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OPTIMISM AND RETIREMENT SAVINGS

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1 Abstract

Using a 21-year data set from the Survey of Consumer Finance and life tables from the American Center for Disease Control, this paper constructs a comprehensive data set of optimism and retirement savings. Self-reported life expectancy is compared to actuarial life tables as a measure of health-related optimism, while a direct question on if the economy will perform better in the next five years in the Survey of Consumer Finance provide an economic optimism measurement. African American and Hispanics were found to have a higher percentage of economic optimism than White Americans. African Americans also had higher degrees of health optimism than White Americans. All groups had a minor positive trend over time. As a cohort ages, it both grows more economically optimistic and health-wise more realistic. Self-reported life expectancy was correlated both with accumulating more retirement assets and with more prudent of savings behavior but was neither more correlated with neither a later retirement age nor a shift toward retirement assets within one's wealth.

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2 Introduction

As America ages, questions of savings and wealth accumulation habits become increasingly topical (Treas, 2004). A person's optimism is a critical, though difficult to measure, component of savings levels. Optimism has different dimensions, related to both individual health outcomes and future economic expectations. By using the American Survey of Consumer Finance and actuarial life tables from the Center for Disease Control, trends in both health and economic optimism can be observed from 1995 to 2016. Health optimism is calculated as the difference between the self estimated life expectancy (how long people believe they will live) with the actuarial reported values according to their demographics calculated from life tables. This gap will be used as a proxy for health optimism. Economic optimism is calculated from a question about the future outlook of the economy in the SCF. Different demographic groups and different age sets have differing levels of optimism. This paper will offer a snapshot into what these differences in health and economic optimism are and how they have changed over time. This paper will also identify how optimism has changed within each cohort as it ages. This serves to inform policy makers on potential at risk groups for lower savings and allow for long term planning to prepare for each cohort entering retirement age. Furthermore, should any significant shifts in American's beliefs about their own economic optimism or life expectancy, than policy makers can predict future trends. This paper will identify any differences across different racial or cohort groups and measure the effect of these differences on savings behavior and retirement planning. Understanding optimism is crucial from a policy prospective in address root causes of poor savings behavior. . If certain at risk groups for insufficient savings behaviors are also found to be overly optimistic or pessimistic about either their future health outcomes or the economy, than targeted information

campaigns may be an effective policy measure to change attitudes or beliefs. This paper's analysis will help identify possible racial, educational, and age groups how at risk for poor savings behaviors and some of the underlying thought processes behind those savings decisions.

The Life Cycle Model is the primary channel through which optimism can be expected to influence savings. People smooth consumption over their life cycle. (Modigliani and Brumberg, 1954) Optimism has two, conflicting effects on savings behavior. Health optimists expect to live longer, so have a longer need to have their savings last longer. Economic optimists expect to be wealthier over their life cycle, and thus will consume more today. There is an underlying degree of innate optimism which links the two.

3 Literature Review

The primary inspiration for this paper is Puri and Robinson's *Optimism and economic choice*, 2007. Optimism is found to be positively related with work hours, investment, and savings. Moderate optimists were found to be the most responsible economic decision makers, while extreme optimists displayed irresponsible behavior. Moderate Optimists work longer, invest in stocks more, and save more. The paper calculates optimism by looking at differences between self-reported life expectancy and true life expectancy from actuarial tables. Once this proxy for optimism was found, it was used as an explanatory variable for regression equations on savings, investment, hours worked, and other life choices. This paper uses a similar method, but will hope to capture changes to optimism for different cohort groups overtime. (Puri and Robinson, 2007)

In Puri and Robinson's paper, data from the 1989 to 1995 Survey of Consumer Finance was gathered. Each survey had about 4,000 participants aged 18 to 90.

Households were asked a series of demographic and economic questions. Optimism was measured along both a health and economic dimensions. Self reported life expectancy and predictions of the future of the economy were used as proxies. In previous research, self reported life expectancy was found to be highly correlated with self descriptions of stronger coping mechanism and an optimistic disposition. (Scheier and Carver, 1985) In the sample White people underestimate their life expectancy while males overestimate theirs. Higher levels of education increase optimism, but by a smaller amount than gender and race. Smokers are more pessimistic than is warranted by their smoking-adjusted life expectancy, while those respondents with still-living parents are more optimistic about their life expectancy. Self-reports of past income growth are positively related to optimism. Puri and Robinson found prudent economic behavior, such as increased savings and investment, were most positively correlated with moderate optimists. Both pessimists and extreme optimists were found to exhibit decreased savings in too much risk taking. My paper, by increasing the time span to cover until 2016 and creating pseudo-panels out of cohorts, will capture changes over time, both within and across the different cohorts. This will include both changes optimism over the lifespan of a cohort, as well as changes between cohorts over time.

An explanation of what the social construct of optimism refers to is explained by Charles Carver in *Dispositional optimism* (2014). Carver explores the biological basis for optimism, which he defines as positive expectations of future events. Optimism can be thought of either as an either unipolar or bipolar. Unipolar traits are negative or positive in one direction, while bipolar traits have two extremes with a medium point in the middle. Puri and Robison consider optimism as bipolar, with both extremes negative, while Carver considers it unipolar. Carver's research showed monotonic increases in optimism

been correlated with positive life traits. Optimists were found to have better relationships and health results. They were less likely to have interpersonal conflicts and less likely to smoke. Optimists were found to be more motivated to improve themselves in the future. The paper considered optimism to be a personality trait which should remain stable over one's lifetime, unless a major event took place. It is an innate characteristic. (Carver and Scheier, 2014)

In *Precautionary savings, retirement planning and misperceptions of financial literacy* (2015), Anderson and Baker measured actual financial literacy and self-perceptions about financial literacy among LinkedIn members. A positive correlation was found between precautionary savings, retirement planning, and financial literacy. These correlations, however, were driven by self-perceptions rather than actual financial literacy. Anderson and Baker found widespread financial illiteracy and people generally overestimate their own financial knowledge. Men were more likely than females to overestimate their financial knowledge. People with higher self-confidence of their financial knowledge are more likely to invest in retirement savings plans, even if they lack actual financial knowledge. Savers believe they have the knowledge to save for retirement. People retirement savings plans are thus based more on personal beliefs, than mathematical knowledge. Anderson and Baker further postulate the existence of a positive feedback from savings through the creation of a learning by doing effect. Savers and investors will participate in financial decisions which will both improve their financial literacy and amplify financial self-perceptions, which leads to further investments. Anderson and Baker offer an additional channel through which optimism can impact retirement savings, suggesting a nonlinear relationship between the two. This also points to the importance of slight changes in optimism over different generations having outsized effects on savings rates. (Anderson et al., 2015)

Benartzi and Thaler look at non-economic factors which influence retirement savings in their 2007 study. The authors challenged the notion of people as perfectly rational actors, instead pointing to their limited mental capabilities. People are often passive in their approach to savings, not taking advantage of better plans or maximizing their potential earnings. Rather than following consumption smoothing or the permanent income hypothesis, convenience of following a previous pattern of behavior is followed. The author found the simple switching of the default and opt into plans for retirement had huge switches in employee participation in the plans. This reinforces the importance of optimism in the early years of one's life cycle. Savings habits can become entrenched early, so declines in levels of optimism among younger generations would have lasting effects on savings rates. (Benartzi and Thaler, 2007)

Carol Van Doorm in *A Qualitative Approach to Studying Health Optimism, Realism, and Pessimism* 1999 looks at factors which impact optimism levels among elderly patients with severe injuries. Members of two retirement homes in New Haven, Connecticut were asked a series of questions directly about patient's feelings about their own health and expected health outcomes. This study looked to identify the source of patient optimism and how it manifests itself in different opinions and health outcomes. Previous research found optimists have better health outcomes than pessimists. After establishing the levels of optimism, further questions inquired about different socioeconomic factors related to this optimism. Family connections and the outcome of different peer groups had influence over one's level of optimism. This study found a dual source of optimism, one innate in a person and another particularly shaped through life experiences and the comparison of one family and peers. Van Doorm's work offers insight into the source of any changes in optimism levels both across generations and across one's lifespan over time. Assuming there

were no changes in the innate optimism level of people, than changes in different social interactions over the past quarter of a century could be a source of this change. Doorn (1999) Optimism also directly links to health. Pre-surgery optimist's recovery from coronary artery bypass surgery was compared to pessimists. Pre-surgery optimists recovered to normal activities faster than pessimists. (Scheier et al., 1989)

An important theory for analyzing retirement saving behaviors is the Life Cycle Saving model by Modigliani and Brumberg. (Modigliani and Brumberg, 1954). The Life Cycle Model assumes attempts to smooth consumption and savings will be related to an individual's stage in their own life cycle. The life cycle model assumes households can make rational decisions and can project future patterns of non-investment income and life expectancy. The life cycle model, however, assumes households to be fully informed about their life-cycle wealth and when they will retire. An optimist may assume higher life-cycle wealth, or possibly an earlier retirement than a pessimist.

In *How Do Emotions Influence Savings Behavior?* 2009, Nenkov conducted an experiment by giving or taking away hope from 439 participants by informing them the likelihood of having enough for retirement had either increased or decreased. Hopefulness in this experiment was determined as the probability of having enough money for retirement from 0 to 100. The study found that previously hopeful people responded to the negative suggestions about retirement by savings and investing more, while the more pessimistic people responded by savings less. Hopeful people become more motivated to save when their notion of sufficient savings is threatened, while less hopeful people lose motivation and save even less. (Nenkov et al., 2009) The decision to refuse to join a in voluntary 401k employee provided plan is based on trust employer, rather than financial conditions. (Agnew et al., 2007) This offers further

evidence of underlying attitudes and beliefs in making financial decisions.

