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Are Millennials Different?

by

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Abstract

The economic wellbeing of the millennial generation, which entered its working-age years around the time of the 2007-09 recession, has received considerable attention from economists and the popular press. This chapter compares the socioeconomic and demographic characteristics of millennials with those of earlier generations and compares their income, saving, and consumption expenditures. Relative to members of earlier generations, millennials are more racially diverse, more educated, and more likely to have deferred marriage; these comparisons are continuations of longer-run trends in the population. Millennials are less well off than members of earlier generations when they were young, with lower earnings, fewer assets, and less wealth. For debt, millennials hold levels similar to those of Generation X and more than those of the baby boomers. Conditional on their age and other factors, millennials do not appear to have preferences for consumption that differ significantly from those of earlier generations.

Keywords: consumption, generations, millennials, balance sheets, motor vehicles, and households.

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I. Introduction

Over the past decade, millennials have received a substantial amount of attention as they have transitioned into adulthood. In the fields of business and economics, the unique tastes and preferences of millennials have been cited as reasons why new-car sales were lackluster during the early years of the recovery from the 2007–09 recession, why many brick-and-mortar retail chains have run into financial trouble (through lower brand loyalty and goods spending), why the recoveries in home sales and construction have remained slow, and why the indebtedness of the working-age population has increased.[2]

The general narrative is that the consumption behavior of millennials differs so much from that of earlier generations that the transition of this generation into the prime working-age cohort has induced meaningful changes on macroeconomic outcomes. The narrative sounds plausible, especially if there are no offsetting changes to the spending patterns of the other cohorts as they age.

However, distinguishing the shifts in the population's spending patterns that reflect the unique characteristics of its rising generation from those that reflect secular trends or cyclical forces can be challenging. First, the population includes many generations, and each is unique in some way: Each generation's members were born within a particular range of years and were

[2] For discussions of declining auto sales, see, for example, "Why Car Companies Can't Win Young Adults," *Fortune* (2013). For retail spending, see, "Millennials aren't spending money like their parents did," *Business Insider,* and "Retailers should be terrified of millennials and Gen Z," *Business Insider*. Similarly, an analysis by JPMorgan "The State of the U.S. Consumer," (2016) also finds a larger share of "experiential" spending, with the share of spending on travel, entertainment, and dining different between the general population and millennials, and the discussion in "NOwnership, No Problem: Why Millennials Value Experiences Over Owning Things," found in Forbes (2015). In terms of housing construction, see "Homebuilders are targeting millennials — but it will hit their margins" CNBC (2017) and for a summary of delayed homeownership and the possible causes, see Bleemer et al. (2017). For debt, see "Younger Generation Faces a Savings Deficit," *Wall Street Journal* (2014) and, more recently, Chien and Morris (2018).

subject to a new set of initial conditions. Each generation was also surrounded by particular mix of actors, cultural changes, and world events during its formative years. As a result, change between generations is a fairly permanent source of change in the population.[3]

Second, economic trends, such as the introduction of new goods and technology, can affect each generation differently, with younger generations typically being more willing to adopt these innovations. Accordingly, some economic behaviors that appear to reflect the unique tastes and preferences of a new generation might actually just reflect general technological change.

Third, the effects of the business cycle on economic behavior—especially large downturns—can vary for households in different age groups. Some of these effects likely dissipate as the economy recovers, even though they can mimic generation-specific tastes and preferences for quite some time. But some of these effects may become part of that generation's permanent tastes and preferences. For example, the severity of the 2007 Global Financial Crisis and the recession that followed may have left a lasting impression on millennials, who were coming of age at that time, much like the Great Depression left a lasting impression on the Greatest Generation.

In an effort to sort through these effects, this chapter uses survey and administrative data to compare the saving and consumption patterns of millennials to those of earlier generations, taking into account some important differences in their demographics (such as age, race, family composition, education, and marital status) and economic characteristics (such as income and employment). Using this information, we make an effort to distinguish the effects on household

[3] For a discourse on generational research, see, for example, Pew Research Center (2015b).

consumption behavior of generation-specific factors from those of the business cycle and secular trends.

We show that there are important demographic differences between millennials and earlier generations, illustrating the work of several extant studies. However, we also show that these differences primarily reflect the continuation of existing trends in the overall population. In the economic sphere, millennials appear to have paid a price for coming of age during the Great Recession: Millennials tend to have lower income than members of earlier generations at comparable ages, although the income of young households has not changed much; the difference likely reflects, in part, the rising labor force participation of women. For balance sheet variables, we show that millennials own fewer assets than members of earlier generations and also have less debt at the *individual* level than Generation X. The comparison is somewhat different for debt at the *household* level, as millennial households appear to have roughly the same debt as Generation X and higher debt than the baby boomers. Conditional on these factors, we find that the spending patterns of millennial households are not very different from those of previous generations. In particular, we find that the taste and preferences parameter of a consumption function that includes age, income, and other demographic and economic factors is not different for millennials than for members of earlier generations.

We also review the detailed data on certain categories of consumer spending and the associated spending shares, and we show that there is little evidence of generation-specific preferences after age, income, and other demographic and economic factors are taken into account. For example, for spending on motor vehicles—which accounts for roughly 20 percent of retail sales and is highly sensitive to the business cycle—we find little evidence that millennial

households have significantly different tastes and preferences than households of previous generations. We find similar results for spending on food and housing-related expenses.

The next section presents the definitions of generations that we use and reviews the relevant literature on consumption, age, and birth year cohorts. Section III follows with an overview of the data sources we employ in this chapter. Sections IV, V, and VI provide generational comparisons of demographics, household balance sheets, and household consumption expenditures, respectively. Section VII concludes.

II. Definitions of Generations and a Review of Research on Age, Generations, and Economic Decisions

This chapter mostly adheres to the definitions of millennials and earlier generations described in a number of Pew Research Center reports.[4] Millennials are individuals born between 1981 and 1997, with ages ranging from 21 to 37 in 2018.[5] The two generations that precede millennials are Generation X, which describes individuals born between 1965 and 1980 (ages 38 to 53 in 2018), and baby boomers, who are individuals born between 1946 and 1964 (ages 54 to 72 in 2018). Older cohorts are the Silent Generation, which describes individuals born between 1928 and 1945 (ages 73 to 90 in 2018), and the Greatest Generation, which describes individuals born between 1915 and 1928 (ages 90 to 103 in 2018).

[4] See, for example, Fry (2015).

[5] Recently the Pew Research Center has attempted to redefine millennials to be the cohort ending in 1996; see Dimock (2018). We stick to the original definition, due to a lack of overall consensus at this time. For example, the Census Bureau has published studies with an end date of 2000; see Census (2015). Moreover, our cohort analysis is somewhat restricted by the small sample size of the millennial cohort, and lowering the birth date range for millennials would only exacerbate the problem. Importantly, the empirical results that follow are not qualitatively different when taking the revised definition into account. Similarly, we do not see different consumption patterns when redefining each generation into young and old cohorts—that is, doubling our generational definitions.

Naturally, the size of each generation affects its influence on macroeconomic aggregates. Figure 1 uses Census population (and projections) to plot the fraction of the total population in each generation. As the figure shows, millennials became the largest generation in the United States in 2015, overtaking the baby boomer generation, which had been the largest for roughly 60 years.[6] Interestingly, Generation X never attained the status of being the largest generation.

Reflecting its current size and prime working-age status, millennials tend to be the focus of news articles and industry studies on the expected effects of generational transitions on economic activity. In the economics literature, the framework most often used to tackle questions about the age-related factors that affect households' decisions on labor and consumption is the life-cycle consumption and permanent income models introduced in the 1950s (Modigliani and Brumberg, 1954; and Friedman, 1957). In modern renditions of these models, consumption is part of a dynamic optimization problem and is determined jointly with other decisions, such as labor supply, household formation, fertility, and planned bequests. Over time, academics have added many features to these models in an effort to match key properties of consumption data, including the well-known hump shape of household spending over the life cycle. Attanasio (1999) discusses many variants of these consumption models.

Importantly, this literature suggests several reasons why younger households might choose consumption differently than older households, even conditional on the same observed current income. Young households may face borrowing constraints that older households do not, for example, or they may have different expected income growth, different socioeconomic characteristics that affect the marginal utility of consumption, or different tradeoffs between leisure and labor supply. Unfortunately, the consumption decisions of younger households have

[6] The status of being the largest generation alive is often short lived. According to the Census data, Generation Z, or the "post-millennial" generation (not shown in figure 1), became the largest generation in 2016.

not been as vigorously explored in empirical work as those of households around the age of retirement.[7]

The literature also suggests a few reasons why the birth year of a household might affect its consumption.[8] For example, Malmendier and Nagel (2011, 2016) show that the economic conditions that an individual has experienced in the past can have long-lived, if not permanent, effects on his investment decisions and inflation expectations. This result may be particularly salient for millennials, who came of prime age during the Great Recession, when new entrants to the labor market faced historically weak labor demand and unusually tight credit conditions. The effects of these unfavorable conditions on labor force attachment and attitudes toward saving and spending may have been more permanent for millennials than for members of generations that were more established in their careers and lives at that time.

