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The Relationship between Pre-Retirement Psychological Distress and Family Wealth at Retirement by Race and Gender: An Analysis from 2007–2019 in the United States

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Acknowledgments

Abstract

This study uses Panel Study of Income Dynamics (PSID) data waves 2007–2019 to analyze the relationship between pre-retirement psychological distress and finances, specifically percent changes in wealth at retirement. Two measures of wealth were used for each respondent: percent change in wealth including home equity and percent change in wealth excluding home equity. The dual measurement of percent change in wealth allows for a better understanding of how wealth changes affect financial assets, while also illuminating the effects of home equity on overall wealth holdings. Social drift theory, which posits that psychological distress increases the likelihood of future financial challenges, was the guiding theory of this research. As hypothesized, respondents with a history of higher levels of psychological distress have greater and negative percent changes in wealth at retirement. Black race and female gender were also associated with greater negative percent changes in wealth at retirement for measures with and without home equity compared to White and male respondents. When examining the interaction terms of Race and Gender and Psychological distress, Race was negative and significant for Black respondents when using the wealth with home equity measure; however, this term was not significant for the wealth with home equity measure. The Gender (female) interaction term with psychological distress (K6) was negative and significant for both measures of wealth change. These findings highlight the importance of addressing mental health conditions such as depression and anxiety, even in pre-retirement years, to combat future financial implications of these conditions.

Keywords: Psychological distress, depression, anxiety, retirement, social drift theory

JEL codes: I14, D14, D31

Introduction

The past 40 years have seen a dramatic shift in the way Americans prepare for retirement. The transition from defined benefit retirement plans to defined contribution plans has played a significant role in this change, as the burden of planning and ensuring adequate retirement savings has transitioned to the worker. This transition has been a challenge for many, as nearly 50 percent of non-retired 55-to-66-year-olds have no personal retirement savings (Census 2022). Additionally, 40 percent of workers have no combined spousal retirement savings, and 30 percent do not have access to a retirement savings plan through their employer (Census 2022; Pew 2022).

Understanding these foundational challenges to retirement planning becomes more important as the number of older people in the United States increases (Census 2018). In 1900, there were 3.1 million people aged 65 or older; this number increased to 35 million in the year 2000, and further increased to 52 million in 2019 (Census 2019). This number continues to grow, as an estimated 10,000 people per day turn 65 years old (Pew 2020). The increase in the number of older adults in the United States has had a profound effect on the economy as the economy adjusts to provide the needed services for an aging population.

Older age, specifically the retirement years, often comes with unique financial challenges, such as managing finances with often inadequate retirement income (Census 2020). These challenges can be exacerbated by the often-chronic health conditions that many seniors experience. One of the more common health conditions that seniors experience is depression, which is often associated with other health and financial challenges (NAMI 2019). Two theories used to explain the relationship between finances and psychological distress are social causation theory and social selection theory, often simply referred to as drift theory. Social causation theory, the most frequently used theory, states that experiencing financial difficulties increases the risk of developing subsequent psychological distress (Mossakowski 2014). Though social causation theory may explain some of the relationship between psychological distress and finances, it is widely believed that mental illnesses have interrelated biological and environmental origins (NAMI 2022). To this end, other researchers believe that experiencing psychological distress increases the risk of financial hardship, generally categorized as difficulty providing basic needs, which is one of the core tenets of social drift theory (Mossakowski 2014; Oneil and Sorhaindo, n.d.).

There has also been significant focus on economic inequality in the United States in recent years. Economic inequality generally refers to disparities in an individual's income and wealth, two of the main financial pillars (Pew Research Center 2020). Though income inequality is important, discussions surrounding wealth are often at the forefront of inequality discussions because of the significant role that wealth plays in buffering against financial shocks and providing adequate resources to fund retirement (Pfeffer et al. 2016).

There have been many attempts at explaining the relationship between psychological distress and financial challenges, often called financial distress. The two most commonly used theories are social causation theory and social selection theory, which is typically referred to as social drift theory, or simply drift theory. Many researchers use social causation theory, which generally states that stressors of navigating financial difficulties increase the likelihood of developing subsequent psychological distress. Other researchers explain the relationship between financial distress and psychological distress with the less often used social drift theory, which states that experiencing psychological distress increases the risk of subsequent financial distress (Mossakowski 2014; Oneil and Sorhaindo, n.d.). In addition to the direct effects of psychological distress and financial distress, gender and race are also thought to influence this relationship; however, research has yet to fully examine such relationships.

To better understand the relationship between psychological distress and finances, specifically wealth, this study examines psychological distress as a potential factor of financial hardship or declines in wealth. Social drift theory is the guiding theoretical framework for this study. Data from Panel Study of Income Dynamics (PSID) were used to evaluate this relationship and to provide insight into the often-long-term financial implications of psychological distress, specifically the implications for wealth at retirement.

Theoretical Framework

Many researchers argue that financial hardship and its associated social, financial, and life challenges increase the risk of psychological distress (Mossakowski 2014). These researchers have found that the stress of navigating financial hardship increases the risk of psychological distress, a key tenet of social causation theory. However, this point of view does not fully capture the complexities of the relationship between financial hardship and psychological distress.

To offer an alternative to the limitations of social causation theory, other researchers have suggested social drift theory, which theorizes that the presence of mental illness causes increased risk of subsequent financial hardship. There are few researchers that examine the relationship between psychological distress and financial hardship through the lens of social drift theory; however, many accept that there are numerous, interconnected factors associated with the onset of mental illness, such as environmental factors, genetics, and trauma. Social drift theory helps further the understanding of the effects of these other factors on mental illness prevalence (CDC 2020). Figure 1 depicts the directionality of each theory.

Figure 1.
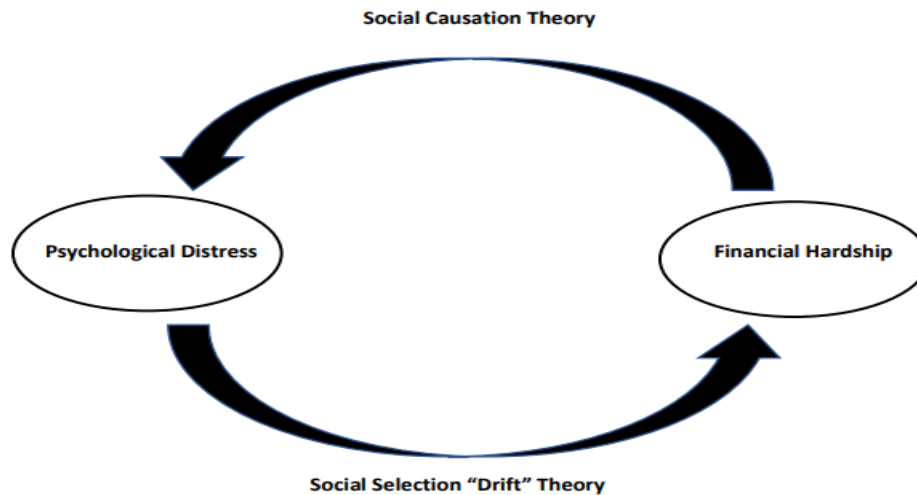
Note: Figure 1 illustrates the relationship between psychological distress and financial hardship. The Social Causation Theory explains how financial hardship can increase the likelihood or severity of subsequent psychological distress, while the Social Selection "Drift" Theory describes how psychological distress can lead to subsequent financial hardship.