Lown examines if the most recent group of retirees have enough savings to last through retirement. His 2008 study of the baby boomer generation finds only half with sufficient savings to last through retirement, with one fourth at risk, and the final fourth risking poverty. The authors explore reasons behind these insufficient savings as a combination of rising healthcare costs and increased levels of debt carrying into retirement age. Single, minority, women were considered to be at the greatest risk of insufficient retirement savings. (Lown, 2008)

In *Do U.S. Households Perceive Their Retirement Preparedness Realistically?* 2015, Kim and Hanna observe the difference between households' subjective and actual adequacy for retirement savings based on the 2010 Survey of Consumer Finance. They found only half of American households between the ages of 18 to 60 had a subjective consistency in their retirement savings. The sample was broken into 4 nearly equal parts. Adequate realists and inadequate realists have accurate beliefs about their savings, correctly having the necessary retirement savings or too little. Inadequate optimists believe their savings are sufficient when they are not, while adequate pessimists believe they lack sufficient savings when they do. Using a logistic regression, the author found workers with a defined benefit plan are less realistic, and that realism decreases with age. Whites are also less likely to have subjective inconsistency. (Kim and Hanna, 2015)

Finally, Congdon and Shankar in 2018 look at behavior economics as a policy tool. This paper offers an example in how to bridge the gap between research and public policy. The paper explains the historical role in behavior economics during the Obama Administration. As behavior economics becomes increasingly used in public policy discussion, the study of the causes and effects of optimism and how it relates to retirement planning becomes more important.

A public policy aiming to increase retirement savings must combine the psychological and economic aspects of how citizens choose to save. (Congdon and Shankar, 2018) The policy applications of optimism are further explored in Rigotti's 2011 paper on optimism and firm formation. Optimists are more likely to become innovative entrepreneurs and work for businesses with ambiguous returns. (Rigotti et al., 2011) Shifting patterns in optimism may lead to a shortage of innovation. Higher levels of optimists dominated early entrance to businesses, however, also explain high failure rates. (Meza and Southey, 1996)

4 Data Source

The data sources for this paper are the Survey of Consumer Finance and the Center for Disease Control Life Tables. The American Survey of Consumer Finance is a triannual survey of American households beginning in 1983. Every three years, the survey randomly samples individuals aged 18 to 95 to capture a snapshot into American household finances. The wide-ranging questions include: demographic statistics, employment status, whether they own their own business, retirement plans, portfolio holdings, and various other financial variables. Alongside these financial questions, the SCF asks questions about the attitudes and beliefs of each household. Beginning in 1995, the SCF asked respondents about their beliefs regarding their self-described outlook of the economy, their self-reported life expectancy, and self-reported attitudes toward risk. As seen in Figure 1 below, this paper will use SCF data starting in 1995 and continuing every 3 years until the most recent survey in 2016. Figure 1 further breaks down each year into the cohorts, by year of birth, who make up the data set. Each cohort can further be broken down by race, education, or family composition.

The SCF uses 4 racial groups, White, Black, Hispanic, and Other. From 1995 to 2016 the White proportion of the survey fell from around 80 percent to 70 percent. The other category is a diverse group of Native Americans, Asians, and multiracial people.

Figure 1: Sample Sizes of a 9-Year Cohort for each Survey Year										
Cohort Number	2	3	4	5	6	7	8	9	10	11
Birth Year	1900-1908	1909-1917	1918-1926	1927-1935	1936-1944	1945-1953	1954-1962	1963-1971	1972-1980	1981-1989
Survey Year	Sample Size									
1995	1191	2254	2960	3450	4289	3813	2772	471	0	0
1998	694	1811	2516	3421	4469	4155	2826	1318	0	0
2001	296	1694	2260	3202	4649	4689	3097	1962	71	0
2004	0	1120	2106	3389	4846	4571	3485	2332	471	0
2007	0	815	1710	3090	4405	4525	3605	2465	1040	0
2010	0	365	2000	3510	6050	6810	5840	4515	2775	80
2013	0	0	1550	3045	5230	6355	5290	4275	3180	585
2016	0	0	1060	2660	5390	6650	5295	4605	3700	1315

Figure 1: Survey of Consumer Finance Cohort Breakdown

SCF Statistics: This shows the sample sizes for each 9-year cohorts from 1995 to 2016. The early cohorts die over time, while new cohorts replace them in later years. Each given year has from 21,000 to 31,000 individuals included, while each cohort in its prime years has from 3,000 to 5000 observations in a given year. The sample size in a given year for the youngest and oldest cohorts is much smaller.

Figure 2: Generations Breakdown				
Birth Years	Before 1942	1942-65	1965-1980	After 1980
Generation	Greatest Generation	Baby Boomers	Generation X	Millennials
Survey Year	Survey Size			
1995	9415	8887	2898	0
1998	7997	9394	3754	65
2001	7016	10209	4363	332
2004	6204	10354	4870	892
2007	5190	9855	5105	1505
2010	5415	13955	8835	3740
2013	4245	12590	7985	4690
2016	3385	13040	8225	6025

Figure 2: Survey of Consumer Finance Generations Breakdown

SCF Statistics: This shows the sample sizes for each of the 4 larger Generational Divisions from 1995 to 2016. Each generation classification is from the United States Census, with the Greatest Generation and the Silent Generation combined. Descriptions of each group are defined in greater detail in during the research mythology section.

5 Research Methodology

The Survey of Consumer Finance is not longitudinal; each year has a new set of households included. To account for this, birth year cohorts are constructed to create a pseudo panel. This captures change in two dimensions, both within a cohort across time, and across cohorts at a fixed age. The cohort of people born from 1965 to 1970, for example, in 1995 is aged 30 to 35 and 51-56 in 2016. Additionally, larger generations will be examined. Based on US census classifications, 4 large generations (see Figure 2) are constructed. The first generation is the "Greatest Generation". The Greatest Generation birth years (1910-1924) in this paper is combined with the Silent Generation(1925-1942). Their life experiences are defined by the Great Depression and World War 2. The next generation is Baby Boomers (1942-1965), which experienced post war prosperity and the rise of suburban culture. Generation X (1965-1980), who experienced social upheaval, civil rights, and the Vietnam War. Finally, Millennials(post 1980) experienced the Internet and the terrorist attacks of September 11th. DeVaney (2015)

Changes to economic and health optimism over this period will be examined, as well as their patterns of wealth accumulation. Are there any trends within this cohort over the last 20 years? How does this group's optimism compare with a different cohort (such as those born from 1980-1985)? Young people today can be compared to young people 20 years ago. These groups can further be broken down into various demographic components (such as education level, race, or family composition). For example, African Americans of one cohort can be compared to White Americans of the same cohort. Trend in the accumulation of retirement assets over the same time span across the same groups, then run linear regressions to determine the relationship between optimism and these variables. Retirement savings is dependent on a host of de-

mographic variables (age,gender,race,education level,family composition, etc.) and the the two relevant optimism factors (life expectancy and economic expectations). Does this relationship changing over time and if it continue holds true for younger generations?

This study was conducted using the triannual American Survey of Consume Finance and actuarial life tables from the American Center of Disease Control. Data sets from the Survey of Consume Finance began in 1983. 2016 was the most recent survey. Self-reported life expectancy was added in 1995, so this study merged together data sets from 1995,1998,2001,2004,2007,2010,2013, and 2016. Life expectancy for each of these years was found using historic life tables from each of those survey years. Each life table includes the actuarial predicted life expectancy form White, African American and (after 2004) Hispanic men and women aged 18 to 80. Life tables can be found at the Center for Disease Control's website: https://www.cdc.gov/nchs/products/life_tables.htm

Table A. Expectation of life by age, race, and sex: United States, 1998

Age	All races			White			Black		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
0	76.7	73.8	79.5	77.3	74.5	80.0	71.3	67.6	74.8
1	76.3	73.4	79.0	76.8	74.0	79.4	71.4	67.7	74.8
5	72.4	69.5	75.1	72.9	70.1	75.5	67.6	63.9	70.9
10	67.4	64.6	70.2	67.9	65.2	70.6	62.6	59.0	66.0
15	62.5	59.7	65.2	63.0	60.2	65.6	57.7	54.1	61.1
20	57.7	55.0	60.3	58.2	55.5	60.8	53.0	49.5	56.2
25	53.0	50.3	55.5	53.4	50.8	55.9	48.4	45.1	51.4
30	48.2	45.7	50.6	48.6	46.1	51.0	43.8	40.6	46.7
35	43.5	41.0	45.8	43.9	41.5	46.2	39.3	36.2	42.0
40	38.8	36.4	41.1	39.2	36.8	41.4	34.9	31.9	37.5
45	34.3	31.9	36.4	34.6	32.3	36.7	30.6	27.7	33.1
50	29.8	27.6	31.8	30.1	27.9	32.0	26.6	23.9	28.8
55	25.5	23.5	27.4	25.7	23.7	27.6	22.8	20.4	24.8
60	21.5	19.6	23.2	21.6	19.7	23.3	19.3	17.1	21.0
65	17.8	16.0	19.2	17.8	16.1	19.3	16.1	14.3	17.4
70	14.3	12.8	15.5	14.4	12.8	15.6	13.0	11.5	14.1
75	11.3	10.0	12.2	11.3	10.0	12.2	10.5	9.2	11.3
80	8.6	7.5	9.2	8.5	7.5	9.1	8.2	7.1	8.7
85	6.3	5.5	6.7	6.3	5.4	6.6	6.3	5.5	6.6
90	4.7	4.1	4.9	4.5	4.0	4.7	4.8	4.3	4.9
95	3.5	3.0	3.6	3.3	2.9	3.4	3.7	3.4	3.7
100	2.6	2.3	2.7	2.4	2.2	2.4	2.8	2.7	2.8