In other empirical studies of the effects of age and generation cohorts on household economic decision making, researchers have employed even larger and richer household-level data. Chien and Morris (2018) employ the Survey of Consumer Finances (SCF) to compare the assets, liabilities, and net worth of millennials to Generation X members. They find that millennials tend to have less assets and slightly more debt—and hence a lower net worth—relative to Generation X members. In addition, Paulin (2018) leverages multiple years of the Consumer Expenditure Survey (CE) to compare millennials with members of earlier generations.[9] The analysis finds that millennials are more racially and ethnically diverse, more educated, and spend more on food away from home. Importantly, Paulin uses the longitudinal

[7] See, for example, Banks and Blundell (1998) and Bernheim, Skinner, and Weinberg (2001).
[8] In politics, DeSilver (2014) and Ghitza and Gelman (2014) show that major events such as World War II, the Korean and Vietnam Wars, and the Watergate scandal had persistent effects on the voting behaviors of the generation becoming politically aware at that time.
[9] In addition, the BLS started posting experimental tables in 2015 showing expenditures by generation.

dimension of the survey to show that expenditure shares do not vary much between generations.[10]

As previously mentioned, this chapter brings together multiple sources of data to bear upon the question of whether millennials show consumption behavior that differs from that of members of earlier generations.[11] Interestingly, a similar question was posed 20 years ago when baby boomer profligacy was being compared to the Silent Generation's penchant for saving. Speaking to that debate, Sabelhaus and Manchester (1995) were able to separate fact from popular myth at the time and provided evidence that consumption had not increased as much as income, and that baby boomer asset accumulation had in fact outpaced that of the previous generation.

III. A Comparison of Demographics by Generation

In this section, we compare the demographic and economic characteristics of various generations. This exposition will lay the groundwork for comparing generational consumption behavior, as demographic factors are part of what determines consumer behavior. We first address the demographic factors and then turn to economic factors, such as income and balance sheets.

The demographic characteristics for which we provide comparisons of the population by generation over time include race, educational attainment, and marriage status. These categories merit some attention, because there has been substantial discussion of differences between the

[10] Other studies include a post-recession comparison of young adults (Fry, 2013), a comparison of auto purchases between different age cohorts (Kurz, Li, and Vine, 2016), and a report on deficient millennial retirement saving (Brown, 2018).
[11] The data sources are summarized in a data appendix.

demographic compositions of millennials and those of members of earlier generations. However, it is less often emphasized that most of these differences are part of secular trends in the population rather than aberrations coming from one particular generation. Specifically, while it is apparent that millennials are the cohort that is the most diverse, most educated, and have the lowest marriage rates, it is also the case that these superlatives could have been said at some point in time about each of the earlier generations vis-a-vis its predecessors.

We begin by examining race. The United States has become more racially diverse over time, meaning that the share of the white population has declined and the share of the population with other racial backgrounds has increased. The increase in diversity sources from many factors, such as immigration, interracial marriage, and differential birth rates.[12] Figure 2 presents the racial composition for the five largest generations alive in 2017. The data used are from the June 2017 population estimates, and race is categorized into six groups.[13] As seen in the figure, each generation is more racially diverse than the generation that precedes it in age. Fifty percent of millennials are white, well below the 80 percent share for the Greatest Generation. The decline in the proportion of the white population between adjacent generations averages about 6 percentage points. The decline in the share of the white population is particularly stark between baby boomers and Generation X members (almost a 12 percentage point drop), and the decline is actually fairly moderate between Generation X and millennials (around 4½ percentage points).

The educational attainment as of 2017 for each generation is also markedly higher than that of the generation that precedes it in age. Figure 3 presents a decomposition of educational

[12] See Pew Research Center (2015b) for information on immigration's impact on diversity, Frey (2012, 2014a, and 2014b) for a review of the increase in diversity and multiracial marriage, and CDC public use files for information on birth rates by race.

[13] As a robustness check, we measured these statistics at different points in time—for instance, when the older generations were younger and perceptions of race may have been different. This exercise did not change the qualitative story of the population becoming more diverse over successive generations.

attainment for each generation.[14] As seen in the figure, 65 percent of millennials have an associate's degree or higher, well above the 50 percent rate for the Silent Generation. While it is important to note that some generations pictured here—particularly millennials—may still include some people who have not yet completed their educational arc in 2017, the comparisons of the Silent Generation with baby boomers and baby boomers with Generation X both display notable shifts in educational attainment. Specifically, the share of individuals with exactly a high school diploma decreases by roughly 5 percentage points per generation, while the share with a bachelor's degree increases by a similar amount.

Next we look at the marriage rate, which can be influenced by factors such as educational opportunity, the openness of the labor force, and cultural norms.[15] Figure 4 presents marriage rates from the CPS Household Surveys from 1962 to 2017 by generation and age in a cohort graph. A cohort graph presents the outcome variable—in this case the fraction of the population that is married—for each generation at each age. This presentation allows for easy visual comparisons of the outcome variable between generations at comparable ages rather than at comparable points in time. For example, roughly 6 percent of millennials were married at age 20 (observed between 2001 and 2017), whereas 35 percent of the Silent Generation were married at that same age (observed between 1948 and 1965). Marriage rates, particularly at younger ages, have shown a pronounced downward trend in the U.S. population over time, much like the measures of racial diversity and educational attainment discussed earlier. For 20 year olds, the largest decline in marriage rates between successive generations is between the Silent Generation and baby boomers, a transition that occurred primarily after the late 1960s.

[14] The decomposition is performed for those older than 30 in 2017. Different year decompositions and age cutoffs do not change the qualitative story.
[15] See Goldin (2006) for a review of the evolution of the evolution of employment and marriage for women.

IV. Comparison of Income and Balance Sheets by Generation

In this section we compare income, assets holdings, debt, and net worth across generations. We present summary statistics of these variables for individuals and for families or households, a distinction that matters for some comparisons. We also use a linear regression model to show that controlling for observable demographic and socioeconomic characteristics does not fully explain the lower real individual income of millennials. All of the figures are adjusted for inflation and expressed in 2016 dollars.

Income

Table 1 presents snapshot comparisons of individual labor earnings and family income of married couples in the years 1978, 1998, and 2014 from the Panel Study of Income Dynamics (PSID). Each of these years was part of an expansion phase of the business cycle. We compare the statistics from each year for the entire sample of households and for households younger than 33—the oldest age at which we can observe millennials in these data. Individuals in this age group at each of the three years on the table represent baby boomers, Generation X members, and millennials, respectively, at similar young ages.

To begin, we compare annual labor earnings of full-time workers who worked more than 30 hours per week (or 1,560 hours per year). As shown in the top row of the table, average real full-time labor earnings of male heads of all households declined between 1978 and 1998 and then rebounded over the next 16 years. On net, real average full-time labor earnings for males increased 10 percent between 1978 and 2014. However, younger male workers appear to have been left out of the labor earnings increase. Specifically, the real average full-time labor earnings of a millennial male household head in 2014 were about the same as those for a

comparable male Generation X household head in 1998 and over 10 percent lower than those for a comparable male baby boomer household head in 1978.

For female heads of all households, real average full-time labor earnings increased moderately between 1978 and 1998 and between 1998 and 2014, reflecting, in part, rising female educational attainment. However, the median labor earnings of female millennial household heads in 2014 were about 3 percent lower than those of comparable female Generation X household heads in 1998.

For families, the data show that real income of married couples grew, on net, from 1978 to 2014; this trend is seen in the sample of all households and in the sample of households headed by individuals younger than 33 years old and likely reflects the rise in the female labor force participation rate and the increase in the prevalence of dual income households. However, the net growth of real family income was smaller for young married couples than for married couples of all ages during this span of years.

The PSID data also show that income inequality has increased considerably during the past few decades. For the entire PSID sample, the Gini coefficient increased from about 0.3 to above 0.4. Income inequality among adults younger than 33 years old largely shows the same pattern; the Gini coefficient for millennials in 2014 is around 0.35, which is higher than the 0.25 for young baby boomers in 1978.

How much of the differences in real average income between millennials and the earlier cohorts at comparable ages are due to differences regarding race and educational attainment? To address this question, we estimate the following linear regression model using pooled PSID data of households headed by individuals younger than 33 years old from 1974 to 2014:

$$Log(Y_i) = \alpha + \beta_1 GenX + \beta_2 Boomer + \gamma Z_i + \epsilon_i. \quad (1)$$

The model is estimated separately for male heads of household, for female heads of household, and for families. Y_i denotes full-time labor earnings for household i. *GenX* and *Boomer* are generation cohort dummies, which makes millennials the omitted group. Z is a vector of demographic variables that includes age bins, educational attainment dummies, race, marital status, and family size.[16]

The estimated β_1 and β_2 coefficients for each gender/family group are reported in table 2. As shown in column 1, average real labor earnings for young male household heads working full time are 18 percent and 27 percent higher for Generation X and baby boomers, respectively, than for millennials after controlling for age, work status, and a number of demographic variables. For young female heads of household working full time, these generational gaps in labor earnings are in the same direction but somewhat smaller—12 percent and 24 percent, respectively. For family income, the regression shows that Generation X and baby boomer households have a family income that is 11 percent and 14 percent higher, respectively, than that of demographically comparable millennial households.