Literature Review

Bartel and Taubman (1986) evaluated identical twins with a previous diagnosis of mental illness during 1940–1972. They found that prior mental illness was associated with lower overall earnings, a decreased likelihood of marriage, fewer children, and a higher incidence of the wife working outside of the home (Bartel and Taubman 1986). A remarkable finding from this study is

that the effects on earnings were seen for up to 15 years after the episode (Bartel and Taubman 1986).

Since Bartel and Taubman's initial work, other researchers have explored the relationship between psychological distress and financial hardship from the perspective of social drift theory. These studies have largely found that the prevalence of financial hardship is greater when mental illness is present (Balmer et al. 2006; Clark et al. 2011; Jenkins et al. 2008; Richardson et. al 2013). Balmer et al. found that financial hardship prevalence, measured by debt, was three times greater for those with mental illness than those without mental illness.

Many of these early studies, however, used diagnoses such as schizophrenia to measure psychological distress. Today, these conditions would be considered serious mental illnesses according to the most recent version of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), the widely used handbook of mental illnesses (APA, 2021; Bartel and Taubman, 1986). This is important to note because the effects of conditions classified as serious mental illness may not be representative of the symptoms and effects of other diagnoses such as depression, or anxiety, even when severe.

Further, existing literature has largely focused on cross-sectional regression analysis and measured financial hardship by levels and types of debt (Balmer et al., 2006; Clark et al., 2011; Jenkins, Bebbington et al., 2008; Richardson et. al, 2013). There have been a small number of longitudinal studies which examine the relationship between mental illness and finances, though much of this research utilizes data from European populations, specifically the United Kingdom (Bridges & Disney, 2010; Brown et al., 2005; Richardson et al., 2013). The United States has unique historical, demographic, social, and policy characteristics which require an analysis of domestic data to fully understand this relationship.

Measuring psychological distress

Psychological distress includes the broad symptoms of generalized stress, depression, anxiety, and the combination of these symptoms and is a specific subset of the general term mental illness, which includes the full spectrum of mental illnesses (Viertiö 2021; Drapeau 2012). Researchers have examined the relationship between psychological distress and financial hardship using various measures of psychological distress. Many researchers have used an individually constructed questionnaire, which generally asks respondents questions about their mental health

history and recent feelings around mood (Kim 2020; Assari 2019). Other researchers use standardized questionnaires like the Beck depression inventory, which provides insight into potential depressive symptoms of the respondent, but this inventory does not address symptoms of anxiety, which often occur along with depressive symptoms (Rautio et al. 2012). This study uses Kessler-6 index of psychological distress, to measure psychological distress. Using a more accessible index allows us to better understand the relationship between psychological distress and percent changes in wealth for those without a formal diagnosis.

Though many studies have used severe forms of mental illness, or hospitalizations as their measure of psychological distress the effects for a serious condition such as schizophrenia may not be applicable for a mild form of anxiety. Additionally, many people living with mental illness do not receive treatment, and the lack of comprehensive data creates a further gap in our understanding between financial hardship and psychological distress. To reflect this, Kessler (2018) developed the Kessler-6 inventory of psychological distress, which is used in this study, to measure a wide range of psychological distress symptoms. This instrument is validated and does not require a clinical visit, or diagnosis to be administered.

The role of pre-retirement decisions on wealth at retirement

Wealth at retirement is largely based upon decisions, behaviors, and economic forces experienced in pre-retirement years. These decisions are cumulative, and the result for many Americans is often insufficient resources at retirement (Census 2022). The private retirement system in the United States is largely employer sponsored and increasingly based in defined contribution benefit methodology (Census 2021). One of the limitations of the current system is that not all employees are eligible to participate in a retirement savings program through their employer (Census 2021). Overall, 33 percent of all workers do not have access to an employer sponsored retirement plan; these rates differ by employment status, as 23 percent of full-time employees, and 61 percent of part-time employees are without access to employer sponsored retirement plans (BLS 2021). The number of workers with access to an employer sponsored retirement plan that participate in the plan is an estimated 75 percent for employees in the private sector and 89 percent for employees in the public sector. These disparities highlight the disparate nature of participation in employer sponsored retirement plans in the United States (BLS 2021). In addition to employer sponsored retirement plans, many employees are also eligible to contribute to an Individual Retirement

Account (IRA), though most do not; in 2020 only 37 percent of US households owned an IRA (ICI 2020).

Saving for retirement is a long-term process, and over the many years of saving for retirement, financial shocks are bound to occur. Financial shocks such as a loss of income, illness, or major repairs can cause significant disturbances to finances; it is estimated that 60 percent of families have a significant financial shock each year (Pew 2015). Many Americans struggle to cover these unexpected expenses; a recent Pew study asked US adults how they would manage a financial shock of $2,000, and 69 percent responded that they would need to use multiple sources, while 24 percent reported that they would use retirement funds to cover the cost of the shock (Pew 2015). Additionally, it is estimated that 51 percent of 401(k) and 403(b) account holders have taken an early withdrawal from their retirement accounts to cover various expenses (Bankrate 2021). These pre-retirement withdrawals can be detrimental to wealth at retirement by affecting two main routes of wealth building; reducing the time available for investments to grow, and early withdrawal taxes and tax penalties (Pew 2020; IRS 2021). Early withdrawals from tax favored plans such as IRA's, 401(k), and 403(b) reduce the amount of money invested over time, which can dramatically reduce lifetime returns. Additionally, the withdrawn funds are subject to standard income taxes and to an early withdrawal penalty of 10 percent, with limited exceptions (IRS 2021).

Wealth, for many Americans, is largely tied to the value of their homes, as home equity represents the largest amount of wealth held for most American homeowners (Census 2018). Wealth being tied to the value of one's home represents a vulnerability to market fluctuations that can be devastating to wealth. The Great Recession that officially occurred from 2007 to 2009 had devastating effects on home values across the United States and the world (Federal Reserve 2019). Average home prices in the United States fell 33 percent and did not return to pre-recession levels until years after the official end of the Great Recession in many regions (Census 2019). The implications of these market fluctuations are particularly salient for older adults and those that must sell their homes during market downturns.

Market downturns such as the Great Recession can also affect the value of stocks and bonds, the underlying investments of many 401(k) and 403(b) retirement plans. Older workers in The Great Recession were hit particularly hard by the decline in financial markets during and after the great recession (Saad-Lessler et al. 2018). It is estimated that workers with twenty-year job tenure saw 25 percent declines in their retirement accounts due to market downturns (Saad-Lessler

et al. 2018). Older workers that lost their jobs and were forced to use funds from their retirement accounts for basic living expenses suffered great losses, as they were not as able to take advantage of market rebounds, which limits the resources available to them in retirement. The financial and housing markets have improved significantly since the Great Recession; however, most Americans have not fully recovered from its economic challenges (Pew 2018).

The relationship between psychological distress in pre-retirement and wealth at retirement

There is little known about the effects of psychological distress during pre-retirement years on wealth at retirement; however, there are many known challenges associated with psychological distress that may affect pre-retirement behaviors, ultimately affecting wealth at retirement. Psychological distress can affect many aspects of life, and there are often co-morbid physical health conditions and executive functioning impairments that can exacerbate the effects of psychological distress (Bridges and Disney 2015).