Figure 3: An Example Life Table from 1998 provided by the Center for Disease Control. Life expectancy is provided at a given age and race

6 Preliminary Data Analysis:

Optimism is divided into two categories. Economic optimism is obtained from a Survey of Consumer Finance question on how well the respondent expects the economy to do over the next 5 years compared to the last 5 years. Answers range from 1 (worse), 2 (about the same), or 3 (better). Health optimism is calculated from the above mentioned method of the difference

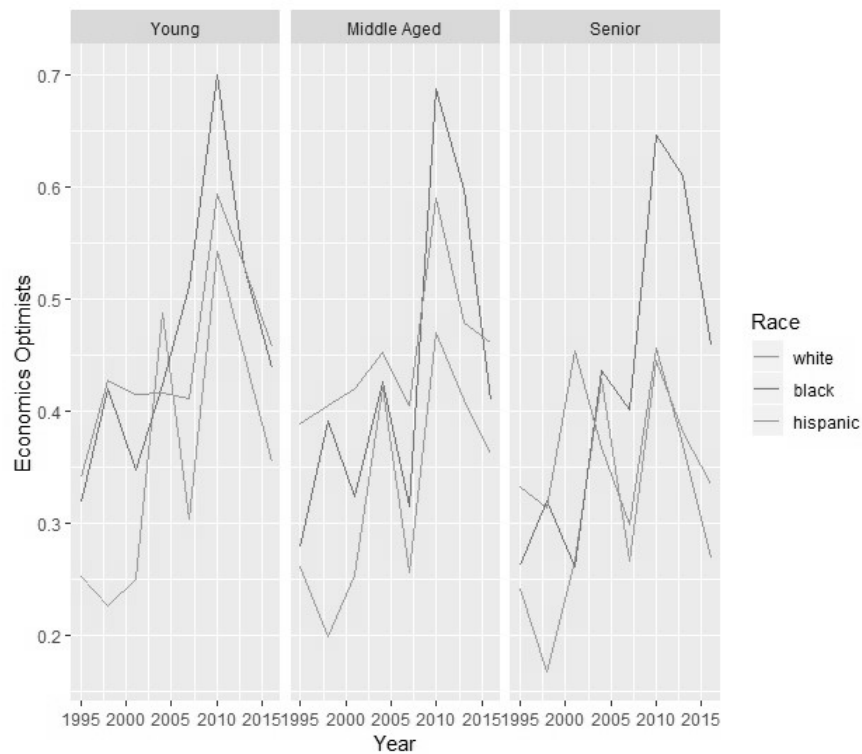


Figure 4: Changes to Economic Expectations for 3 different age groups. Young (18-42), Middle Aged (43-64) and Senior (65 and Above). African Americans have the greatest percentage of optimists in all age groups.

Figure 4 shows changes in the percentage of people in each age set from 1995 to 2016 who believe the economy will perform better. Economic optimism is higher for African American and Hispanic American compared to

White Americans. There is a minor positive trend over time for most age groups, suggesting a greater percentage in each age group feels the economy will perform better in the next 5 years.

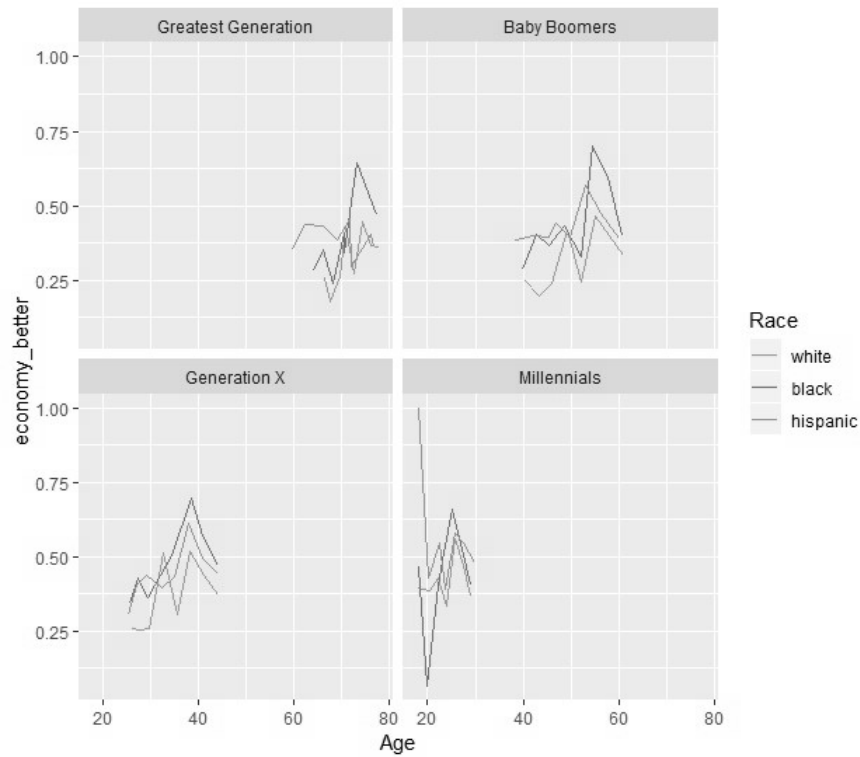


Figure 5: Changes to Economic Expectations by Cohort over Time

Figure 5 represent four different generations over their lifespan. This graph reveals economic attitudes of each generation as they age. Within cohorts, African Americans have the greatest proportion of people believing the economy will improve over the next 5 years. Across all races, within each cohort the proportion of people believing the economy will improve increases as the cohort ages.

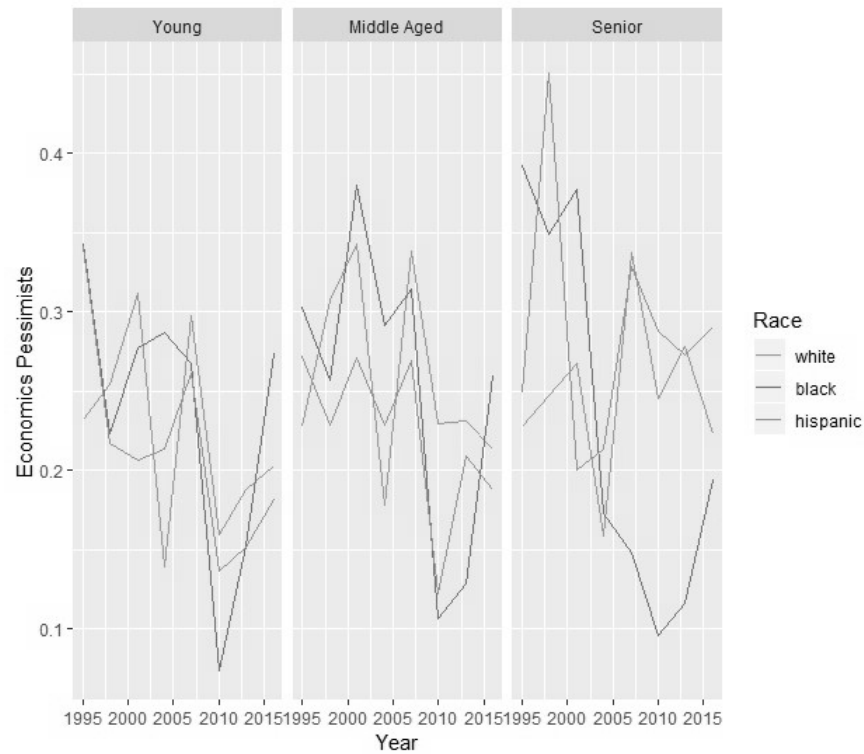


Figure 6: Changes to Economic Pessimists for Age Groups overtime

Figure 6 shows the trends of economic pessimists (people who believe the economy will perform worse in the next 5 years) for each race and age group over time. There is a small negative trend over time, suggesting people in each age group today have a small proportion of people who believe the economy will do worse over time. There is a weak link between racial groups and economic pessimism; all groups have similar numbers of economic pessimists.