Debt

We now study the debt portfolios of millennials using data from the Federal Reserve Bank of New York Consumer Credit Panel/Equifax (CCP), a panel that covers individual borrowers that have a credit score. Because the panel is relatively new, we are only able to compare the borrowing of millennials with that of Generation X members.[17] Table 3 presents the

[16] We include age bins in the regression to capture any remaining changes over time in average age of the 37-and-younger population.
[17] The CCP dataset starts in 1999, and it began reporting student loan data in 2004.

summary statistics for borrower debt in the third quarters of 2004 and 2017; both years are from periods considered credit expansions.[18]

For the full CCP sample, the average and median real total debt balances for individual borrowers and the shares of the population holding debt were little changed between 2004 and 2017. Specifically, the share of consumers with a positive debt balance fell by only 1 percentage point (74.5 percent in 2004 versus 73.4 percent in 2017), and the average total debt balance declined by only $250 ($48,123 in 2004 versus $47,872 in 2017). In addition, the average number of open accounts per consumer edged down just slightly between those years (4.1 in 2004 versus 3.9 in 2017).

For younger borrowers, the comparison of average indebtedness shows a more substantial decline between 2004 and 2017. The real average total debt balance was around $49,000 for Generation X members in 2004 and about $44,000 for millennials in 2017. Median debt levels, conditional on having a nonzero balance, tell a qualitatively similar story. Later in the chapter, we use the SCF to study household balance sheets and find debt levels are not appreciably different between millennials and members of Generation X at similar ages.

The lower levels of debt outstanding for millennial borrowers in 2017 compared with Generation X borrowers in 2004 mainly reflects lower mortgage debt, although millennials also have significantly less credit card loans and miscellaneous other debt. In 2004, 28 percent of Generation X members had a mortgage, well above the 19 percent share of millennials that had one in 2017. Accordingly, average real mortgage balances were considerably lower for millennials in 2017 than for Generation X members in 2004 ($24,000 versus more than $33,000).

[18] The year 2004 was in the middle of the credit expansion prior to the 2008 financial crisis, and the credit market has largely recovered to the pre-crisis situations in 2017, with the exception of mortgage lending to subprime borrowers.

That said, the median mortgage balance for millennial mortgage borrowers in 2017 was somewhat higher than for Generation X mortgage borrowers in 2004 ($105,000 versus $94,000), reflecting, in part, the net increase in real house prices during the same period.

For auto loans, contrary to the stories in the popular press that millennials have a more subdued demand for cars than members of earlier generations, the Equifax/CCP data show that 40 percent of millennials had an auto loan in 2017, compared with 36 percent of Generation X members in 2004. The mean outstanding balances on auto loans in the two cohorts are similar at about $5,200.

One loan category for which millennials in 2017 had a notably higher average balance than Generation X members in 2004 was student loans. While only 20 percent of Generation X members had a student loan balance in 2004, more than 33 percent of millennials had one in 2017. Moreover, the median balance among student loan borrowers was substantially higher for millennials in 2017 than for Generation X members in 2004 (over $18,000 versus $13,000). Accordingly, the average student loan balance for millennials in 2017 was more than double the average loan balance for Generation X members in 2004. The rise of student loan borrowing among young consumers reflects, in part, the rising real cost of higher education, the increase in college enrollment due to the Great Recession, and the increasingly limited capacity of parental contribution.

Both credit supply and credit demand factors may have contributed to the lower amount of borrowing by millennials in 2017 compared with Generation X members in 2004. On the supply side, while financing conditions improved substantially from the aftermath of the 2008 financial crisis, lending standards remained tight for quite some time in certain market segments, such as mortgage and credit card lending to subprime borrowers. Many millennials in 2017 still

lack solid credit history due to their young age and may face additional headwinds in credit markets. On the demand side, the financial crisis may have made some consumers more averse to debt, as they witnessed the destructive effects of over-borrowing on personal finance and the economy in general. Indeed, the number of inquiries on credit histories, a common measure of demand for credit, was substantially lower in 2017 than in 2004, and the decline is particularly pronounced when comparing millennials with Generation X members.[19]

Assets and Net Worth

We next turn to household asset holdings and net worth using data from the triennial SCF, which measures these balance sheet variables at the level of the household. Table 4 presents summary statistics on these balance sheet measures from three generations at points in time when each was at a similar young age. Specifically, we compare millennial households in 2016, Generation X households in 2001, and baby boomer households younger than 35 in 1989.[20] Because the youngest baby boomers were 25 years old in 1989, we apply the same age restriction to Generation X members in 2001 and millennials in 2016. As shown in the table, there was a substantial increase in mean total assets held by the entire SCF sample from about $400,000 in 1989 to around $785,000 in 2016. However, a comparison of the changes in the mean and median suggests the higher mean asset holding was due to an increase for the wealthiest households, as the median asset holding increase was much more moderate, from near $152,000 in 1989 to about $190,000 in 2017.

[19] The Equifax/CCP data do not include any information regarding consumers' race, educational attainments, marital status, and family sizes. As a result, we cannot run the conditional regression analysis as we did for income comparisons.

[20] Also, see Dettling and Hsu (2014 and 2017) for a comparison using the 2013 SCF data.

For younger households, the mean value of assets held by millennials in 2016 was about $176,000, almost the same as baby boomers ($173,000) of comparable ages in 1989 and much lower than Generation X members in 2001 ($227,000). Using median asset holdings yields very similar comparisons: The median total assets held by millennials in 2016 is significantly lower than baby boomers in 1989 and only half as big as Generation X members in 2001.

The decrease in asset holdings of younger households was widespread across asset categories. Homeownership among this age group, for example, was near 50 percent for Generation X members in 2001 and only 34 percent for millennials in 2016. Accordingly, the mean real housing assets for Generation X members in 2001 was $95,000, while it was about $10,000 lower at $84,000 for millennials in 2016.

Holdings of financial assets such as stocks have also declined notably for younger households in recent decades. The young Generation X households in 2001 held, on average, more than $52,000 financial assets, nearly $22,000 more than millennial households in 2016. However, millennials in 2016 held more in retirement savings than other cohorts at comparable ages; this change likely reflects, in part, the replacement over time of defined-benefit retirement pensions with defined-contribution retirement accounts.

For debt, millennial households in 2016 held, on average, about $85,000, slightly more than the $79,000 than was held by young Generation X households in 2001, a finding that was originally noted by Chien and Morris (2018).[21] That said, the median levels of indebtedness among households with nonzero balances are about the same for millennial households in 2016 and Generation X households in 2001. These young millennial and Generation X households have both taken on more debt than did the baby boomers when they were at a similar age.

[21] Chien and Morris (2018) define the generations with birth years that differ slightly from those used here.

Turning to net worth, which puts together the asset and debt comparisons described above, we find that millennials in 2016 have substantially lower real net worth than earlier cohorts when they were young. In 2016, the average real net worth of millennial households was about $92,000, around 20 percent less than baby boomer households in 1989 and nearly 40 percent less than Generation X households in 2001. Finally, we note that while the inequality of assets holdings and net worth has risen appreciably for the entire population during the past few decades, these inequality measures were largely flat among the younger households.

V. Comparison of Consumption Behavior by Generation

Having compared the demographic, economic, and household balance sheet factors of millennials with those of members of earlier generations, we now contrast the consumption patterns of these generations. We first present views of household consumption from the CE survey. Next, we test for differences between generations in total household consumption. Lastly, we test for differences between generations in consumption of selected categories of household spending, such as automobiles, housing, and food.

Household Spending in the CE Survey by Age and Generation

A natural way to organize consumption microdata is to construct life-cycle consumption profiles by birth cohort. Figure 5 shows real annual total consumption for all households in our sample of 1986–2016 CE surveys. The generation of the household is denoted by the shading of the dots and their location along the age axis: Black dots at younger ages represent spending by millennial households, grey dots at intermediate ages represent spending by Generation X and baby boomer households, and black dots at older ages represent spending by the Silent

Generation and Greatest Generation households.[22] What is notable about this figure is that data points from each generation occupy a limited range of ages in the life cycle. This pattern reflects the limited time frame over which some generations are observed in this consumer survey, and it also underscores the importance of using data with a long history to make intergenerational comparisons. For example, with the oldest millennials having only just turned 37 years old in 2018, researchers are going to have to wait about 35 more years until the data allow a direct comparison of older millennials to today's oldest baby boomers.

The central tendencies of these dots organized into annual averages by age and generation are shown as lines in figure 6. The real consumer spending profiles for each generation in figure 6 differ somewhat from one another but generally show the hump shape that peaks at around $60,000 at age 50, consistent with other well-known depictions of life-cycle consumption patterns. Beyond that point, household consumption tends to decline with age.

Importantly, it looks quite plausible that a single hump-shaped curve could adequately describe the collection of total household spending profiles, although the spending profiles seem to fan out a bit more for older age bins, which are primarily covered in our data by baby boomers and members of the Silent Generation and the Greatest Generation. Baby boomers also appear to have maintained a higher (and flatter) consumption profile as they have moved into retirement compared with members of the Silent Generation and the Greatest Generation. But a casual assessment of the curves in figure 6 suggests that the spending profiles of the three generations for which our data provide a fair amount of overlap—millennials, Generation X members, and baby boomers—appear to be quite similar.

[22] Some households reported high levels of spending that exceeded the top of the x-axis on the graph. One drawback of this visualization is that many of the Generation X spending points overlap with those of the baby boomers, etc.

