (3) | Bottom Third (4) | Middle Third (5) | Top Third (6) | Bottom Third (7) | Middle Third (8) | Top Third (9) |
| Mean | 16.6% | 47.4% | 74.8% | \$2,039 | \$4,804 | \$28,418 | \$306 | \$2,261 | \$21,234 |
| Unemployment Rate at Age 62 | 0.091 (0.084) | 0.061 (0.092) | -0.044 (0.092) | 12.528 (10.664) | 17.890 (16.470) | 164.058 (99.602) | 16.451 (11.634) | 17.291 (18.192) | 83.248 (102.304) |
| S&P 500 Returns, Age 50 to 55 | 0.003 (0.006) | -0.007 (0.008) | -0.003 (0.007) | -0.179 (1.180) | -1.283 (1.194) | -13.113 (8.315) | 0.553 (1.073) | -1.480 (1.202) | -12.437 (7.779) |
| S&P 500 Returns, Age 55 to 60 | 0.014 (0.006) | 0.010 (0.011) | 0.033 (0.007) | 0.460 (1.011) | -0.677 (1.382) | -0.008 (16.842) | 2.689 (1.269) | 1.053 (1.690) | 22.659 (11.878) |
| S&P 500 Returns, Age 60 to 65 | 0.000 (0.006) | 0.006 (0.007) | 0.021 (0.007) | 0.126 (0.991) | 0.014 (0.839) | 8.785 (7.107) | 0.321 (1.116) | 0.858 (0.990) | 21.339 (7.189) |
| S&P 500 Returns, Age 65 to 70 | -0.003 (0.002) | 0.005 (0.003) | 0.008 (0.002) | -0.244 (0.377) | -0.329 (0.434) | 3.508 (4.720) | -0.453 (0.334) | 0.620 (0.445) | 8.420 (4.087) |
| number of observations | 198,192 | 197,969 | 204,050 | 32,902 | 93,885 | 152,627 | 198,192 | 197,969 | 204,050 |

Notes: Estimates in Columns 1, 4, and 7 are from linear probability models. Coefficient estimates and standard errors in those models are multiplied by 100. Estimates in Columns 2, 5, and 8 are from OLS models. Estimates in Columns 3, 6, and 9 are from Tobit models. Each model contains the variables listed along with the contemporaneous state level unemployment rate, demographic factors (marital status, race/ethnicity), educational attainment, and age, survey year, and state of residence fixed effects. Standard errors are clustered at the state level.

Table 7: Impact of Labor Market Conditions and Stock Market Returns around the Time of Retirement on Total Personal Income of Men in their 70s, by Income Level

| | All Men (1) | Bottom Third of Income Distribution (2) | Middle Third of Income Distribution (3) | Top Third of Income Distribution (4) |
|----------------------------------|-------------------|---|---|--|
| Mean Income | \$34,034 | \$9,686 | \$23,032 | \$68,356 |
| Unemployment | 8.200 | -24.840 | -8.204 | 112.741 |
| Rate at Age 62 | (51.049) | (9.767) | (11.128) | (107.305) |
| S&P 500 Returns, Age 50 to 55 | -4.192 (3.838) | -0.504 (0.801) | -0.440 (0.709) | -16.029 (8.195) |
| S&P 500 Returns, Age 55 to 60 | -0.179 (5.814) | -0.876 (0.680) | -0.782 (1.014) | -5.001 (12.453) |
| S&P 500 Returns, Age 60 to 65 | 3.431 (3.042) | -0.459 (0.656) | -0.283 (0.692) | 11.727 (6.358) |
| S&P 500 Returns, Age 65 to 70 | 0.704 (1.289) | 0.204 (0.351) | 0.315 (0.285) | 4.170 (3.178) |
| number of obs. | 600,211 | 198,192 | 197,969 | 204,050 |

Notes: Estimates are obtained from OLS regression models that each contain the variables listed along with the contemporaneous state level unemployment rate, demographic factors (marital status, race/ethnicity), educational attainment, and age, survey year, and state of residence fixed effects. Standard errors are clustered at the state level.