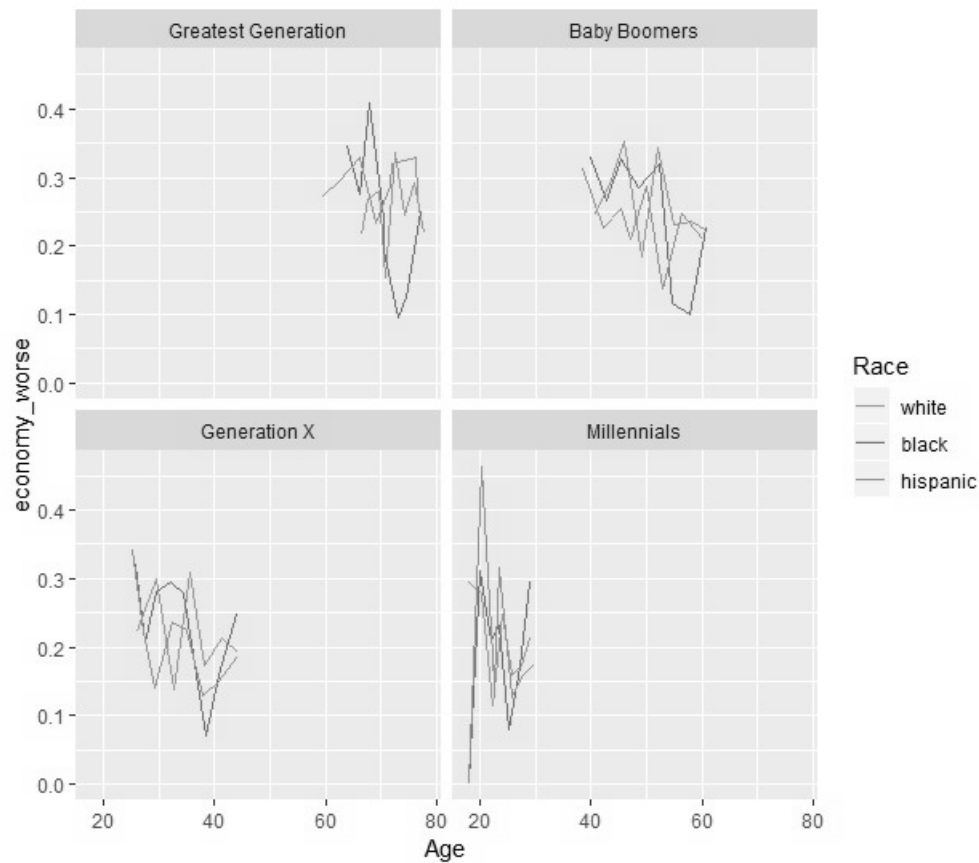


Figure 7: Changes to Economic Confidence for Cohorts overtime

Likewise, Figure 7 shows the proportion of people who are economic pessimists shows a slight decline over their lifetime, although the data is very noisy. Once again, there does not seem to be any strong correlation with race. Optimism is alternatively explored through compared self-reported life expectancy (how long the respondent expects too live) compared to Actuarial Life Tables provided by the Center for Disease Control. Starting in 1995, CDC life tables break down life expectancy by race and age. Figure 6 shows the change in life expectancy over the past across different races and age groups. Hispanics have the highest life expectancy, while African Americans have the

lowest. These findings are supported by The Hispanic Epidemiologic Paradox findings by K.S. Markides. Hispanics, despite have lower socioeconomic status than Whites have persistently higher health outcomes (Nenkov et al., 2009). For all racial groups, life expectancy over the past 20 years has increased on average by 2 or 3 years, on average.

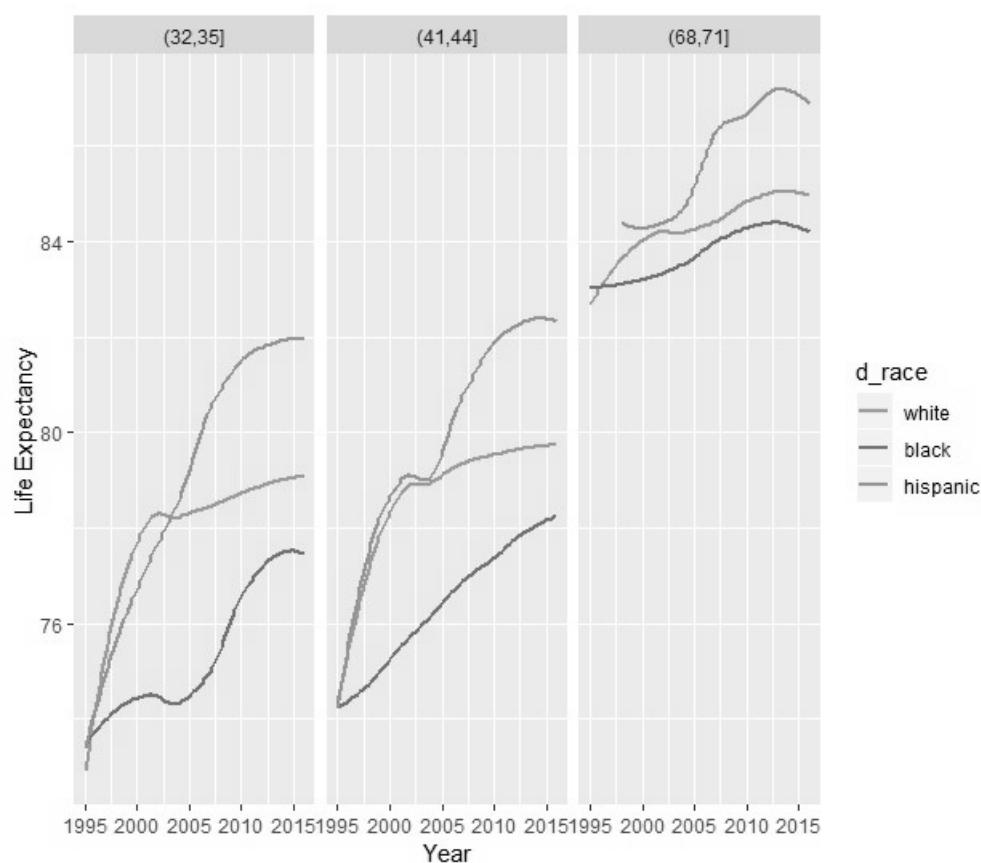


Figure 8: Changes to Life Expectancy for 3-year age groups overtime. Life Expectancy increased , on average,between 2 to 3 years for each age group.

Figure 9 shows a mirror increase in self-reported life expectancy, suggesting people across all ages have generally followed the increase in medical advancements. All racial groups have received similar increases in their self-reported

life expectancy, as across all demographic groups people expect to live about two or three years longer. African Americans expect to live longer than Whites or Hispanic Americans. This hold true across all age groups, despite having a lower actual level of life expectancy.

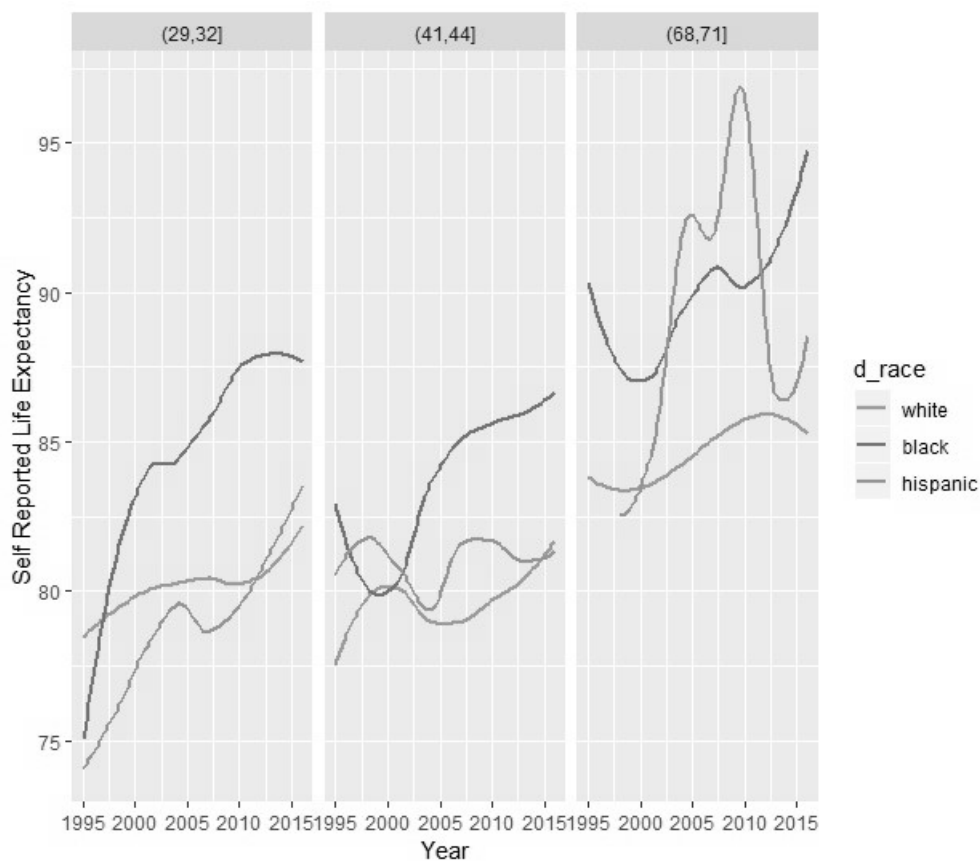


Figure 9: Changes to Self-Reported Life Expectancy for 3-year age groups over-time

By comparing the actual life expectancy to the survey respondent, health optimism can be calculated. The method follows the research of M. Puri and D.T Robinson in Optimism and Economic choice. $\text{Health Optimism} = \text{Personal Expectations}() - \text{Life Table Life Expectations}()$ Each racial and age group's health

optimism is shown on Figure 6. African Americans, despite having the lowest actual life expectancy have the highest levels of health optimism. The trends across the different age groups is mostly flat, so there does not appear to be any increase in health optimism from 1995 to 2016. On average, people expect to live about two and a half years longer than their typical, demographic peers.