An Empirical Assessment of Generational Consumption Patterns

Before we analyze these household consumption profiles more formally, we should point out some caveats about the construction of spending profiles and the CE data. First, the CE survey asks about consumer spending at the household (or, more precisely, consumer unit) level, and it aggregates the spending of all household members, who may vary in age. Because we use the age and generation of the head of household to represent the spending of the whole household and cannot separately track the spending of young adults who live with their parents, the panel we constructed is not well-suited to study the effects on consumption of the changes over time in household formation patterns, which could potentially be an important difference between millennials and the households of earlier generations when they were young.[23]

Second, the construction of household consumption profiles by age group and generation requires a fair amount of parsing, which can be challenging even in a reasonably large dataset such as the CE survey. Table 5 shows the number of consumer units of each generation that are in each of the age bins shown in figure 6. The number of households in the full sample from 1986 to 2016 is 129,200, which includes 52,000 baby boomer households, 30,000 Silent Generation households, 24,000 Generation X households, and less than 6,000 millennial households. The main reason why the sample of households headed by millennials is small is that this generation is still fairly young and is represented in the CE survey only near the end of our sample. Looking over the age bins, millennials are reasonably well represented in the 20 to 24 and 25 to 29 age bins. The starting point of our dataset in 1986 similarly limits our ability to observe earlier generations at younger ages. For example, we do not observe many baby boomers younger than 30 years old or Silent Generation members younger than 45 years old. A

[23] See Paciorek (2016) for a discussion of the recent patterns in household formation.

consequence of these considerations is that the sample averages are noisier for millennials than for members of earlier generations and for younger households than for older households.

Third, the CE collects data on household expenditures instead of consumption. Household expenditures and consumption, though intimately related, are not identical, and the differences therein are more important for housing, vehicles, and other durable goods. For example, the purchase of a car is not the same as consuming the stream of services from acquiring the asset. Bearing this distinction in mind, we will use the two terms interchangeably throughout this section.

Taking those caveats into consideration, the average household spending shown by each profile in figure 6 reflects the effects of factors such as age, cohort preferences, the state of the business cycle that prevailed for each generation at each age, and measurement error and sample variability. The differences in the profiles of adjacent cohorts at comparable ages reflect the effects of cohort preferences, the business cycle, and errors. To separately identify the contributions to these differences of cohort-specific factors from those of the business cycle requires a consumption model.

Similar to our previous specifications, we model household consumption expenditure in a simple linear regression framework of the form:

$$Consumption_{it} = \alpha + \sum_{\tau=1}^{4} \beta Gener_{\tau} + \gamma Z_{it} + \Theta Y_{it} + \epsilon_{it,} \qquad (2)$$

where $Consumption_{it}$ is a particular category of consumption expenditure at time *t* for household *i*. Our baseline analysis will use total household consumption expenditure, but the following work will also provide similar analysis for motor vehicle expenditures, food purchases, and housing consumption. The generation ($Gener_{\tau}$) indicator is a group of binary indicator variables that designate the generation of the head of household, where $Gener_{\tau} \in$ {Generation X, baby

boomers, the Silent Generation, and the Greatest Generation} and millennials are the omitted category.[24] This approach simplifies comparisons between millennials and members of other generations, as the statistical significance of any particular generation's indicator would indicate significance vis-à-vis the millennial cohort. *Z* is a vector of household controls, including marriage status, family size, age, age squared, education, retirement, student status, number of children, and race. *Y* is a vector of economic controls, including work status, income, and an economy-wide measure of the unemployment rate.[25]

The results of the consumption regression are presented in table 6. In column 1, we estimate the model of household consumption with only the generation cohort indicators. Columns 2 through 5 successively add groups of controls, starting with age, then economic variables, and finally demographic controls, with column 5 presenting the full specification.

The coefficients in column 1 estimate, in effect, average total consumption for each generation at all ages for which it is observed in our dataset. Specifically, the constant shows average spending of millennial households (as the omitted generation group), and the coefficients on the Generation X, baby boomer, Silent Generation, and Greatest Generation indicators show the differences between average spending of each of these generations with that of millennials. For example, Generation X households, which are observed in our sample from young adulthood through about age 50, consume about $10,250 more per year than do millennial households, which are all younger than age 37 in our sample. Other generations that have consumed more, on average, than millennials are the baby boomers, for which we have data from

[24] The following analysis was also performed with only two categorical generations, Generation X and baby boomers, and by leaving out the Silent Generation and the Greatest Generation. The results are qualitatively the same and quantitatively similar.

[25] The unemployment rate allows us to control for period effects while also estimating age and cohort; see Pew Research Center (2015b).

prime working years through early retirement, and the Silent Generation, which are mostly older households in our data. Spending by households in the Greatest Generation, which we only observe in retirement, averaged roughly $12,300 less than the spending of millennials.

Numbers such as these are often presented in industry reports, news stories, and marketing publications when individuals talk about generational differences. The real dollar values shown in column 1 are economically as well as statistically significant, given that the average real consumption in the dataset is around $46,500. All of that said, it is important to note that they do not take into account age or any other factor that might explain how consumption varies as individuals, or households, move through the life cycle.

We now jump to the full specification in column 5, which includes all of the age, economic, and demographic controls. The generation fixed effects in this column can accordingly be interpreted as the generation-specific taste and preference shifts in this consumption equation. It is important to note that in this column the signs on the fixed effects are negative for Generation X members and baby boomers, and that the coefficient on the indicator for Silent Generation members is insignificant. That is, controlling for age, income, and an array of other characteristics that affect consumption, we see that Generation X members and baby boomers actually have a slightly lower taste for consumption than millennials, and the taste for consumption of Silent Generation members appears to not be statistically different from millennials. Greatest Generation members continue to show a somewhat lower taste for consumption.

Our results suggest that when age, income, and the other factors that determine consumption are controlled for, we find little variation in consumption expenditures between generations. The results are broadly consistent with the notion that there has not been a dramatic

taste shift from one cohort to the next with respect to a particular form of consumption. A caveat regarding our conclusion is that holding income fixed between generations removes a key determinant that to a large extent defines a particular cohort.

Which variables in the consumption equation explain why the differences in the unconditional averages of consumption by generation are large (column 1) while the differences between their tastes for consumption are either relatively small or different in sign (column 5)? To answer this question, we add variables such as age, economic, and some demographic effects sequentially to the regression in columns 2 through 4 and observe the effect of these additions on the gaps between the generation fixed effects, which can now be interpreted as the generation-specific intercepts of the hump-shaped life-cycle spending profiles. In column 2, we see that adding the age and age-squared terms to the regression substantially lowers the positive coefficient on the fixed effect for Generation X members and flips the sign on the indicators for both baby boomers and Silent Generation members. These comparisons suggest that age—not surprisingly—is a key determinant of consumption that should be taken into account when comparing the average consumption of groups.[26]

In column 3 we add economic factors to the regression, consisting of the work status of the head of household and the household's income. Adding these variables generally lowers the total spending differentials between the generation fixed effects for Generation X members and millennials. Adding these variables raises slightly the differentials in the fixed effects between millennials and baby boomers and Silent Generation members, but they remain small.

[26] The estimated coefficients on the age variables imply peak life-cycle spending at around age 53.

In column 4 we add demographic factors to the regression. With this addition we see that the differentials in the generation fixed for millennials and the other generations are either negligible or negative, and the incremental changes relative to column 3 are also quite small.

The comparisons in table 6 suggest that it primarily is the differences in average age and then differences in average income that explain a large and important portion of the consumption wedge between millennials and other cohorts. Differences in average demographics also play some role, but a smaller one than the other factors. Importantly, once the full set of demographic and economic controls are taken into account, we see no evidence that the generation-specific tastes and preferences of millennials favor lower levels of consumption than the tastes and preferences of members of other generations.

Do Millennials Have a Unique Consumption Basket?

Table 7 presents the main categories of goods and services consumption in the CE data as average shares of total household expenditures. As in our earlier analysis of the household balance sheet data, we present these shares for each of three generations—millennials, Generation X, and baby boomers—in a selected year when the members of each generation were within the age range of 21 to 35 (1986 for baby boomers, 2001 for Generation X members, and 2016 for millennials). We also present the average expenditure shares of the entire population in each of those years to show the economy-wide trends in consumption.

Several broad trends are salient in table 7. First, the rising share of housing expenditures reflects, in part, the faster rate of increase for house prices than for other goods and services, whereas the declining share of food expenditures primarily reflects the lowering Engel coefficient as real income rose. Second, the health-care expenditure share rose from 5.5 percent

to above 9 percent for the whole population, likely reflecting the faster rate of increase for health-care costs than for other goods and services. Similarly, the education expenditure share rose notably from about 1.5 percent to 2.5 percent as the rise in college tuition also outpaced general inflation. Third, the garment and apparel share has declined appreciably, likely reflecting the smaller increases in the prices of clothing prices than for other goods and services due to increased imports.

The comparisons of the expenditure baskets in each year for the group of adults younger than 35 mostly mirror the trends describe above. To highlight the broad-based nature of the changes in expenditure shares, we present the differences in the expenditure shares between the years 1986, 2001, and 2016 for households that were young at each of these points in time and for the entire sample. We find that the changes in expenditure shares over time for young consumers are very similar to the changes for the entire population. Indeed, the correlations between columns 7 and 8 and between columns 9 and 10 are both higher than 90 percent. However, there were some important differences. The increase in the housing expenditure share was less between baby boomers in 1986 and millennials in 2016 than it was for the entire population between those years, a comparison that is consistent with the lower rates of homeownership and holdings of mortgages for millennials than for earlier generations at comparable ages. In addition, the food expenditure share was higher for millennials in 2016 than for Generation X members in 2001, a comparison that is consistent with the lower real earnings of millennials. Moreover, the increase over time in the education spending share is more pronounced for the selected groups of young households than for the overall population.