The challenges associated with psychological distress can also lead to disability. Depression is the most common cause of disability across the world (WHO 2018). Additionally, depression is the most common cause of disability for Social Security disability recipients (SSA 2018). Disability affects retirement wealth creation through multiple routes. It reduces time in the labor market, which reduces earnings and human capital building; disability can also reduce participation in employer sponsored retirement savings plans. These labor market disruptions can reduce wealth by reducing employment and future earnings from lower human capital development, even if one is able to return to the labor force (Becker 1994; SSA 2019). Disability also reduces attachment to the employer-sponsored retirement plans the most common vehicle for retirement savings, making it more difficult to build wealth for retirement (PEW 2020; SSA 2019).

The cost of treatment for mental health conditions can also be prohibitive; it is estimated that psychologically distressed employees with health insurance had health care costs that were $3,000 more per year than their non-psychologically distressed counterparts (NSC 2020). Additionally, persons who experience psychological distress are more likely to have co-morbid conditions, such as cardiovascular conditions, and substance use disorder, which can have a significant cost of care and impact on the ability to earn and save, affecting the ability to build wealth (NIMH 2020).

These cumulative findings suggest that experiencing psychological distress during pre-retirement years exacerbates the difficulties of saving for retirement and securing and sustaining other assets, resulting in lower levels of wealth at retirement. Psychological distress can be measured by the number of psychological distress episodes as well as the severity of the psychological distress episodes. Therefore, we hypothesize:

H1: Respondents with greater pre-retirement psychological distress have negative changes in wealth at retirement.

H1 research model:

$\%\Delta\text{Wealth at retirement}_i = \beta_0 + \beta_1 \text{ PD pre-retirement stage}_i + \beta_n\text{Control Variables}_i + \varepsilon_i$

Control variables: Race, Gender, Education, Marital status, Total family income, age

The Role of Race, Black vs. White, on Family Wealth

The broad discussion on wealth inequality can be further examined by racial differences in wealth holdings. In this study, we will be using Black and White racial classifications, as most US government data and PSID data use these categories.

It is commonly cited that wealth holdings vary by race, but the disparities are great. The 2019 Federal Reserve Board's Survey of Consumer Finances found that the median wealth held by White families was $188,200, while the median Black family held less than 15 percent of this level of wealth, with $24,100 (Federal Reserve 2019). These stark differences in wealth between Blacks and Whites have followed similar patterns throughout recent history (Kochar and Cilluffo 2017). The effect of race on financial distress, particularly financial distress measured as changes in family wealth, has significant historical contexts in the United States. That is, these differences cannot be explained by only evaluating differences in savings patterns and cash management; rather, these differences are largely a product of centuries of legal doctrine and social policies in the United States (McIntosh et al. 2022). Such social policies include occupational, educational, and housing segregation and government sanctioned red-lining policies that limited home and business loans to non-Black areas (Appel and Nickerson 2016). The cumulative nature of wealth (i.e., future generations benefit from the wealth of prior generations) and the historic context of

wealth accumulation or the lack thereof must be considered in understanding wealth holdings. Inheritance also plays a role in wealth accumulation. However, Black families are less likely to expect or receive an inheritance, and when they do receive an inheritance, the average amount is less than that of White families (McIntosh 2022; Bhutta 2020).

The effects of economic conditions can also affect wealth levels over time. The Great Recession caused a decrease in wealth for all groups, but as the recovery began, the wealth levels of Whites increased, while the wealth levels of Blacks continued to decline (Kochar and Cilluffo 2017). These current and historical differences in wealth between Blacks and Whites suggest that the effect of race on wealth (financial distress) would be more pronounced for Blacks than Whites. Further, literature suggests that, when a person is Black and experiences psychological distress, the impact of psychological distress on the finances is greater. The financial and social disparities that Black families experience may be exacerbated by the financial and social pressures of psychological distress. Researchers have found that the known inequalities of health and wealth are directly at the intersection of the relationship between psychological distress and financial distress (Kochar and Cilluffo 2017), though there is no agreement on the prevalence of mental illness, specifically among Blacks. It is widely believed that Blacks have less access to quality healthcare, and these differences in healthcare quality extend to mental health, suggesting that when Blacks do receive care for mental health issues, they also face inferior outcomes compared to Whites (Holden et al 2014).

Though no race is a monolith and further examination of within race differences are needed to better understand this relationship, these factors suggest that when Blacks experience psychological distress, the impact on financial distress will be greater. Differences in wealth, income, and the rate and amount of inheritance suggest that, when Blacks become psychologically distressed, any negative implications for wealth are greater. Psychological distress is measured by the number of psychological distress episodes as well as the severity of psychological distress episodes. Therefore, we hypothesize:

H2 (a): When Blacks experience psychological distress, the percent change in family wealth without home equity will be negative compared to Whites.

H2 (b): When Blacks experience psychological distress, the percent change in family wealth with home equity will be negative compared to Whites.

All hypotheses in this study will be tested in the following model:

$$\%\Delta Wealth_i = \beta_0 + \beta_1 PD_i + \beta_2 Race_i + \beta Race * PD_i + \beta_n Control\ Variables_i + \varepsilon_i$$

The control variables used in this model are:

Gender, Education, Marital status, Total family income, Age

The Role of Gender, Women vs. Men, on Wealth

Economic inequality, or differences in economic resources, consists of two main drivers, income and wealth (Pew 2020). In the discussion surrounding economic inequality by gender, there has been significant examination of income inequality, though less is known about wealth inequality (Kent and Ricketts 2021). Examining these differences in wealth by gender can be methodologically difficult because wealth is typically measured at the family level, making it challenging to differentiate ownership of assets and debts within couples (Barrosso and Brown 2021).

There are historical differences in laws and policies that affect wealth holdings of men and women in the United States that are important to consider. Women were not allowed to solely own a checking account without a spouse or parent in the United States until the 1960s, and it was not until 1974 when the Equal Credit Opportunity Act was passed, which made it illegal to discriminate on the basis of race, color, religion, national origin, sex, marital status, or age in credit transactions (Kent and Ricketts 2021). Though the laws were enacted to protect those trying to obtain credit, discrimination still occurred at significant levels in practice well after these laws were enacted (Kent and Ricketts 2021). Additionally, it was not until 1978 with the advent of the Pregnancy Protection Act that women could not legally be fired from their jobs for being pregnant (Kent and Ricketts 2021). Financial assets like wealth compound over time, and these past financial policies and practices are present in the wealth holdings of women today.

Examining differences in wealth by gender can be methodologically difficult because wealth is typically measured at the family level, making it challenging to differentiate ownership of assets and debts within couples to solely one person or another (Kent and Ricketts 2021). In 2019 it was estimated that the raw gender wealth gap between males and females, uncontrolled for

individual and family characteristics, was significant, with females owning 55 cents to every dollar of male wealth (Kent and Ricketts 2021). When these figures were adjusted to control for individual and family traits such as age, marital status, children, race, education, income, homeownership, inheritance, employment status, and risk tolerance, the gap was closed significantly; however, the median wealth for women was still 9 percent less than the that of male respondents (Kent and Ricketts 2021).

The most common factors cited for the differences and economic outcomes between women and men are wage gap, labor force participation, and risk tolerance differences between men and women (Pew 2019). Other researchers cite gender discrimination regarding employment opportunities, wage parity, and wealth building opportunities as further explanation of differences in wealth holdings (Pew 2019). Income plays a significant role in the resources available to build wealth. Women on average earn less than men; when comparing all women who work with all men who work, women earned .77 cents to every dollar that men earned in 2021 (Pew 2022). Gender pay differentials are found in 94 percent of occupations, and the cumulative effect of these disparities can surpass over a million dollars over a lifetime (Pew 2023). These differences in income can make it more difficult for women to participate in wealth building activities such as purchasing a home and starting a business (Pew 2020).