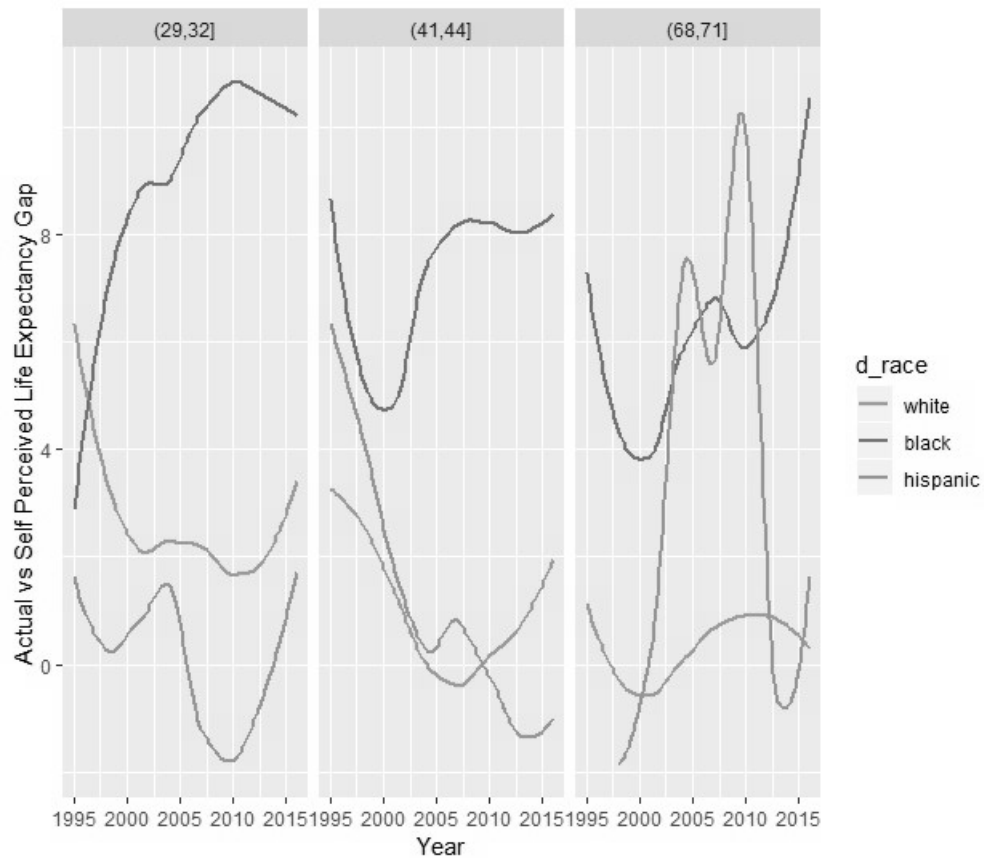


Figure 10: Changes to Self-Reported Life Expectancy Gap for Age Groups

Figure 11 reveals health optimism over the the lifespan of 4 different generations. Not surprisingly, there is a slight negative trend over each cohort's life span, suggesting each cohort becomes slightly more realistic about their health outcomes over time. A 20 year old has much more uncertainty when estimating his life expectancy than a 70 year old. The data is fairly noisy. Toward the very end of one life, health optimism begins to increase again, suggesting that among very old people, or survivors of a cohort, have high health optimism levels.

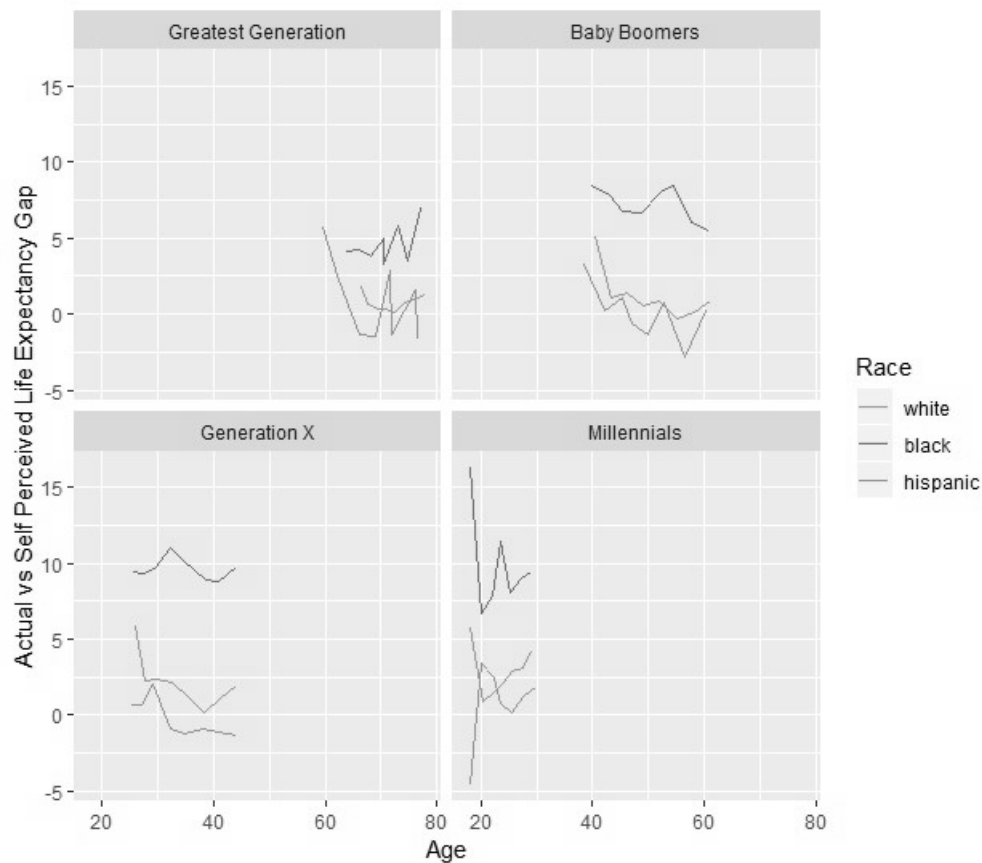


Figure 11: Changes to Self-Reported Life Expectancy Gap for Cohorts overtime

7 Wealth

Figure 12 reveals significant race gap between Whites compared to African Americans. Wealth is defined in this case as the self reported sum of all home equity, retirement assets, non-retirement assets, financial assets, and business assets. For both members of the Baby Boomer and Generation X, this wealth gap grows through out one life cycle.

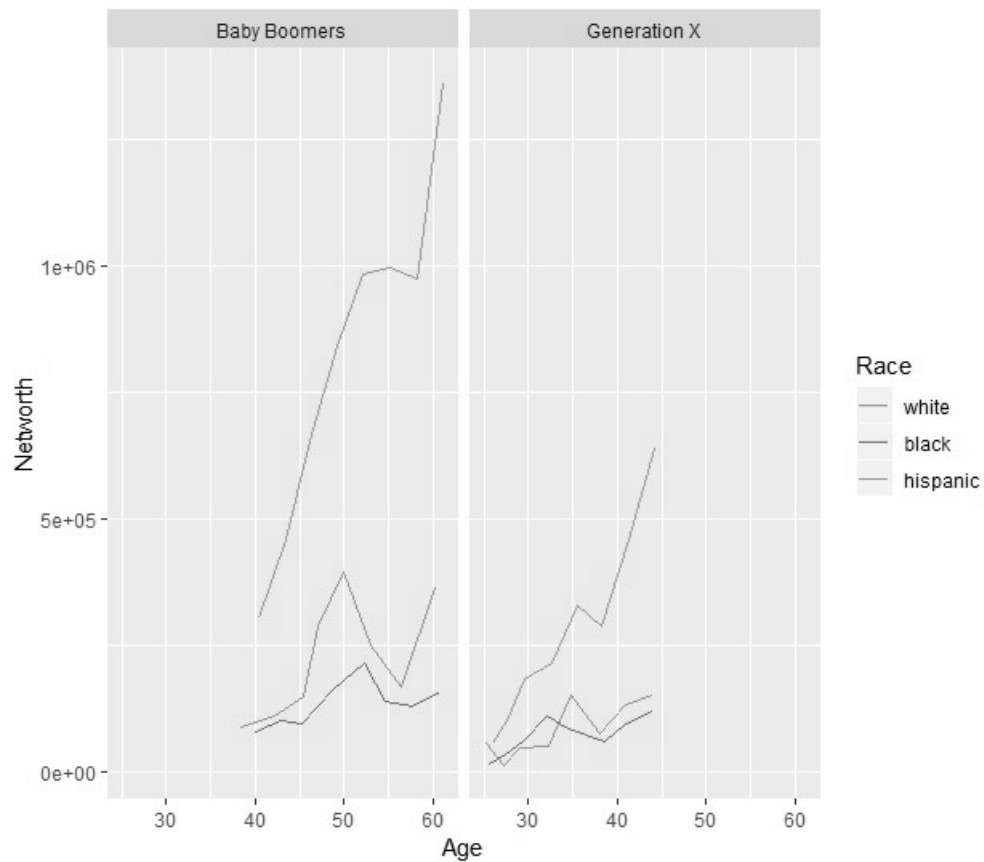


Figure 12: Changes to Self-Reported Life Expectancy Gap for Cohorts overtime

8 Methods

This study observes the impact of both Health Optimism and Economic Optimists on retirement asset accumulation and wealth management behaviors. First, what is the link between optimism related to personal health and optimism related to the economy? Health Optimism is as the as the difference between self described and actual life expectancy The Health Optimism Gap of a given individual at a given year, t , is given by the following linear regression. The generation variable captures all birth year effects. The four generations were described earlier as the Greatest Generation (baseline), Baby Boomers, Generation X, and Millenials.