Case Study I: Vehicle Purchases

One consumption good for which potential generational preferences has attracted much attention is motor vehicles. As new-car sales recovered from the big decline following the 2007–09 recession, some analysts noticed a shift in the age composition of new light vehicle buyers, and a number of recent studies and press articles have argued that there has been a dramatic decline in young adults' willingness to own vehicles or even obtain driver's licenses.[27] For example, *Fortune* cited the decline in the fraction of new vehicles purchased by young adults—defined as 18 to 34 year olds—as evidence that financial constraints for that age group had increased and their interest in driving had decreased.[28] As quoted in the article, young adults "just don't think driving is cool—or even necessary—anymore." Similar stories abound and often attribute these changes to the rising popularity of social media, which reduces the need to travel, and alternative means of transportation, such as ride-sharing, public transportation, and biking, which reduces the need of owning a vehicle.[29]

Much of this analysis was published during the immediate aftermath of the financial crisis and the ensuing recession, when many millennials were entering adulthood and likely quite vulnerable to the effects of the financial crisis. As the recovery gained steam it became less obvious that these patterns reflected generational preferences. Some press articles as early as 2012 started to note that younger buyers had begun looking increasingly like their older cohorts as their employment and income prospects improved.[30]

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[27] This section expands the work first presented in Kurz, Li, and Vine (2016).
[28] "Why Car Companies Can't Win Young Adults," *Fortune*. August 16, 2013.
[29] For example, see "The Many Reasons Millennials are Shunning Cars" (*Washington Post*, October 14, 2014); "Why Millennials Are Ditching Cars and Redefining Ownership" (*National Public Radio*, August 21, 2013), "The Cheapest Generation" (*The Atlantic*, September 2012), "Young Adults After the Recession: Fewer Homes, Fewer Cars, Less Debt" (Pew Research Center, 2013), and "Social Media Trumps Driving Among Today's Teens" (*Forbes*, February 2012).
[30] See, for example, "Millennials: Not So Cheap, After All" (*The Atlantic*, April 21, 2015), "The death of driving?" (*Automotive News,* May 17, 2013), "Millennials Take the Wheel" (Edmunds.com, May 2013), and "Evolution of Changes in Teenage Driver Exposure—an Update" (Highway Loss Data Institute, December 2015).

In this section, we again use data from the CE survey as well as from J.D. Power & Associates to examine how new-vehicle-buying demographics have changed over time. Interestingly, most of the recent shifts in car-buying demographics appear to have come from older generations and not millennials. We then estimate a model for vehicle purchases more broadly and find no evidence that the generation-specific tastes and preferences of millennials favor lower vehicle expenditures.

As shown by the lines in figure 7, the average age of vehicle buyers has been increasing over the past 30 years. According to J.D. Power and Associates, the average age of new-vehicle buyers rose from 43½ in 2000 to around 49 in 2009, with much of the increase occurring during the 2007–09 recession, and it has moved sideways since that time.[31] Similarly, the average age of the heads of households that reported buying a new vehicle in the CE survey rose more than 10 years between 1994 and 2016, also with a more notable increase during the 2008–09 period than at other times.[32]

Some—but not all—of the increase in the average age of new-vehicle buyers reflects the aging of the overall population. The average age of heads of households in the CE survey increased by about 3 years between 1994 and 2016. The rise in the average age of new-vehicle buyers during this 20-year period was roughly twice as large as the increase in the age of the overall population, so changes in the rates at which people in each age group purchase new vehicles have also contributed to the increase in average age.

[31] The information supplied by Power Information Network, a business division of J.D. Power and Associates ("PIN"), is based on data believed to be reliable but are neither all-inclusive nor guaranteed by PIN. Without limiting the generality of the foregoing, specific data points may vary considerably from other information sources. Any opinions expressed herein reflect the judgment of the Federal Reserve Board at this date and are subject to change.

[32] Average age of the head of new-vehicle-buying households in the CE exceeds the average age of new-vehicle-buying individuals in the J.D. Power data by about 5 years, on average. This gap likely reflects the fact that the heads of households are more likely to be older than the other members of the household.

In figure 8 we explore this idea further with the CE survey and plot the share of new vehicles purchased by the age group of the head of household for each year from 1995 to 2016. For comparison, we also plot each age group's share of the total population. Young households—those headed by people aged 34 and under—tend to be slightly underrepresented in the new-vehicle market, as their share of new-vehicle purchases runs a few percentage points below their population share. The share of new-vehicle purchases for young households dipped during the 2007–09 recession, but the shortfall was not particularly large, and the rate returned to its normal range after a few years.

In contrast, the new-vehicle purchasing shares of households in the next oldest group—people in the prime working age range of 35 to 49 years—fell between 1999 and 2016 at a rate that outpaced the decline in its share of the overall population. Although this group tends to be overrepresented in the new-vehicle market, the share gap has continued to narrow over time and has turned negative a few times.

Households in the oldest group—those headed by people age 50 or older—have shown a very different pattern. The population and new-vehicle purchasing shares for these households have both increased over time, and this group changed from being slightly underrepresented in the new-vehicle market in the years prior to the 2007–09 recession to being overrepresented since 2014.

Taking a somewhat broader view of vehicle purchases, the average age of households in the CE survey that report purchases of at least $500 (in 2009 dollars) on any vehicle, including a used vehicle.[33] The average age of households reporting these purchases has risen by less than the age of households reporting new-vehicle purchases, but it has still risen slightly faster than

[33] This category also includes motorcycles and a very small number of aircraft, although it is dominated by purchases of new and used cars and light trucks.

the average age of households; the average age of households purchasing any vehicle, 45, was roughly unchanged from 1986 to 1994, and it increased to around 50 in 2016.

Returning to the familiar cohort graphs, figure 9 shows the real average vehicle spending per household in the CE survey by age and generation of the household head.[34] Similar to the general spending profiles shown in figure 6, households spending on vehicles is hump-shaped over the life cycle, although the data are considerably more variable for this single durable good category. Average spending on vehicles by millennial households appears consistent with the general hump shape; although vehicle spending by millennial households was slightly below that of comparably aged Generation X households at the very beginning of the life cycle, those vehicle spending profiles appear to have converged by the time those households reached age 25 to 30.

To evaluate the differences in these vehicle spending profiles more formally, we estimate a consumption model for vehicle purchases that includes economic and demographic factors. In particular, we return to our regression specification from equation 2 and focus on automobile consumption.[35]

The results can be found in the first two columns of table 8. In column 1 we see that Generation X members and baby boomers in the sample have spent roughly $600 to $700 more on motor vehicles, on average, than millennials. This observation is consistent with the popular narrative from many of the aforementioned press articles. Members of the Silent Generation and the Greatest Generation have spent roughly the same or less, on average, than millennials.

[34] Note that these averages are well below the average price of a car because they include many households that spent $0 on new and used vehicles during the 4 quarters they were surveyed.
[35] In this specification, we focus on total motor vehicle spending, both new and used, in dollars. The focus on total spending in dollars, as opposed to a dichotomous framework for new vehicles, as in Kurz, Li, and Vine (2016), does not change the results of the analysis.

However, once age and other demographic and economic factors are taken into account (column 2), none of the coefficients on the generation cohort fixed effects are significantly different from zero. Importantly, we find no evidence that millennials have preferences for vehicle purchases that are lower than those of earlier generations.

Case Study II: Spending on Food and Housing

Finally, we turn to two other categories of consumption that have received some attention: food and housing.[36] We noted earlier that the spending shares for these categories had changed differently over time for younger households than for the general population. To test whether these patterns may reflect generation-specific tastes and preferences, we estimate consumption equations for these categories of spending that include generation fixed effects and the same array of demographic and economic variables that were used above.

The regression coefficients for spending on food and housing are in columns 3 through 6 of table 8. The results tell stories similar to those from the regressions for total consumption: Once accounting for age, demographic, and economic factors, the generation-specific fixed effects become economically and statistically insignificant or negative. In terms of food spending, baby boomers have preferences similar to millennials, and Generation X members have slightly lower preferences.[37] For housing, there is very little difference between Generation X members and millennials in the specification with full controls. Relative to baby boomers, we find that with similar income, economic factors, ages, and demographic factors,

[36] Housing includes spending on rent or the owner's equivalent as well as utilities, maintenance, insurance, home supplies, communication services, and furniture and other household durables.
[37] We similarly studied spending on "food away from home" and found the results to be similar to "total food" spending.

millennials prefer to spend more on housing. These results suggest that millennials do not have less of a taste for consumption than members of earlier generations.

VI. Conclusion

In this chapter we used a variety of survey and administrative datasets to examine the income, saving, and consumption decisions of millennials, and we compared these behaviors to those of earlier generations. Our analysis explored some important changes over time in the demographic composition of the U.S. population and the economic environment.

We found that many of the demographic attributes associated with millennials—such as higher rates of racial diversity, higher educational attainment, and lower rates of marriage—are consistent with secular trends in the population and are therefore not the aberrations of a single generation. We showed that millennials do have lower real incomes than members of earlier generations when they were at similar ages, and millennials also appear to have accumulated fewer assets. The comparisons for debt are somewhat mixed, but it seems fair to conclude that millennials have levels of real debt that are about the same as those of members of Generation X when they were young and more than those of the baby boomers. These balance sheet comparisons likely reflect, in part, the unfavorable labor and credit markets conditions that prevailed during the 2007–09 recession, some of which had prolonged effects.