There are also known differences in labor force participation by Gender in the United States, though these figures are changing over time. In 2019 the labor force participation rate for women was 57.4 percent, while the rate for men was 69.2 percent (BLS 2020). Women also provide most of the caregiving in the United States, providing care for their immediate and extended families and leaving the workforce at greater rates to manage caregiving.

When women do leave the workforce for caregiving, they leave for a longer time than their male counterparts (Pew 2020). The United States has the Family Medical Leave Act (FMLA), which protects the job of someone on medical leave for themselves or providing care to a qualified relative. But there is no mandate that employers pay for this time off, and even in instances that medical leave is allowed or paid by a short-term disability policy, many companies do not pay incentive pay or retirement contributions on disability pay, increasing the long-term financial costs of caregiving (Pew 2020). Workforce participation contributes to wealth in many ways, through mechanisms such as earned income, human capital building, and potential retirement savings.

These leaves and absences from the workforce reduce lifetime earnings but also reduce retirement wealth and Social Security income in the future (St. Louis Fed 2020).

Risk tolerance is also important to examine regarding differences in wealth. Risk tolerance defined as the amount of risk one is willing to take in their investments, with generally the greater the risk the greater potential for reward in the form of higher returns, however there is also a greater risk of loss when generally when there is a higher risk (Pew, 2018). Men and women have been found to have different overall levels of risk tolerance (Pew, 2018). Researchers have found that women are often more risk averse, avoiding higher risk investment options and choices in exchange for a more guaranteed return. While men tend to be less risk averse taking on greater risk of loss, and more potential reward (St. Louis Fed, 2020).

The Relationship between Gender, Psychological Distress and Wealth

There is little known research detailing the differing effects of psychological distress on financial distress measured as changes in wealth by gender, although it is widely accepted that there is a wealth gap between women and men, with men holding more wealth (Pew 2020). There are several economic factors that may exacerbate the effects of psychological distress on financial distress by gender. Women are diagnosed with depression and anxiety at higher rates than men, though it is commonly believed there is bias in these findings, and men, though they may have different presentation of symptoms, have similar rates of depression and anxiety as women (Call and Shafer 2015).

Depression and anxiety are the most common mental health conditions, and mood disorders such as major depression represent 17.9 percent of all active Social Security disability claims for women, while mood disorder claims for men make up 10.9 percent of all male claims (Social Security Administration 2019). Social security disability has an average earnings replacement rate of less than 60 percent, which limits the ability to maintain and increase wealth holdings, increasing the long-term financial effects of disability (Khan et al. 2017).

These findings suggest that when women experience psychological distress, the implications for financial distress are greater. Psychological distress in this case can be measured by the number of psychological distress episodes as well as the severity of the psychological distress episodes.

Therefore, we hypothesize:

H_3 (a): When women experience psychological distress, changes in family wealth without equity are even more negative compared to men.

H_3 (b): When women experience psychological distress, changes in family wealth with equity are even more negative compared to men.

H_3 Research Model:

$$\%\Delta Wealth_i = \beta_0 + \beta_1 K6_i + \beta_2 Gender_i + \beta_3 Gender * K6_i + \beta_n Control\ Variables_i + \varepsilon_i$$

Control variables in this model are: Race, Education, Marital status, Total family income, Age

Methodology

Data collection

This study utilized data from the Panel Study of Income Dynamics (PSID), family level waves, which aggregates wealth and financial information, allowing for analysis of changes in wealth. The 2007–2019 waves were used in this study, with demographic variable data such as gender, race obtained using the 2019 data wave or the final wave the respondent is present. The 2019 PSID family wave includes 1,581 retired reference persons. Further, this study limits respondents to only include those that identify as having non-Hispanic ethnicity. We further limited respondents to include families in which the head self-identifies as Black or White in the race-first mention variable (PSID 2019).

Table 1 details the overall summary statistics for the sample. There is a significant difference in wealth with and wealth without equity. Part of this difference is because of the significant portion of home equity wealth in relation to overall wealth. Table 2 details the summary statistics broken down by race. Reference persons that identify as Black or female have lower levels of overall wealth compared to reference persons that identify as White or male. Table 3 details the summary statistics by marital status, with married respondents having a higher level of wealth than other respondents.

Table 1

Summary Statistics of Respondents That Retired During the 2007–2019 Period Retired

Wealth with equity	Mean	$610,302
	Median	$209,500
	Std Dev	$1,624900
Wealth without equity	Mean	$455,895
	Median	$82,500
	Std Dev	$ 1,524,567
% Change With Equity (adjusted)	Mean	0.39
	Median	1.5
	Std Dev	2.03
% Change without equity (adjusted)	Mean	0.61
	Median	0.02
	Std Dev	2.84
K-6	Mean	2.64
	Median	1.00
	Std Dev	3.74
Family Income (previous year)	Mean	$93,152.43
	Median	$68,339
	Std Dev	$103,929

Note: The standard structure of the PSID dataset primarily uses male reference persons when present in the home. This follows the historical structure of the PSID but limits female reference persons to those that are primarily non-married at the time of the interview. This limitation positively skews aggregate income and wealth data for male respondents because they are more likely to have spousal income and wealth included in family level data.

Table 2

Summary Statistics of Respondents That Retired During the 2007–2019 Period Retired (By Race)

		White	Black
Wealth With Equity	Mean	$687,451	$103,265
	Median	$271,500	$32,000
	Std Dev	$1,734,371	$255,145
Wealth Without Equity	Mean	$517,196	$57,095
	Median	$119,000	$5,700
	Std Dev	$1,632,247	$228,586
% Change wealth with equity (adjusted)	Mean	0.37	0.53
	Median	2.2%	-10.6%
	Std Dev	1.85	2.96
% Change wealth without equity (adjusted)	Mean	0.57	0.84
	Median	0.02	(0.13)
	Std Dev	2.62	3.78
K-6	Mean	2.52	3.31
	Median	1.00	2.00
	Std Dev	3.57	4.56
Family Income (previous year)	Mean	$98,986	$52,499
	Median	$73,000	$41,800
	Std Dev	$109,217	$44,455

Note: The standard structure of the PSID dataset primarily uses male reference persons when present in the home. This follows the historical structure of the PSID but limits female reference persons to those that are primarily non-married at the time of the interview. This limitation positively skews aggregate income and wealth data for male respondents because they are more likely to have spousal income and wealth included in family level data.