$$\text{Health Optimism}_{i,t} = \alpha + \beta_1 \text{Economic Optimism}_{i,t} + \beta_2 \text{Race}_t + \beta_3 \text{Age}_t + \beta_4 \text{Generation}_t + \beta_5 \text{Health Status}_t + \beta_6 \text{Education}_t + \beta_7 \text{Year}_t + \epsilon$$

A similar multinomial logit regression is used to estimate economic optimism. A more general multinomial logit model is preferred to an ordered logic model because of the nonmonotonic effects optimism has. The baseline, of people believing in the same economy in the next 5 years is used. An optimist or pessimist of an individual time t , is given by the following regression.

$$\text{Economic Optimism}_{i,t} = \alpha + \beta_1 \text{Health Optimism}_t + \beta_2 \text{Race}_t + \beta_3 \text{Age}_t + \beta_4 \text{Generation}_t + \beta_5 \text{Health Status}_t + \beta_6 \text{Education}_t + \beta_7 \text{Year}_t + \epsilon$$

Additionally, do people who expect to live longer also expect to retire later? Do they save more for retirement or keep a greater percentage of their wealth in retirement planning? Optimists may choose to shift some of their wealth away from more liquid assets and into retirement plans. Once retired, have optimists saved enough to cover their day to day expenses? Do optimists exhibit more financially prudent savings behaviour or long term planning behaviors? Have any of these trends shifted over the past 20 years?

9 Regression Results

There is a positive correlation between belief in the economy improving in the future and increased health optimism (Table 1 on the following page). Compared to a belief in no change in future economic output, people believe the economy will improve in the next five years also predict they will live a year longer compared the actuarial predicted values. Likewise, people who believe the economy will perform worse expect to live about 2 months less compared to people who are economic neutrals. African Americans expect to live longer than White Americans, while Hispanics do not expect to live as long, compared to their actuarial life expectancy. Younger Generations do not statistically differ in their health optimism compared to the Greatest Generation. Younger people, however, are more likely to be Health Pessimistic . Additional demographic and cohort level dummies were ran but not shown. Regressions with narrower cohorts of 3,6, and 9 years are provided in the appendix.

Table 1: OLS Regression on Health Optimism

	<i>Dependent variable:</i>
	Health Optimism
Economy Better	1.171*** (0.057)
Economy Worse	−0.176*** (0.063)
Black	7.755*** (0.074)
Hispanic	−0.357*** (0.089)
Other	−0.406*** (0.124)
Year	−0.082*** (0.006)
Age	−0.218*** (0.013)
Baby Boomers	0.083 (0.113)
Generation X	−0.025 (0.174)
Millennials	0.424* (0.242)
Health Good	−4.418*** (0.059)
Some college	0.822*** (0.086)
Observations	200,435
R ²	0.169
Adjusted R ²	0.169
Residual Std. Error	719.345 (df = 200409)
F Statistic	1,628.357*** (df = 25; 200409)
Note:	* p<0.1; ** p<0.05; *** p<0.01

A Multinomial Logit Regression was conducted to examine the impact health optimism on economic optimism (Table 2). The baseline group is people who believe the economy will remain the same in the next 5 years. A more general multinomial logit model is preferred over an ordered logit model because proportional odds do not hold. As found by (Puri and Robinson 2007) health optimism does not have a monotonic effect on economic optimism. Factors have drive people to be more extreme in either direction. African Americans are more likely to be both economic pessimists and economic optimists. A one year increase in self reported life expectancy compared to increases the log odds of believing the economy will improve by 0.01, while decreasing belief in the economy performing worse by the log odds of 0.007. The log odds of being in a believe in a good economy will increase by 0.489 for African Americans compared to White Americans. Millenials and Generation Xers are both more likely to be pessimists and optimists compared to the Greatest Generation, while baby boomers are more likely to be pessimists. As people age, they become more economically neutral.

Table 3's OLS regression captures the effects of health economic optimism on the age at which people plan to retire. An increase in self-reported life expectancy by one year will only correspond to a 0.026-year increase in planned retirement age. People who believe the economy will improve in the next 5 years plan to retire sooner, while people who believe the economy will perform worse plan to retire later (this impact is not statistically significant). This suggests people expect to be wealthier in the future, and thus plan to substitute labor for leisure. African Americans and Hispanics plan to retire sooner than White Americans, while younger cohorts plan to work longer than older cohorts.

Table 2: A Multinomial Logistic Regression On Economic Optimism

	<i>Dependent variable:</i>	
	Economy Worse (1)	Economy Better (2)
Health Optimism	−0.007*** (0.000)	0.010*** (0.000)
Black	0.288*** (0.000)	0.489*** (0.000)
Hispanic	0.032*** (0.000)	0.406*** (0.000)
Other	−0.091*** (0.000)	0.439*** (0.000)
Year	0.004*** (0.000)	0.039*** (0.000)
Age	−0.013*** (0.000)	−0.006*** (0.000)
Baby Boomers	0.028*** (0.000)	−0.061*** (0.000)
Generation X	−0.175*** (0.000)	−0.007*** (0.000)
Millennials	−0.310*** (0.000)	−0.102*** (0.000)
Constant	−7.850*** (0.000)	−78.673*** (0.000)
Akaike Inf. Crit.	423,610.900	423,610.900

Note: *p<0.1; **p<0.05; ***p<0.01

Table 3: OLS for Retirement Age

	<i>Dependent variable:</i>
	Age of Retirement
Health Optimism	0.026*** (0.002)
Economy Better	−0.141*** (0.046)
Economy Worse	0.051 (0.053)
Black	−1.982*** (0.062)
Hispanic	−1.094*** (0.069)
Other	−1.128*** (0.096)
Year	0.127*** (0.005)
Age	−0.058*** (0.014)
Baby Boomers	−0.855*** (0.108)
Generation X	−0.623*** (0.157)
Millennials	−0.560*** (0.211)
Constant	−195.283*** (9.605)
Observations	107,634
R ²	0.160
Adjusted R ²	0.160
Residual Std. Error	429.145 (df = 107620)
F Statistic	1,577.069*** (df = 13; 107620)
Note:	* p<0.1; ** p<0.05; *** p<0.01

Table 4, on the following page, shows a multinomial logit regression on savings behavior. The Baseline for these groups is savings without a plan. Health optimists have 0.01 increased log odds for each additional year of self-reported life expectancy compared to their cohort of having regular saving habits. They have decreased log odds of 0.017 of being nonsavers. African Americans and Hispanics are much more likely being nonsavers compared to White Americans. People who believe the economy will perform worse are less likely to be savers, while economic optimists are more likely to have increased probability of being a saver. Younger Generations are more likely to be nonsavers compared to the Greatest generation, but also more likely to save with a plan. There does not appear to be a clear trend over time.

Table 5 shows the regression results of a multinomial logit model on the adequacy of savings behaviors, with adequate savings as the baseline. The log odds of having either totally satisfactory or very satisfactory savings to cover basic needs is increased by 0.008 and 0.018 for each additional year a person believes they will live more than their peers. Unsurprisingly, economic optimists are more than pessimists to have enough retirement assets to cover basic needs compared. African Americans and younger generations compared to White Americans and older generations, are also less to either have more or less retirement funds than necessary to maintain the same living standards. Rather than suggesting adequacy, however, this may simply show thought over what constitutes adequacy of funds. People holding a satisfactory amount retirement funds have also increased over time.

Table 6 shows the regression results of a multinomial logit model of the time horizons individuals use to make budget planning decisions. The baseline is one year. People who expect to live longer also plan longer. Economic Optimists are both more likely to use short term and long term horizons, while

economic pessimists plan for the short term. African Americans, Hispanics, and Millennials are more likely to use only use the next few months for their planning time horizon. The time variable is also negative for the long term horizons, suggesting people today use short timeframes in planning.

Table 4: Savings Behaviour

	<i>Dependent variable:</i>			
	Nonsaver, Spend Equal (1)	Nonsaver, Spend More (2)	Save Alternative Income (3)	Save Regularly (4)
Health Optimism	−0.017*** (0.001)	−0.016*** (0.001)	0.012*** (0.001)	0.011*** (0.0005)
Economy Better	−0.062*** (0.002)	0.037*** (0.0004)	0.030*** (0.001)	0.049*** (0.006)
Economy Worse	0.210*** (0.002)	0.447*** (0.0004)	−0.081*** (0.001)	−0.063*** (0.004)
Black	0.374*** (0.0001)	0.807*** (0.00003)	−0.665*** (0.00003)	−0.189*** (0.0003)
Hispanic	0.305*** (0.0002)	0.474*** (0.00003)	−0.359*** (0.00003)	−0.278*** (0.0003)
Other	−0.089*** (0.0001)	−0.137*** (0.00001)	−0.016*** (0.00003)	−0.169*** (0.0002)
Year	0.008*** (0.00003)	−0.0004*** (0.00005)	−0.007*** (0.00005)	0.008*** (0.00003)
Age	−0.006** (0.003)	−0.013*** (0.004)	0.067*** (0.004)	0.074*** (0.002)
Baby Boomers	0.202*** (0.002)	0.159*** (0.001)	−0.066*** (0.001)	0.232*** (0.006)
Generation X	0.353*** (0.002)	0.062*** (0.0004)	−0.193*** (0.001)	0.171*** (0.005)
Millennials	0.087*** (0.001)	−0.412*** (0.0002)	−0.245*** (0.0002)	0.212*** (0.001)
Constant	−16.568*** (0.00000)	−0.711*** (0.00000)	10.960*** (0.00000)	−17.443*** (0.00001)
Akaike Inf. Crit.	530,999.800	530,999.800	530,999.800	530,999.800