Because millennials are still quite young as of this writing, it remains to be seen whether having reached adulthood during those unfavorable years will have permanent effects on their tastes and preferences. Using data on household spending from the CE survey, we find little evidence that millennial households have tastes and preference for consumption that are lower than those of earlier generations, once the effects of age, income, and a wide range of

demographic characteristics are taken into account. This conclusion also holds for spending on automobiles, food, and housing.

Data Appendix

The ***Panel Study of Income Dynamics*** (PSID) is a longitudinal survey conducted by the Institute of Social Research at the University of Michigan that follows a core sample of households and their offspring over nearly 50 years, beginning in the late 1960s. The PSID was an annual survey until 1997 and became a biennial survey afterwards. As of its latest wave of 2015, the survey had over 9,000 households in its sample. The PSID collects rich income-related and demographic information. The long, uninterrupted history of the survey offers a unique advantage of observing multiple cohorts. We use data from 1975 to 2015 for a comparison of income levels and growth among baby boomers, Generation X members, and millennials at comparable ages.

The ***Survey of Consumer Finances*** (SCF) is a cross-sectional survey conducted by the Federal Reserve Board every three years and is widely regarded as one of the most comprehensive sources of data concerning U.S. household assets that include extensive details of asset holdings. Because of the high level of concentration of wealth holding, the SCF oversamples high-wealth households. The SCF survey was conducted in a largely consistent way from 1989, and our analysis uses all SCF data collected from 1989 to 2016. In the most recent wave of 2016, the survey included more than 6,200 households. We use the SCF data to compare asset accumulation and net worth for the households headed by millennials, Generation X members, and baby boomers.

The ***Consumer Expenditure Survey.*** The Consumer Expenditure Survey (CE) is conducted quarterly by the Bureau of Labor Statistics and collects detailed information on U.S. household expenditures. The original purpose of the CE was to provide consumption basket

weights needed to construct the Consumer Price Index, but the survey has been used more broadly in economic and policy research in recent decades. We use the CE data to draw consumption profiles by age and generation and to compare the expenditure baskets of selected generations. The economic and demographic controls we employ are also sourced from the CE survey. We use the data from surveys conducted between 1986 and 2016. The sample sizes are relatively large; the latest CE data, collected in 2016, included 6,200 consumer units.

Unlike the PSID, CE is a revolving short panel. Each quarter, about one-fourth of the sample is replaced with new consumer units, and each consumer unit is interviewed four times before leaving the sample. For our sample, we select consumer units that responded to all four interviews and appear to have the same head of household throughout. Because millennials have only begun to appear toward the end of our sample, we retain consumer units headed by millennials that responded to at least two interviews.[38]

Equifax/Consumer Credit Panel. Unlike the three survey data introduced above, the Federal Reserve Bank of New York Consumer Credit Panel/Equifax (the Equifax/CCP data) is proprietary and administrative in nature. The data represent a quarterly panel of credit history data for a 5 percent random sample of U.S. consumers with valid credit history. The data were administratively collected by Equifax, one of the three major U. S. credit reporting agencies. Unlike the survey data we use, the Equifax data have a relatively shorter sample period, from 2001 to 2016, which allows us to compare the debt portfolios between Generation X members and millennials.

[38] To determine the age and generation of consumer units who report having one male and one female as the reference person and spouse, we use the age of the male. For all other households we use the age of the reference person.

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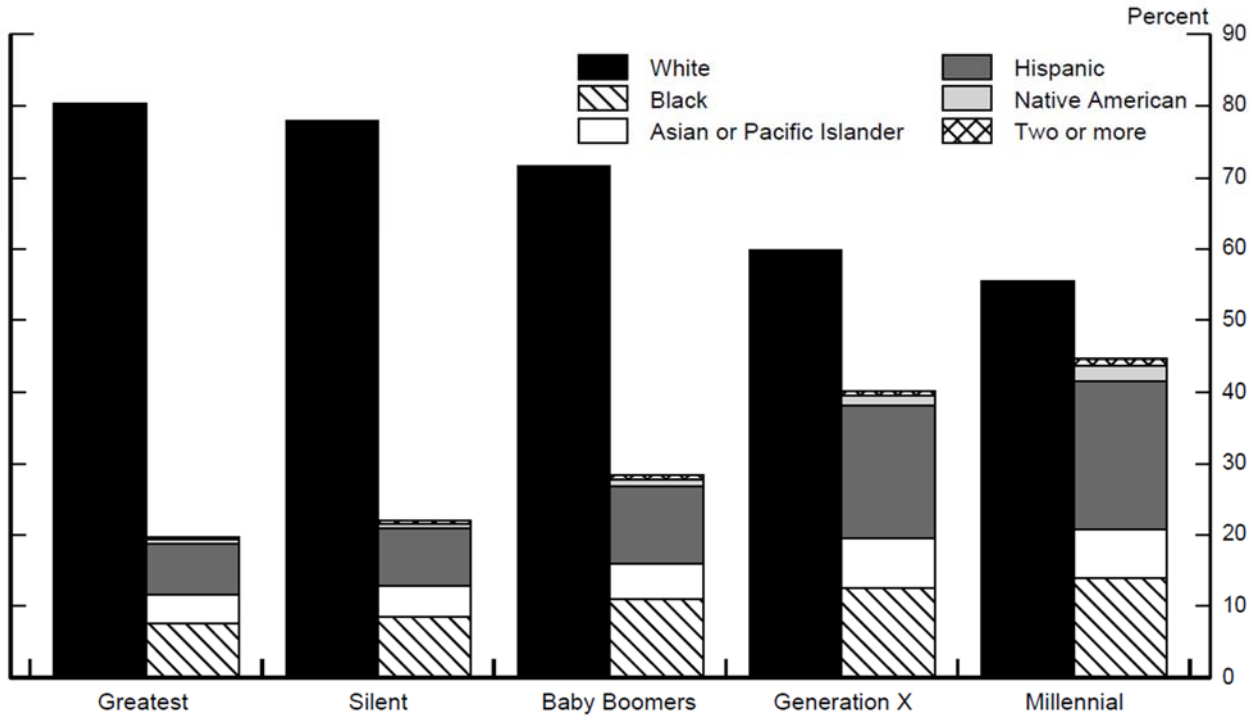
Figures and Tables

Figure 1. Population Shares of Selected Generations

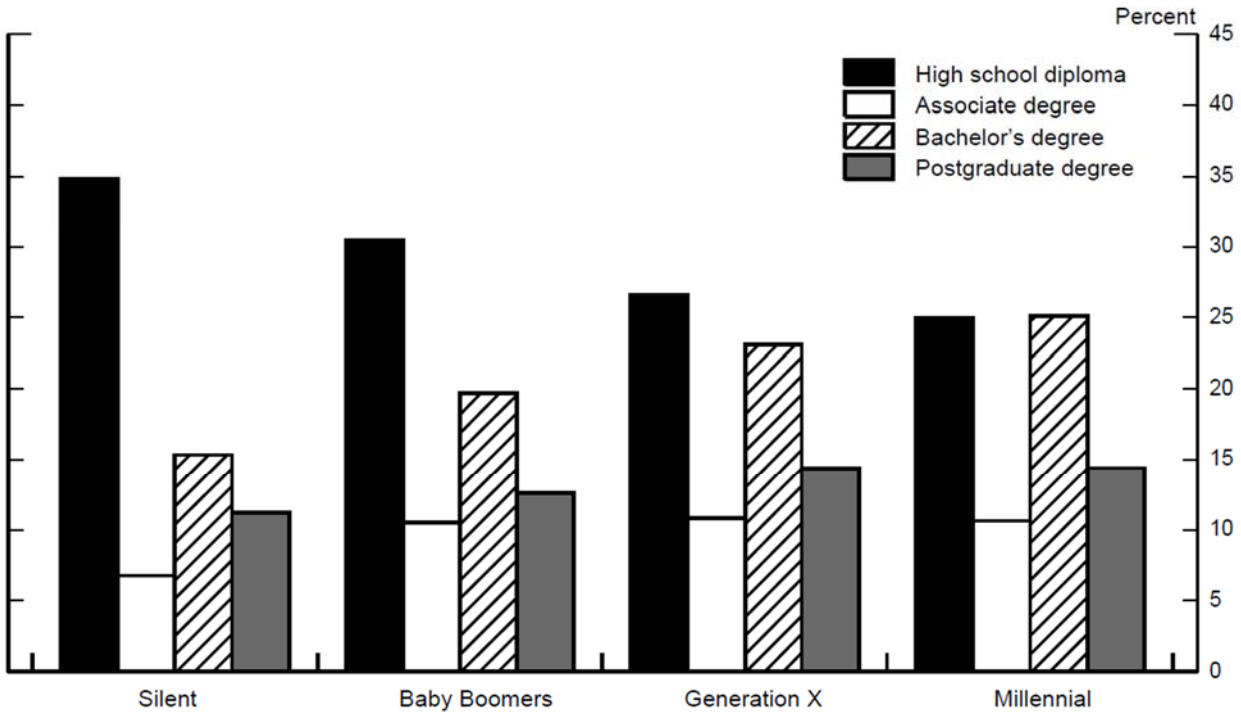
Source. U.S. Census Bureau, Population Division. 2014 National Population Projections.