Table 3

Summary Statistics of Respondents That Retired During the 2007–2019 Period (By Marital Status)

		Married	Single	Widowed	Divorced	Separated
Wealth WE	Mean	$844,062	$349,678	$560,403	$246,614	$215,427
	Median	$348,000	$50,800	$269,300	$72,500	$20,000
	Std Dev	$2,044,183	$1,099,424	$753,391	$596,407	$466,814
Wealth WO	Mean	$644,079	$252,451	$385,183	$168,484	$152,343
	Median	$171,000	$21,500	$112,000	$19,000	$7,600
	Std Dev	$1,934,706	$1,023,688	$641,964	$532,790	$337,227
% Change With Equity (adjusted)	Mean	0.359	0.569	0.217	0.477	- 0.021
	Median	0.035	0.046	0.007	- 0.037	- 0.301
	Std Dev	1.69	2.71	1.33	2.52	2.24
%Change Without Equity (adjusted)	Mean	0.658	0.621	0.374	0.604	0.072
	Median	0.052	0.085	0.053	- 0.038	- 0.368
	Std Dev	2.55	3.1	2.91	3.3	2.58
K-6	Mean	2.12	3.74	2.74	3.05	5.52
	Median	1	2	2	1	4
	Std Dev	3.19	4.03	3.1	4.35	5.5
Family Income (previous year)	Mean	$125,389	$58,594	$57,797	$50,230	$47,230
	Median	$98,500	$46,800	$45,245	$42,000	$29,000
	Std Dev	$122,241	$55,179	$57,373	$46,981	$70,974

Note: The standard structure of the PSID dataset primarily uses male reference persons when present in the home. This follows the historical structure of the PSID but limits female reference persons to those that are primarily non-married at the time of the interview. This limitation positively skews aggregate income and wealth data for male respondents because they are more likely to have spousal income and wealth included in family level data.

Dependent Variable

There are two distinct measures of wealth used in this study: wealth including home equity and wealth excluding home equity. Before measuring the percentage change between years, percent change in wealth including home equity was calculated by taking the value of the wealth including home equity variable from the prior wave and calculating the percent change for all years. All dollars were adjusted with a GDP adjustment (see Appendix 1), that reflects the changes in the overall economy from wave to wave. This method was used because the underlying wealth measure inputs are not accurately reflected in a CPI market basket. The calculation of the wealth

without excluding home equity variable was calculated using the same procedure; however, the total family wealth excluding home equity variable was used. Percent change in wealth excluding home equity was calculated using the same methodology, though the total family wealth excluding home equity variable was used. It is also important to measure wealth without home equity, as it is estimated that 34.2 percent of families do not own their homes. Including this variable provides insight into the wealth of non-homeowners, and also the financial (non-home equity) wealth of homeowners (Pew 2020). By including the measure of wealth without home equity, we gain an understanding of the wealth changes for renters and those that may have had housing status changes throughout the study. Additionally, this variable allows for analysis of change in non-home assets for those families that do own homes, providing a more complete picture of the effects of psychological distress on all types of wealth.

Independent Variables

Psychological distress PD was measured using the Kessler psychological distress scale (K6). There are six questions in this scale, with each question having a potential score of 0–4. The responses from each question are then summed for a potential total score of 0–24. Respondents are asked questions such as "In the past 30 days, how often did you feel that everything was an effort," and "in the past 30 days, how often did you feel hopeless?" with responses ranging from "none of the time" = 0, "a little of the time" =1, "some of the time" = 2, "most of the time" =3, "all of the time" =4, as coded (Kessler 2002; PSID 2019) (see Appendix table 2 for list of questions and scale).

Control Variables

Several control variables were used in this analysis to limit the influence of confounding variables. After reviewing the literature, the following variables were identified as the control variables for this study:

- Race (Black =1 White = 0)
- Gender (Female = 1, Male = 0)
- Education (number, 0-17+) was coded into 4 categories (0= less than high school, 1=high school graduate, 2=College Graduate, 3= Graduate School)

- Marital status was coded into 5 categories (1= Married, 2= Single, 3= Widowed, 4=Divorced, 5=Separated)
- Total family income
- Age (0 = 0-24, 1 = 25-44, 2 = 45-64, 3 = 65+)

Findings

A total of 1,541 respondents were present in the study at some point during the 2007–2019 time period, and when family level weights were added to the model, these numbers represented 121,116 individual interviews. Tables 4 and 5 represent the results for H1, the relationship between pre-retirement psychological distress and wealth at retirement. Each model was run twice, once with the dependent variable wealth including home equity, and once with wealth excluding home equity. The output for each regression model is represented in their respective table. Each model had overall significance, however, neither intercept was significant.

Overall Model: Pre-Retirement Psychological Distress on Wealth at Retirement

Psychological distress, measured as K-6, had negative estimates for wealth with and without home equity, though the estimate for wealth without home equity was larger, at -.01 (p = .0005), while the estimate for wealth with equity was -.01 (P<.0001).

An unexpected finding was that the estimate for race was negative for Whites -.14 (P <.0001), and positive for Blacks .14 (P<.0001) in the percent change in wealth without equity model, and -.10 (P <.0001) for Whites, and positive .10 (P <.0001) for Blacks in the percent change with home equity model. A plausible explanation of this difference is the higher initial values of wealth held by Whites compared to Blacks. Though overall wealth is higher, the more liquid wealth held in wealth without home equity may be a source of funds for near-retired respondents. These funds are less available for Black respondents. Female sex was also associated with a negative percent change in wealth at retirement in both models: -0.24 (P <.0001) for wealth without equity and -0.10 (P <.0001) for wealth with home equity. The significance in marital status varied by model. In the percent change in wealth without home equity, respondents identifying as Separated or Widowed had significant negative coefficients and negative but reduced percent change of wealth with equity. This could be from higher overall values of wealth held by these

groups. For separated respondents, the distribution of assets also may not be complete, limiting the true appraisal of wealth.

Having less than a high school diploma was also negatively associated with percent change in wealth at retirement for wealth without home equity measure -.07 (P = .0255), but this negative relationship was not found in the with home equity model, as wealth with equity often acts as a buffer against overall change in wealth.

Table 4

% Change in Wealth Without Home Equity

Variable Name	Estimate	Std Error	t Ratio	Prob>|t|
Intercept	0.0561	0.1209	0.46	0.6425***
Race White	-0.1445	0.0160	-9.05	<.0001*
Race Black	0.1445	0.0160	9.05	<.0001*
Sex[male]	0.2444	0.0157	15.58	<.0001*
Sex[female]	-0.2444	0.0157	-15.58	<.0001*
Education 2019 < High School	-0.0708	0.0317	-2.23	0.0255**
Education 2019 High School Graduate	0.0673	0.0167	4.03	<.0001*
Education 2019 College Graduate	-0.0196	0.0201	-0.97	0.3296***
Education 2019 Graduate School	0.0231	0.0219	1.06	0.2911**
K-6	-0.0101	0.0029	-3.51	0.0005*
Age Group[0–24]	-0.9661	0.3536	-2.73	0.0063*
Age Group[25–44]	0.1929	0.1252	1.54	0.1232**
Age Group[45–64]	0.4390	0.1190	3.69	0.0002*
Age Group[65+]	0.3342	0.1198	2.79	0.0053*
Marital Status Married	-0.0115	0.0254	-0.46	0.6489***
Marital Status Single	0.2307	0.0305	7.57	<.0001*
Marital Status Widowed	-0.1344	0.0361	-3.73	0.0002*
Marital Status Divorced	0.2737	0.0233	11.77	<.0001*
Marital Status Separated	-0.3584	0.0524	-6.84	<.0001*
Family Income (previous year)	0.0000	0.0000	4.17	<.0001*

*p-value at <.0001 coded *,p-value between .01 and .05 coded **, p-values of > .05 are coded ***. Intercept is reported at midpoint of all variables.