Note:

*p<0.1; **p<0.05; ***p<0.01

Table 5: Savings Adequacy:Baseline ADEQUATE Savings

	<i>Dependent variable:</i>			
	TOTALLY INADEQUATE	INADEQUATE	SATISFACTORY	VERY SATISFACTORY
	(1)	(2)	(3)	(4)
Health Optimism	−0.002*** (0.001)	−0.001 (0.001)	0.008*** (0.001)	0.018*** (0.001)
Economy Better	−0.016*** (0.006)	−0.001 (0.003)	0.057*** (0.001)	0.152*** (0.001)
Economy Worse	0.510*** (0.005)	0.173*** (0.002)	−0.120*** (0.001)	−0.010*** (0.001)
Black	−0.172*** (0.0002)	−0.397*** (0.0001)	−0.405*** (0.00003)	−0.404*** (0.00003)
Hispanic	−0.053*** (0.0003)	−0.345*** (0.0002)	−0.464*** (0.00004)	−0.262*** (0.00004)
Other	−0.163*** (0.0001)	−0.174*** (0.0001)	−0.228*** (0.00002)	−0.013*** (0.00002)
Baby Boomers	−0.056*** (0.006)	0.050*** (0.003)	0.009*** (0.001)	−0.148*** (0.001)
Generation X	−0.073*** (0.005)	0.009*** (0.003)	−0.195*** (0.001)	−0.248*** (0.001)
Millennials	−0.114*** (0.001)	−0.131*** (0.001)	−0.383*** (0.0003)	−0.194*** (0.0002)
Year	−0.018*** (0.00003)	−0.002*** (0.00003)	0.043*** (0.00004)	0.033*** (0.00004)
Age	0.028*** (0.002)	0.017*** (0.003)	0.007*** (0.003)	0.011*** (0.003)
Constant	36.535*** (0.00001)	4.153*** (0.00000)	−87.500*** (0.00000)	−68.438*** (0.00000)
Akaike Inf. Crit.	588,861.600	588,861.600	588,861.600	588,861.600

Note:

*p<0.1; **p<0.05; ***p<0.01

Table 6: Planning Time Horizon: Baseline One Year

	<i>Dependent variable:</i>			
	Next Few Months	Next Few Years	Next Five to Ten Years	Longer than 10 Years
	(1)	(2)	(3)	(4)
Health Optimism	−0.007*** (0.001)	0.003*** (0.001)	0.011*** (0.001)	0.025*** (0.001)
Economy Better	0.028*** (0.004)	0.041*** (0.006)	0.019*** (0.006)	0.004 (0.002)
Economy Worse	0.221*** (0.003)	0.015*** (0.004)	−0.100*** (0.004)	−0.052*** (0.002)
Black	0.289*** (0.0002)	−0.398*** (0.0002)	−0.747*** (0.0002)	−1.500*** (0.00005)
Hispanic	0.157*** (0.0003)	−0.404*** (0.0003)	−0.788*** (0.0002)	−1.349*** (0.00004)
Other	0.089*** (0.0001)	0.129*** (0.0002)	0.082*** (0.0002)	−0.152*** (0.0001)
Baby Boomers	0.186*** (0.001)	0.090*** (0.005)	0.041*** (0.005)	0.075*** (0.001)
Generation X	0.165*** (0.001)	−0.004 (0.004)	−0.222*** (0.004)	−0.220*** (0.0004)
Millennials	0.170*** (0.0004)	0.102*** (0.001)	−0.134*** (0.001)	−0.415*** (0.0002)
Year	0.013*** (0.00003)	0.006*** (0.00003)	−0.014*** (0.00004)	−0.001*** (0.00004)
Age	0.002 (0.003)	0.028*** (0.003)	0.131*** (0.003)	0.145*** (0.003)
Constant	−26.424*** (0.00000)	−13.113*** (0.00001)	25.441*** (0.00001)	−0.491*** (0.00000)
Akaike Inf. Crit.	611,415.400	611,415.400	611,415.400	611,415.400

Note:

*p<0.1; **p<0.05; ***p<0.01

The following table 7, column 1 regression tests if people who expect to live longer have a greater percentage of their wealth in retirement assets. There does not appear to be a statistically significant relationship between life expectancy and distribution of retirement assets. The values for economic optimism do not appear to be economically significant.

Finally, when looking at total number of retirement assets in table 7 column 2, each additional increase in self reported life expectancy compared to one's cohort group is associated with a small increase in retirement assets. People who believe the economy will perform better hold fewer retirement assets compared to people who believe the economy will perform the same. Economic pessimists also hold over fewer retirement assets. African Americans and Hispanic hold substantially fewer retirement assets than White Americans. People who plan to retire sooner also hold more assets, consistent with their necessary savings plans.

All regression provided in these sections have an endogeneity problem, as both health optimism and economic optimism are linked by the more general dispositional optimism. Possible instruments, within the Survey of Consumer Finance, however, are all highly correlated with either Economic or Health Optimism. The nature of the survey makes finding a strong intramental variable not feasible. There is bias in each estimate, but the general relationships between optimism and saving behavior hold.

Table 7:

	<i>Dependent variable:</i>	
	Retirement Assets as a Percentage Of Networth	log(Retirement Assets)
	(1)	(2)
Health Optimism	−0.00003 (0.0001)	0.003*** (0.0004)
log(networth)		0.716*** (0.003)
Economy Better	−0.009*** (0.002)	−0.033*** (0.011)
Economy Worse	−0.010*** (0.002)	−0.081*** (0.013)
Retire Age	−0.0003* (0.0002)	−0.009*** (0.001)
Black	0.042*** (0.003)	−0.074*** (0.017)
Hispanic	−0.014*** (0.004)	−0.285*** (0.020)
Baby Boomers	0.017*** (0.005)	0.096*** (0.024)
Generation X	0.015** (0.007)	0.088** (0.035)
Millennials	−0.004 (0.010)	0.003 (0.049)
College +	0.044*** (0.005)	
Year	0.005*** (0.0002)	0.029*** (0.001)
Age	0.009*** (0.001)	0.094*** (0.004)
Constant	−9.997*** (0.438)	−58.410*** (2.235)
Observations	70,979	73,280
R ²	0.031	0.531
Adjusted R ²	0.031	0.531
Residual Std. Error	15.188 (df = 70957)	79.185 (df = 73265)
F Statistic	109.758*** (df = 21; 70957)	5,922.384*** (df = 14; 73265)

Note:

*p<0.1; **p<0.05; ***p<0.01

10 Conclusion

This paper finds strong racial dynamics in predicting optimism levels for both health and economics. African American have significantly higher levels of optimism compared to White Americans despite having worse outcomes. Hispanics also have higher levels of economic optimism, but lower levels of health optimism (despite actually have superior health outcomes compared to white Americans). There is a weak trend away from higher levels of economic optimism both over time and within the aging of one cohort. This trend does not exist, however, in health optimism. People's self reported life expectancy has increased at the same level as the actual life expectancy increase over the past 20 years.

Self reported life expectancy was correlated with accumulating more retirement assets and with higher amounts of savings behavior but was not more correlated with neither a later retirement age nor a shift toward retirement assets within one's wealth. African Americans and Latinos have a significantly smaller proportion of savers and use short time horizons to budget.

This paper supports the previous findings of Puri and Robinson (2007) which of optimism being positively related to prudent savings and financial behaviors. Economic optimist are more likely to be regular savers and more likely to have longer time horizons for planning decisions. Optimists are also over represented as short term planners, which supports the "too much of a good thing" findings by Puri and Robinson. Optimism is fairly consistent across each cohort's life span, supporting previous literature in psychology which described optimism as an innate characteristic.