Figure 2. Racial Composition of the Population by Generation



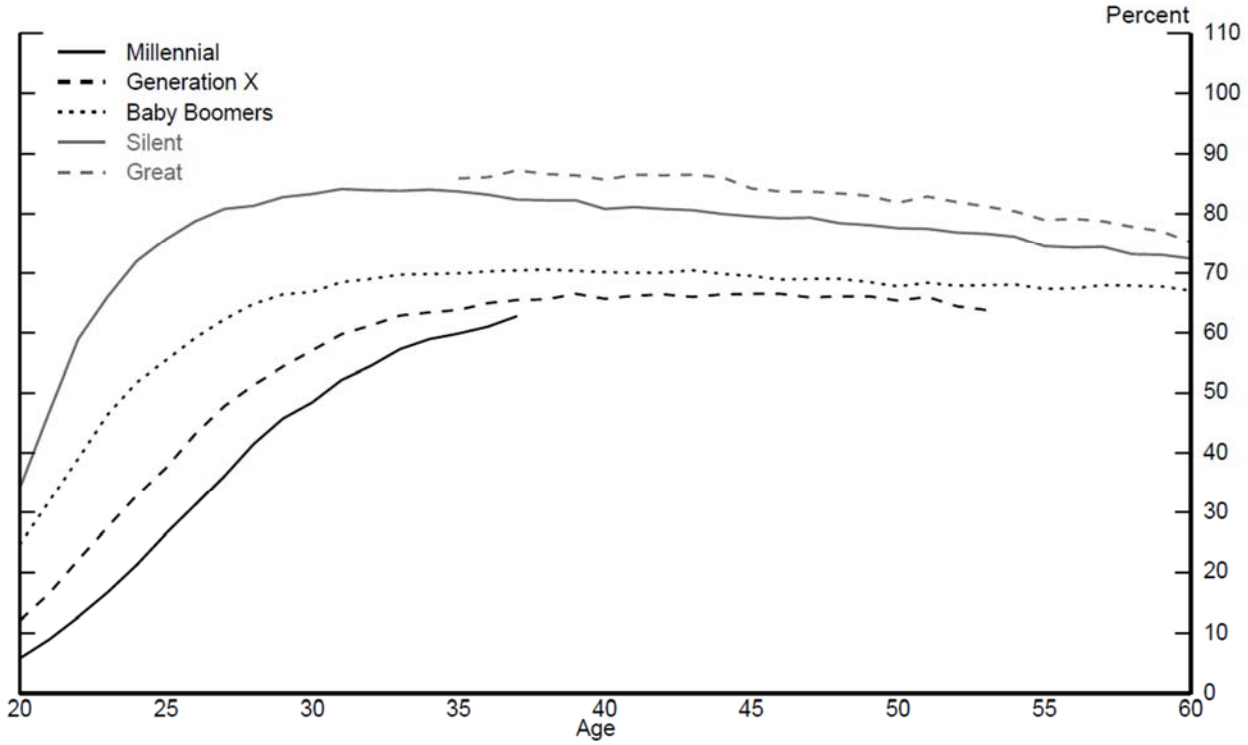
Source. U.S. Census Bureau, Population Division. June 2017 Monthly Population Estimates.

Figure 3. Educational Attainment for Individuals Older than 30 by Generation



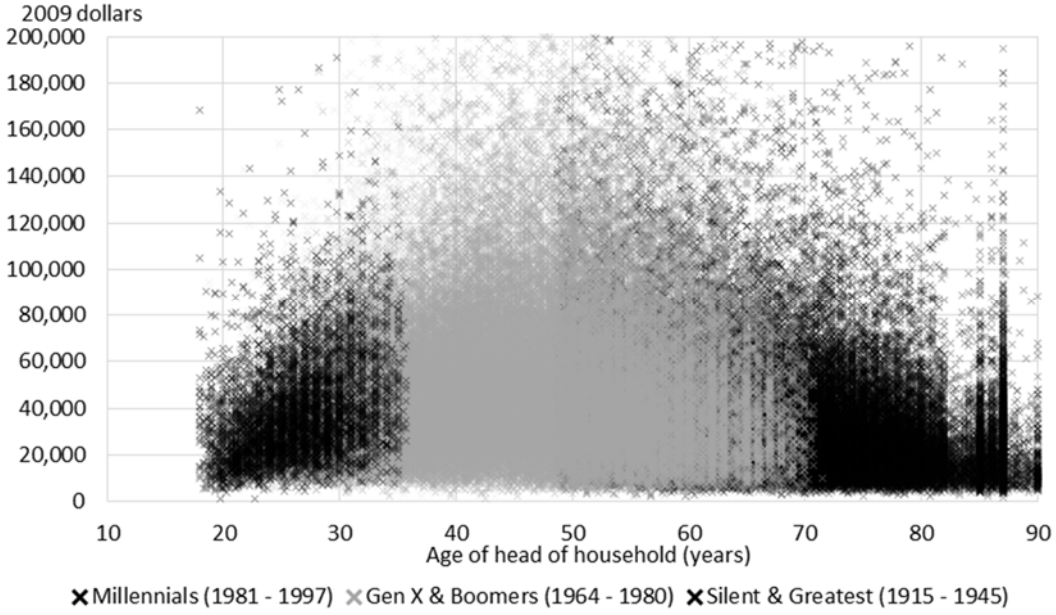
Source. Sarah Flood, Miriam King, Renae Rodgers, Steven Ruggles, and J. Robert Warren. Integrated Public Use Microdata Series, Current Population Survey: Version 6.0 [2017]. Minneapolis, MN: IPUMS, 2018. https://doi.org/10.18128/D030.V6.0.
Note. Postgraduate degrees include professional and advanced degrees.

Figure 4. Mariage Rate by Age and Generation



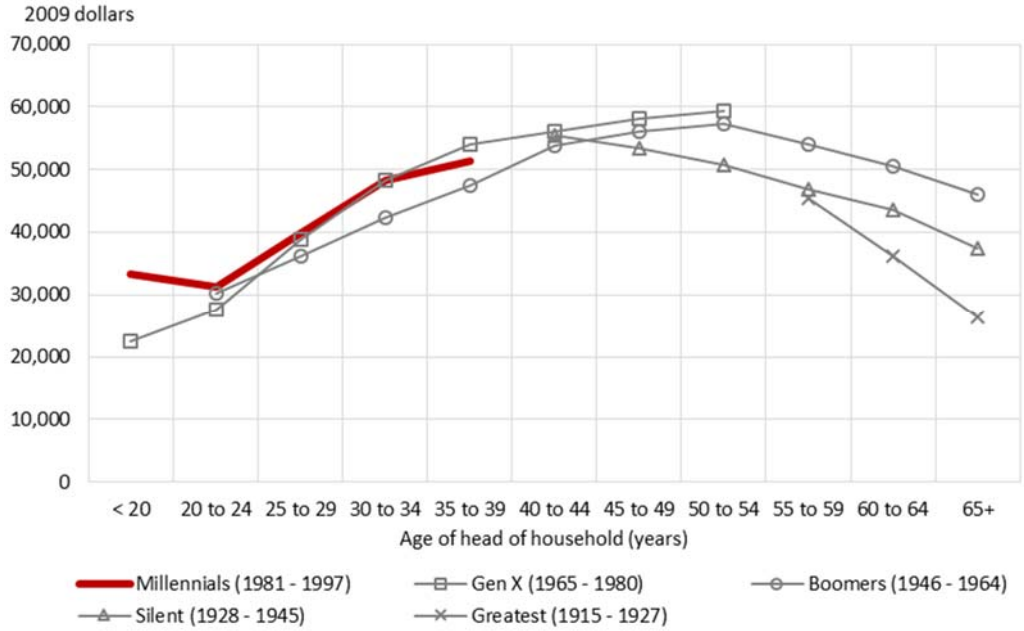
Source. Sarah Flood, Miriam King, Renae Rodgers, Steven Ruggles, and J. Robert Warren. Integrated Public Use Microdata Series, Current Population Survey: Version 6.0 [2017]. Minneapolis, MN: IPUMS, 2018. https://doi.org/10.18128/D030.V6.0.