Pre-Retirement Psychological Distress on Wealth at Retirement

Table 5

% Change in Wealth with Home Equity

Variable Name	Estimate	Std Error	t Ratio	Prob>|t|
Intercept	0.0659	0.0897	0.73	0.4628***
Race White	-0.0995	0.0117	-8.51	<.0001*
Race Black	0.0995	0.0117	8.51	<.0001*
Sex[male]	0.1021	0.0116	8.83	<.0001*
Sex[female]	-0.1021	0.0116	-8.83	<.0001*
Education 2019 recode < High School	0.1425	0.0232	6.13	<.0001*
Education 2019 High School Graduate	0.0442	0.0123	3.6	0.0003*
Education 2019 College Graduate	-0.1803	0.0149	-12.12	<.0001*
Education 2019 Graduate School	-0.0064	0.0161	-0.4	0.6917***
K-6	-0.0089	0.0021	-4.21	<.0001*
Age Group[0–24]	-0.6337	0.2625	-2.41	0.0158*
Age Group[25–44]	0.0447	0.0929	0.48	0.6301***
Age Group[45–64]	0.2901	0.0883	3.28	0.0010*
Age Group[65+]	0.2989	0.0889	3.36	0.0008*
Marital Status Married	-0.0502	0.0186	-2.69	0.0071*
Marital Status Single	0.2763	0.0223	12.41	<.0001*
Marital Status Widowed	-0.0592	0.0265	-2.23	0.0257*
Marital Status Divorced	0.1986	0.0171	11.63	<.0001*
Marital Status Separated	-0.3655	0.0383	-9.53	<.0001*
Family Income (previous year)	0.0000	0.0000	9.15	<.0001*

*p-value at <.0001 coded *,p-value between .01 and .05 coded **, p-values of > .05 are coded ***. Intercept is reported at midpoint of all variables.

Changes in wealth K-6 x (Race)

The relationship between psychological distress as measured by K-6 and percent change in wealth was significant -.01 (p<.0001) when measured using wealth without home equity, while the coefficient dropped to -.01 (p<.0001) when measured with equity. The directionality of this relationship remains the same, but this slight difference suggests that the long-term wealth of home equity acts as a buffer against changes in wealth over time.

The interaction between race and k-6 varied, depending on wealth measure. The Percent change in wealth with home equity was significant, and negative, as expected, "Race [Black] * K-6" had a negative coefficient, -.01 (P = .0002), while the coefficient for the percent change in wealth without equity was -.00 (p=.5417), which is not statistically significant. The results for "Race [White] * K-6" had a positive coefficient, .01 (P = .0002), while the coefficient for the percent change in wealth without equity was .00 (p=.5417) and also not statistically significant. This indicates a positive rate of change in percent change in wealth for White respondents compared to negative for Black respondents. However, the lack of significance in the wealth without equity measure underscores the variability of the wealth without home equity measure.

Table 6 – *Change in Wealth with Home Equity Interaction (Race x K6)*

Term	Estimate	Std Error	t Ratio	Prob>|t|
Intercept	0.08105	0.089777	0.9	0.3666***
Race[White]	-0.10723	0.011874	-9.03	<.0001*
Race[Black]	0.10723	0.011874	9.03	<.0001*
Sex[male]	0.10101	0.011562	8.74	<.0001*
Sex[female]	-0.10101	0.011562	-8.74	<.0001*
Education 2019 < High School	0.13471	0.02333	5.77	<.0001*
Education 2019 High School Graduate	0.04496	0.012271	3.66	0.0002*
Education 2019 College Graduate	-0.17619	0.014918	-11.81	<.0001*
Education 2019 Graduate School	-0.00348	0.016097	-0.22	0.829***
K-6	-0.01462	0.002607	-5.61	<.0001*
Age Group[0-24]	-0.64009	0.262442	-2.44	0.0147**

*p-value at <.0001 coded *,p-value between .01 and .05 coded **, p-values of > .05 are coded ***. Intercept is reported at midpoint of all variables.

Table 6 Continued– *Change in Wealth with Home Equity Interaction (Race x K6)*

Term	Estimate	Std Error	t Ratio	Prob>|t|
Age Group[25-44]	0.03975	0.092883	0.43	0.6687***
Age Group[45-64]	0.29498	0.08832	3.34	0.0008*
Age Group[65+]	0.30537	0.088897	3.44	0.0006*
Marital Status Married	-0.04862	0.018646	-2.61	0.0091*
Marital Status Single	0.26673	0.02241	11.9	<.0001*
Marital Status Widowed	-0.05858	0.026526	-2.21	0.0272**
Marital Status Divorced	0.20111	0.017097	11.76	<.0001*
Marital Status Separated	-0.36065	0.038364	-9.4	<.0001*
Family Income (previous year)	7.88E-07	8.53E-08	9.24	<.0001*
Race[White]*(K-6-2.57939)	0.00972	0.002587	3.76	0.0002*
Race[Black]*(K6-2.57939)	-0.00972	0.002587	-3.76	0.0002*

*p-value at <.0001 coded *,p-value between .01 and .05 coded **, p-values of > .05 are coded ***. Intercept is reported at midpoint of all variables.

Table 7 – *Change in Wealth without Home Equity Interaction (Race x K6)*

Term	Estimate	Std Error	t Ratio	Prob>|t|
Intercept	0.059468	0.121007	0.49	0.6231***
Race[White]	-0.14622	0.016217	-9.02	<0.001*
Race[Black]	0.146218	0.016217	9.02	<0.001*
Sex[male]	0.244179	0.015689	15.56	<0.001*
Sex[female]	-0.24418	0.015689	-15.56	<0.001*
Education 2019 <High School	-0.07237	0.031776	-2.28	0.0228**
Education 2019 High School Graduate	0.067431	0.016705	4.04	<0.001*
Education 2019 College Graduate	-0.01873	0.020183	-0.93	0.3533***
Education 2019 Graduate School	0.023672	0.021874	1.08	0.2792***
K-6	-0.0114	0.003564	-3.2	0.0014*
Age Group[0–24]	-0.96755	0.35363	-2.74	0.0062*
Age Group[25–44]	0.19186	0.125163	1.53	0.1253***
Age Group[45–64]	0.440037	0.119016	3.7	0.0002*
Age Group[65+]	0.335657	0.119803	2.8	0.0051*
Marital Status Married	-0.01107	0.025368	-0.44	0.6626***
Marital Status Single	0.228707	0.03064	7.46	<0.001*

*p-value at <.0001 coded *,p-value between .01 and .05 coded **, p-values of > .05 are coded ***. Intercept is reported at midpoint of all variables.

Table 7 Continued – *Change in Wealth without Home Equity Interaction (Race x K6)*

Term	Estimate	Std Error	t Ratio	Prob>|t|
Marital Status Widowed	-0.13417	0.036055	-3.72	0.0002*
Marital Status Divorced	0.274276	0.023273	11.79	<.0001*
Marital Status Separated	-0.35774	0.052416	-6.83	<.0001*
Family Income (previous year)	4.83E-07	1.15E-07	4.18	<.0001*
Race[White]*(K-6-2.56132)	0.002159	0.003538	0.61	0.5417***
Race[Black]*(K-6-2.56132)	-0.00216	0.003538	-0.61	0.5417***

*p-value at <.0001 coded *,p-value between .01 and .05 coded **, p-values of > .05 are coded ***. Intercept is reported at midpoint of all variables.