11 Bibliography

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12 Appendix

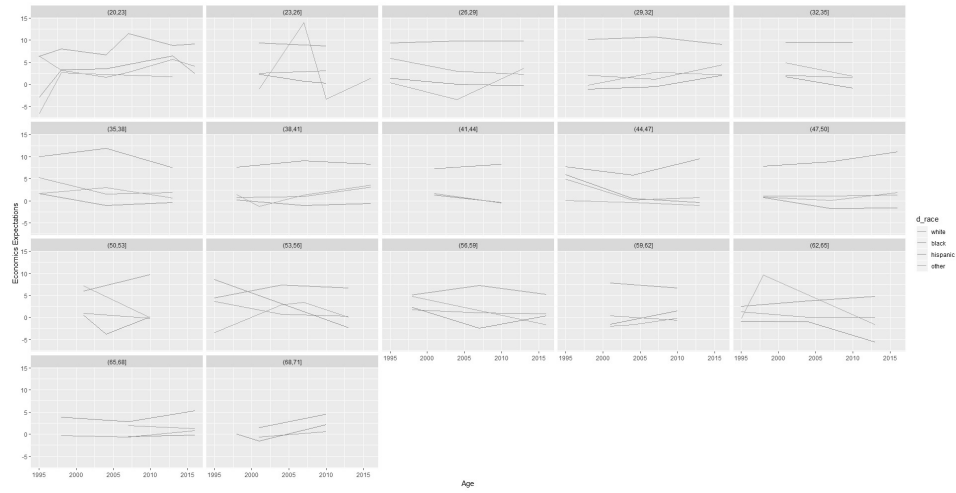


Figure 13: Changes to Self Described Life Expectations by Age Group over Time

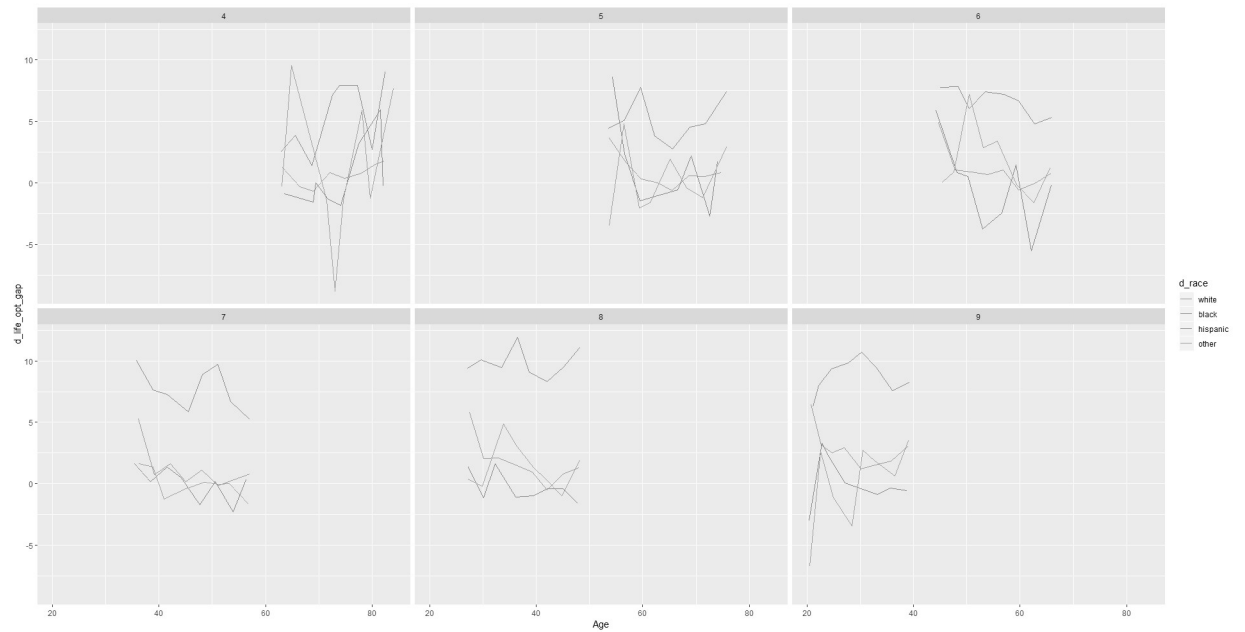


Figure 14: Changes to Economic Expectations by Cohort over Time

Table 8: 3,6,9 Birth Year Cohorts

	<i>Dependent variable:</i>		
	Health Optimism		
	(3-year)	(6-year)	(9-year)
Economy Better	1.167*** (0.057)	1.170*** (0.057)	1.170*** (0.057)
Economy Worse	-0.178*** (0.063)	-0.176*** (0.063)	-0.175*** (0.063)
Black	7.758*** (0.074)	7.758*** (0.074)	7.751*** (0.074)
Hispanic	-0.359*** (0.089)	-0.360*** (0.089)	-0.362*** (0.089)
Other	-0.407*** (0.124)	-0.409*** (0.124)	-0.414*** (0.124)
Year	-0.067** (0.030)	-0.077*** (0.015)	-0.096*** (0.010)
Age	-0.234*** (0.033)	-0.225*** (0.020)	-0.197*** (0.016)
Smoker	2.938*** (0.056)	2.940*** (0.056)	2.936*** (0.056)
Health Good	-4.415*** (0.059)	-4.416*** (0.059)	-4.416*** (0.059)
Health Poor	-13.721*** (0.116)	-13.720*** (0.116)	-13.717*** (0.116)
Some college	0.820*** (0.086)	0.825*** (0.086)	0.820*** (0.086)
Constant	142.578** (57.493)	162.763*** (28.500)	199.603*** (20.292)
Observations	200,435	200,435	200,435
R ²	0.169	0.169	0.169
Adjusted R ²	0.169	0.169	0.169
Residual Std. Error	719.176 (df = 200383)	719.221 (df = 200397)	719.349 (df = 200403)
F Statistic	800.949*** (df = 51; 200383)	1,102.829*** (df = 37; 200397)	1,313.316*** (df = 31; 200403)
<i>Note:</i>			*p<0.1; **p<0.05; ***p<0.01

Table 9: Ordered Logistic Model

	<i>Dependent variable:</i>
	Economic Optimists
Health Optimism	0.008*** (0.0004)
Black	0.398*** (0.014)
Hispanic	0.341*** (0.016)
Other	0.378*** (0.021)
Year	0.031*** (0.001)
Age	−0.003 (0.002)
Baby Boomers	−0.045** (0.018)
Generation X	0.006 (0.029)
Millennials	−0.058 (0.042)
Networth	0.000*** (0.000)
Observations	200,435
Log Likelihood	−212,585.100
<i>Note:</i>	*p<0.1; **p<0.05; ***p<0.01

Table 10: The Economic Optimism with 6 year Birth Cohorts

	<i>Dependent variable:</i>	
	Economy Pessimists	Economy Optimists
	(1)	(2)
Health Optimism Gap	−0.007*** (0.001)	0.010*** (0.0004)
Black	0.285*** (0.00001)	0.487*** (0.00001)
Hispanic	0.023*** (0.00001)	0.408*** (0.00001)
Other	−0.100*** (0.00000)	0.441*** (0.00000)
Year	−0.001*** (0.00003)	0.038*** (0.00002)
Age	0.010*** (0.002)	−0.007*** (0.002)
Birthyear 1919-1925	−0.019*** (0.000)	0.011*** (0.000)
Birthyear 1926-1932	−0.001*** (0.000)	−0.318*** (0.000)
Constant	0.925*** (0.00000)	−76.715*** (0.000)
Akaike Inf. Crit.	423,793.300	423,793.300
<i>Note:</i> *p<0.1; **p<0.05; ***p<0.01		

Table 11: OLS with Retirement Age 6-year Cohorts

	<i>Dependent variable:</i>
	Retirement Age
Health Optimism Gap	0.026*** (0.002)
Economy Better	−0.134*** (0.046)
Economy Worse	0.061 (0.053)
Black	−1.998*** (0.062)
Hispanic	−1.114*** (0.069)
Other	−1.150*** (0.096)
Year	0.127*** (0.012)
Age	0.022 (0.019)
Birthyear 1919-1925	0.022 (0.087)
Birthyear 1926-1932	0.186** (0.081)
Observations	107,634
R ²	0.165
Adjusted R ²	0.165
Residual Std. Error	427.807 (df = 107609)
F Statistic	888.156*** (df = 24; 107609)
<i>Note:</i>	* p<0.1; ** p<0.05; *** p<0.01

Table 12:

	<i>Dependent variable:</i>			
	TOTALLY INADEQUATE	INADEQUATE	SATISFACTORY	VERY SATISFACTORY
	(1)	(2)	(3)	(4)
Health Optimism Gap	0.008*** (0.001)	0.002* (0.001)	0.009*** (0.001)	0.021*** (0.001)
Economy Better	0.052*** (0.009)	0.120*** (0.010)	0.047*** (0.003)	0.122*** (0.007)
Economy Worse	0.490*** (0.007)	0.242*** (0.007)	-0.102*** (0.002)	0.033*** (0.004)
Black	-0.495*** (0.0001)	-0.657*** (0.0001)	-0.244*** (0.0001)	-0.431*** (0.0001)
Hispanic	-0.390*** (0.0001)	-0.413*** (0.0001)	-0.312*** (0.00004)	-0.209*** (0.0001)
Other	-0.075*** (0.0002)	-0.119*** (0.0002)	-0.142*** (0.0001)	0.052*** (0.0001)
Year	-0.033*** (0.0001)	-0.008*** (0.0001)	0.039*** (0.0001)	0.030*** (0.0001)
Age	0.039*** (0.004)	0.047*** (0.005)	0.003 (0.005)	-0.006 (0.005)
Age Squared	-0.0005*** (0.00004)	-0.001*** (0.00005)	0.00000 (0.00005)	0.0003*** (0.00004)
Constant	65.792*** (0.00001)	15.344*** (0.00001)	-79.584*** (0.00000)	-61.723*** (0.00001)
Akaike Inf. Crit.	332,619.900	332,619.900	332,619.900	332,619.900

Note:

*p<0.1; **p<0.05; ***p<0.01

Table 13: Do optimists hold a larger percentage of their wealth in Retirement Assets?

	<i>Dependent variable:</i>
	Retirement as a Percentage of Networth
Year	0.003*** (0.001)
Age	0.009*** (0.001)
Health Optimism	−0.00004 (0.0001)
Economy Better	−0.009*** (0.002)
Economy Worse	−0.010*** (0.002)
Retirement Age	−0.0003* (0.0002)
Black	0.043*** (0.003)
Hispanic	−0.013*** (0.004)
Other	−0.025*** (0.004)
Birthyear 1919-1925	0.797* (0.451)
Birthyear 1926-1932	1.574*** (0.422)
Observations	70,979
R ²	0.033
Adjusted R ²	0.033
Residual Std. Error	15.173 (df = 70946)
F Statistic	76.723*** (df = 32; 70946)
Note:	*p<0.1; **p<0.05; ***p<0.01

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