Changes in wealth K-6(Gender)

The relationship between changes in wealth and gender were as hypothesized: female respondents were associated with negative coefficients in the wealth without home equity -.02 (p<.001) and significant in the wealth with equity model -0.09 (P=.0001), while the coefficients for male respondents were -.02 (p<.001) for wealth without home equity and -0.09 (P=.0001) in the wealth with equity model. We continue to see differences in coefficients when comparing percent change in wealth without home equity and percent change in wealth without home equity. Wealth with home equity has smaller estimates, which can be partially attributed to a significant portion of wealth being illiquid.

When we include the interaction variable, Sex [Female]*K-6, the coefficient for the percent change in wealth without home equity is -.03 (p <.0001). When women are psychologically distressed, there is a greater negative rate of change in percent change in wealth compared to men. This relationship was also found to be consistent for the percent change in wealth with equity model, with a coefficient of -.01 (p=.0048).

Percent change in wealth by marital status had an unexpected finding, as marital status married had a negative coefficient -.01 (p = .2787) for percent change in wealth without equity and -.08 (p<.0001) for percent change with equity. These negative coefficients could possibly stem from significantly higher wealth available or from an increase in credit use because of increased financial resources held by many married couples.

Table 8 – *Change in Wealth with Home Equity Interaction (Gender x K6)*

Term	Estimate	Std Error	t Ratio	Prob>|t|
Intercept	0.069953	0.089701	0.78	0.4355***
Race[White]	-0.10091	0.011707	-8.62	<.0001*
Race[Black]	0.100913	0.011707	8.62	<.0001*
Sex[male]	0.098494	0.011628	8.47	<.0001*
Sex[female]	-0.09849	0.011628	-8.47	<.0001*
Education 2019 < High School	0.142578	0.02324	6.14	<.0001*
Education 2019 High School Graduate	0.042759	0.01228	3.48	0.0005*
Education 2019 College Graduate	-0.18127	0.014883	-12.18	<.0001*
Education 2019 Graduate School	-0.00407	0.0161	-0.25	0.8004
K-6	-0.00974	0.002137	-4.56	<.0001*
Age Group[0–24]	-0.63589	0.262448	-2.42	0.0154**
Age Group[25–44]	0.040009	0.092892	0.43	0.6667***
Age Group[45–64]	0.293149	0.088321	3.32	0.0009*
Age Group[65+]	0.302732	0.088894	3.41	0.0007*
Marital Status Married	-0.04876	0.018649	-2.61	0.0089*
Marital Status Single	0.275854	0.022267	12.39	<.0001*
Marital Status Widowed	-0.06251	0.026553	-2.35	0.0186**
Marital Status Divorced	0.198192	0.017086	11.6	<.0001*
Marital Status Separated	-0.36278	0.038355	-9.46	<.0001*
Family Income (previous year)	7.91E07	8.54E-08	9.27	<.0001*
Sex[male]*(K-6-2.57939)	0.005874	0.002085	2.82	0.0048*
Sex[female]*(K-6-2.57939)	-0.00587	0.002085	-2.82	0.0048*

*p-value at <.0001 coded *,p-value between .01 and .05 coded **, p-values of > .05 are coded ***. Intercept is reported at midpoint of all variables.

Table 9 – *Change in Wealth without Home Equity Interaction (Gender x K6)*

Term	Estimate	Std Error	t Ratio	Prob>|t|
Intercept	0.0793996	0.120805	0.66	0.5111***
Race[White]	-0.151712	0.015969	-9.5	<.0001*
Race[Black]	0.1517123	0.015969	9.5	<.0001*
Sex[male]	0.2252701	0.015767	14.29	<.0001*
Sex[female]	-0.22527	0.015767	-14.29	<.0001*
Education 2019 < High School	-0.067648	0.031641	-2.14	0.0325**
Education 2019 High School Graduate	0.0580711	0.016712	3.47	0.0005*
Education 2019 College Graduate	-0.025151	0.02012	-1.25	0.2113***
Education 2019 Graduate School	0.0347277	0.02186	1.59	0.1121***
K-6	-0.014104	0.00291	-4.85	<.0001*
Age Group[0–24]	-0.978184	0.353345	-2.77	0.0056*
Age Group[25–44]	0.1677296	0.125072	1.34	0.1799***
Age Group[45–64]	0.4558238	0.118919	3.83	0.0001*
Age Group[65+]	0.3546305	0.1197	2.96	0.0031*
Marital Status Married	-0.004659	0.025344	-0.18	0.8541***
Marital Status Single	0.2286953	0.03044	7.51	<.0001*
Marital Status Widowed	-0.150646	0.036054	-4.18	<.0001*
Marital Status Divorced	0.2695325	0.023236	11.6	<.0001*
Marital Status Separated	-0.342923	0.052383	-6.55	<.0001*
Family Income (previous year)	5.36E-07	1.15E-07	4.64	<.0001*
Sex[male]*(K-6-2.56132)	0.0313974	0.002843	11.04	<.0001*
Sex[female]*(K-6-2.56132)	-0.031397	0.002843	-11.04	<.0001*

*p-value at <.0001 coded *,p-value between .01 and .05 coded **, p-values of > .05 are coded ***. Intercept is reported at midpoint of all variables.

Discussion

This study expanded upon the work of Bartel and Taubman (1986) as well as other researchers that have examined the relationship between mental illness and finances, explicitly, or implicitly using social drift theory. Bartel and Taubman (1986) found that prior mental illness had a significant effect on labor market participation and income for up to 15 years after diagnosis. Using the Kessler-6 index of psychological distress as our measure of psychological distress, we find that even low levels of psychological distress are associated with negative percent changes in wealth.

By examining psychological distress in pre-retirement years and measuring percent changes in wealth at retirement, we better understand how wealth changes in relation to psychological distress. Our focus on pre-retirement psychological distress is crucial for our understanding of the special retirement planning needs of those nearing retirement and also experiencing psychological distress.

Overall, the estimates for the model percent change in wealth with equity were larger than those in the percent change without equity model. This suggests that wealth without equity is more sensitive to changes than wealth with equity. Non-equity wealth is also generally more liquid than home equity, leading to differences in the way assets are managed. These estimate differences also illustrate the protective nature of home equity, with the illiquid nature of home equity potentially acting as a stabilizer of overall wealth in times of economic change.

Psychological distress coefficients were negative and significant in all models, indicating a negative relationship with percent change in wealth. This study also suggests that there are differences in the changes in wealth by race and gender. Blacks and females have lower overall levels of nominal wealth, and identifying significant interactions between race and psychological distress and gender and psychological distress provides an opportunity for future research to further our understanding the workings of this relationship.

There are several limitations to this study. The retirement indicator in the PSID data set is self-reported and many people may identify as retired but still work in some capacity. Further, the racial and ethnic profiles of respondents were limited to reference persons identifying as Black or White in the first race mentioned. Reference persons identifying as other races and Hispanic of any race were excluded, limiting the generalizability of results. There were many respondents that

did not have interviews in all waves; these missing values may be indicative of selection bias in the sample possibly resulting in selection bias of the results.

The structure of the PSID is also a limitation. In this PSID, the male is typically made the respondent following processes set forth at inception of the study. This limits the identification and tracking of data over time for the spouses of the respondent. Spouses can potentially have a different profile that affects the overall wealth change of the couple, but this information would be masked because of limited information. We also do not dispute other researchers' findings that financial difficulties may influence psychological distress. The scope of this study was to better understand social drift theory, but we know that there may be instances of financial hardship affecting psychological distress in our model.

There are numerous opportunities for future research of this topic. Inclusion of prior mental and physical health information, such as prior diagnosis of a mental health condition, would be helpful to account for the often-recurrent nature of mental illness. Including physical health conditions could also be helpful, as physical health conditions are often comorbid with mental health conditions. Examining marital status changes over time would also be helpful in identifying additional patterns of changes in wealth.

Categorizing the Kessler-6 psychological distress scale into measuring various levels of psychological distress would clarify the differing effects of psychological distress severity. Examination of intra-racial differences is also needed to better understand within race differences at differing income and wealth levels. Finally, a further examination of the timing of psychological distress in relationship to changes in wealth could help pinpoint the effects of length of psychological distress on the overall relationship between psychological distress and changes in wealth.

Policy Implications

There are significant policy and practice implications to these findings. Many Americans do not have adequate retirement savings, and these findings show that experiencing psychological distress in pre-retirement years is associated with negative changes in wealth at retirement. Additionally, the gender and racial wealth differences identified in this study highlight the need for policy and clinical interventions aimed at addressing these specific disparities.

A unique finding of this study is that even at low levels of pre-retirement psychological distress, there was a negative relationship with wealth at retirement for both measures of wealth. Including these findings in education and outreach could be an important way to help Americans understand potential long-term implications of even low levels of psychological distress.

Clinical interventions aimed at increasing access to mental health services, as well as information campaigns to educate Americans on the potential long-term financial implications of psychological distress, are also an important step to addressing the effects of psychological distress on wealth and finances overall. These findings also highlight the need to provide adequate funding for mental health services, as well as mental health practitioner training.

Finally, these findings highlight that the cumulative effect of pre-retirement decisions on our retirement wealth is largely based on our decisions in pre-retirement. Adequate retirement savings help fund expenses such as health care, housing, and food expenses in retirement. Without sufficient resources in retirement, there may be increased reliance on government programs that provide these services, which could further stress already under-resourced programs, making it more difficult for the most vulnerable citizens.

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Appendix A

Kessler 6 psychological distress inventory questions

In the past 30 days, about how often did you feel...

That everything was an effort?

About how often did you feel hopeless?

How often did you feel nervous?

How often did you feel restless or fidgety?

How often did you feel so sad nothing could cheer you up?

How often did you feel worthless?

Kessler 6 psychological distress inventory questions

Response options for each question

1 = All of the time

2 = Most of the time

3 = Some of the time

4 = A little of the time

5 = None of the time, coded as 0 in the sum calculation

All responses are summed, for a possible score of 0–24

Source: PSID 2019

Appendix B

GDP Adjustment Calculation Table

Retirement Year	End Year	Starting GDP	Ending GDP	Percent Change
2007	2007	14215.65	14215.65	0.00%
2007	2008	14215.65	14706.54	3.45%
2007	2009	14215.65	14430.90	1.51%
2007	2010	14215.65	14764.61	3.86%
2007	2011	14215.65	15351.45	7.99%
2007	2012	14215.65	16068.81	13.04%
2007	2013	14215.65	16648.19	17.11%
2007	2014	14215.65	17197.74	20.98%
2007	2015	14215.65	18063.53	27.07%
2007	2016	14215.65	18525.93	30.32%
2007	2017	14215.65	19280.08	35.63%
2007	2018	14215.65	20328.55	43.00%
2007	2019	14215.65	21104.13	48.46%
2008	2008	14706.54	14706.54	0.00%
2008	2009	14706.54	14430.90	-1.87%
2008	2010	14706.54	14764.61	0.39%
2008	2011	14706.54	15351.45	4.39%
2008	2012	14706.54	16068.81	9.26%
2008	2013	14706.54	16648.19	13.20%
2008	2014	14706.54	17197.74	16.94%
2008	2015	14706.54	18063.53	22.83%
2008	2016	14706.54	18525.93	25.97%
2008	2018	14706.54	20328.55	38.23%
2008	2019	14706.54	21104.13	43.50%
2009	2009	14430.90	14430.90	0.00%
2009	2010	14430.90	14764.61	2.31%
2009	2011	14430.90	15351.45	6.38%
2009	2012	14430.90	16068.81	11.35%
2009	2013	14430.90	16648.19	15.36%
2009	2014	14430.90	17197.74	19.17%
2009	2015	14430.90	18063.53	25.17%
2009	2016	14430.90	18525.93	28.38%
2009	2017	14430.90	19280.08	33.60%
2009	2018	14430.90	20328.55	40.87%

Retirement Year	End Year	Start GDP	End GDP	Percent Change
2009	2019	14430.90	21104.13	46.24%
2010	2010	14764.61	14764.61	0.00%
2010	2011	14764.61	15351.45	3.97%
2010	2012	14764.61	16068.81	8.83%
2010	2013	14764.61	16648.19	12.76%
2010	2014	14764.61	17197.74	16.48%
2010	2015	14764.61	18063.53	22.34%
2010	2016	14764.61	18525.93	25.48%
2010	2017	14764.61	19280.08	30.58%
2010	2018	14764.61	20328.55	37.68%
2010	2019	14764.61	21104.13	42.94%
2011	2011	15351.45	15351.45	0.00%
2011	2012	15351.45	16068.81	4.67%
2011	2013	15351.45	16648.19	8.45%
2011	2015	15351.45	18063.53	17.67%
2011	2016	15351.45	18525.93	20.68%
2011	2017	15351.45	19280.08	25.59%
2011	2018	15351.45	20328.55	32.42%
2011	2019	15351.45	21104.13	37.47%
2012	2012	16068.81	16068.81	0.00%
2012	2013	16068.81	16648.19	3.61%
2012	2014	16068.81	17197.74	7.03%
2012	2015	16068.81	18063.53	12.41%
2012	2016	16068.81	18525.93	15.29%
2012	2017	16068.81	19280.08	19.98%
2012	2018	16068.81	20328.55	26.51%
2012	2019	16068.81	21104.13	31.34%
2013	2013	16648.19	16648.19	0.00%
2013	2014	16648.19	17197.74	3.30%
2013	2015	16648.19	18063.53	8.50%
2013	2016	16648.19	18525.93	11.28%
2013	2017	16648.19	19280.08	15.81%
2013	2018	16648.19	20328.55	22.11%
2013	2019	16648.19	21104.13	26.77%
2014	2014	17197.74	17197.74	0.00%
2014	2015	17197.74	18063.53	5.03%
2014	2016	17197.74	18525.93	7.72%
2014	2017	17197.74	19280.08	12.11%
2014	2018	17197.74	20328.55	18.20%
2014	2019	17197.74	21104.13	22.71%

Retirement Year	End Year	Start GDP	End GDP	Percent Change
2015	2015	18063.53	18063.53	0.00%
2015	2016	18063.53	18525.93	2.56%
2015	2017	18063.53	19280.08	6.73%
2015	2018	18063.53	20328.55	12.54%
2015	2019	18063.53	21104.13	16.83%
2016	2016	18525.93	18525.93	0.00%
2016	2017	18525.93	19280.08	4.07%
2016	2018	18525.93	20328.55	9.73%
2016	2019	18525.93	21104.13	13.92%
2017	2017	19280.08	19280.08	0.00%
2017	2018	19280.08	20328.55	5.44%
2017	2019	19280.08	21104.13	9.46%
2018	2018	20328.55	20328.55	0.00%
2018	2019	20328.55	21104.13	3.82%
2019	2019	21104.13	21104.13	0.00%

Source: Authors' Calculations and FRED (St. Louis Federal Reserve)