Figure 5. Real Annual Expenditures per Household by Age and Generation



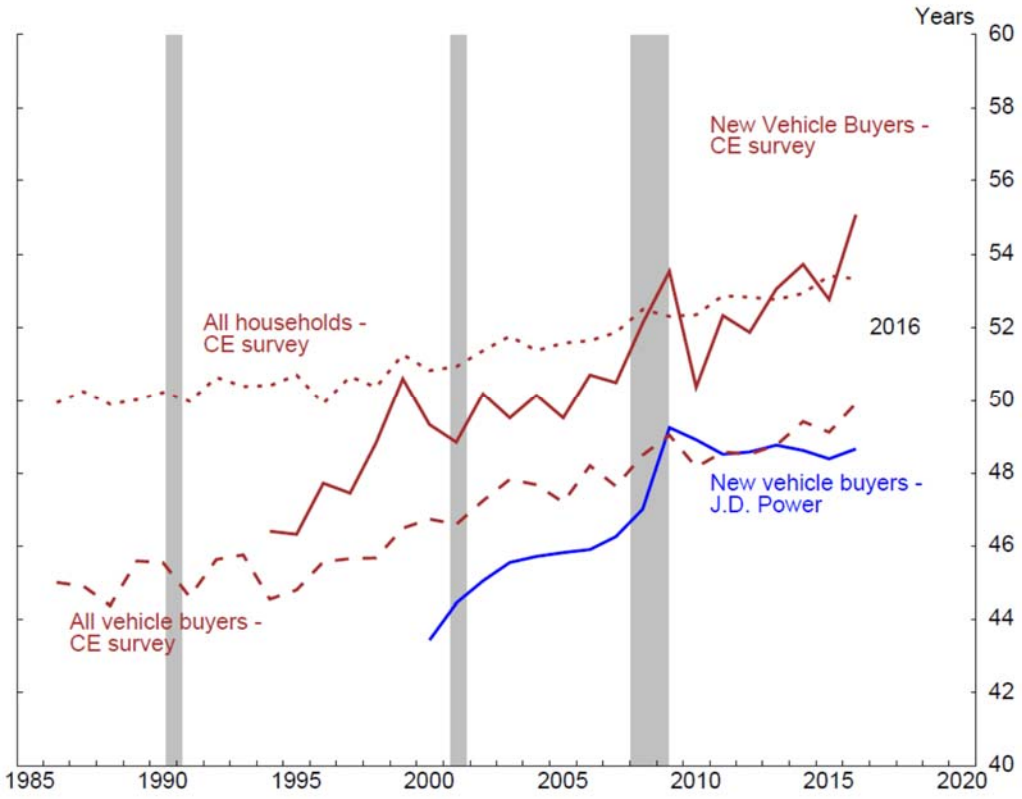
Source. Consumer Expenditure Surveys (1986 – 2016) from the Bureau of Labor Statistics and the PCE price index from the Bureau of Economic Analysis.
Note. Annual sum of total reported household expenditures. Nominal purchases in each quarter are deflated with the chain price index for personal consumption expenditures (PCE). Generation is determined by the birth year of the male spouse, if present, or the head of household. Observations that exceed $200,000 are not shown in the figure.

Figure 6. Real Average Annual Expenditures per Household by Age and Generation



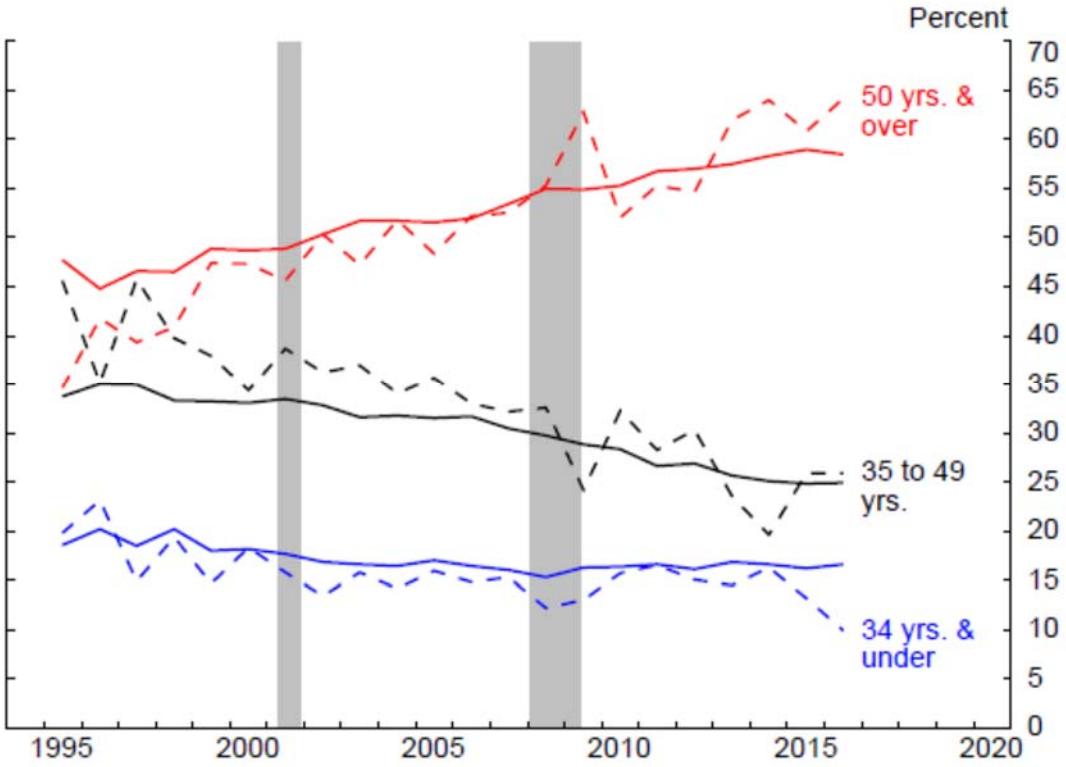
Source. Consumer Expenditure Surveys (1986 – 2016) from the Bureau of Labor Statistics and the PCE price index from the Bureau of Economic Analysis. Note. Averages are based on the survey weights for the consumer unit (averaged over the 4 surveys) and the birth year of the head of household. Nominal purchases in each quarter are deflated with the chain price index for personal consumption expenditures (PCE).

Figure 7. Average Age of Vehicle Buyers and Heads of Households



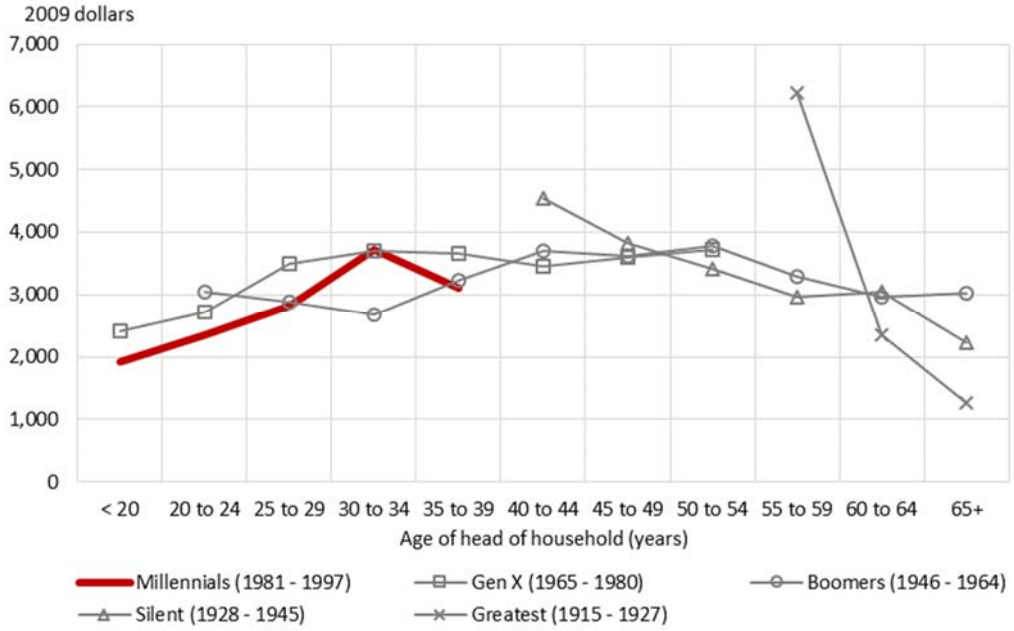
Source. Consumer Expenditure Surveys (1986 – 2016) from the Bureau of Labor Statistics; Power Information Network – PIN, a business division of J.D. Power and Associates; and United States Census Bureau.
Note. Shaded areas indicate NBER recessions.

Figure 8. Household Population and New-Vehicle Buying Shares by Age Group
1995 to 2016



Source. Consumer Expenditure Survey, Bureau of Labor Statistics.
Note. Shaded area indicates NBER recession. Solid lines represent the share of consumer units with heads of household in each age group. Dashed lines represent the share of new vehicle purchases by consumer units with heads of household in each age group.

Figure 9. Real Average Annual Household Expenditures on Vehicles by Age and Generation



Source. Consumer Expenditure Surveys (1986 – 2016) from the Bureau of Labor Statistics and the PCE price index from the Bureau of Economic Analysis.
Note. Aveages are based on the survey weights for the consumer unit (averaged over the 4 surveys) and the birth year of the head of household. Nominal purchases in each quarter are deflated with the chain price index for personal consumption expenditures (PCE) of new and used vehicles.

Table 1. Real Income by Year and Generation
Thousands of 2016 dollars

	2014		1998		1978	
	Young households (Millennials)	All households	Young households (Gen X)	All households	Young households (Boomers)	All households
Male head labor income	49.5	74.1	49.5	64.0	56.1	67.2
	[40.6]	[54.7]	[44.2]	[51.5]	[53.4]	[60.7]
Female head labor income	39.1	46.6	36.5	44.4	35.4	37.1
	[31.2]	[39.9]	[32.4]	[38.3]	[33.1]	[33.2]
Family income married couples	78.2	112.0	73.6	103.8	77.5	88.0
	[67.2]	[87.0]	[62.8]	[81.0]	[73.6]	[79.5]
Memo: Income inequality						
Gini male head income	.35	.42	.31	.37	.26	.29
Gini family income married couples	.35	.41	.34	.40	.26	.31

Source. Panel Study of Income Dynamics, public use dataset. Produced and distributed by the Institute for Social Research, University of Michigan, Ann Arbor, MI (2018).
Note. The table reports average labor earnings and family income (levels and inequality) of the youngest working cohort and the population in 1978, 1998, and 2014. In 1978, the youngest cohort was the baby boomers; in 1998, it was Generation X; and in 2014, it was the millennials. Male head labor income refers to single males or the male spouses of married couples. Female lead labor income refers to single females. Family income refers to married couples. Items in brackets are medians.

Table 2. Regression Analysis of Income by Gender/Family Status and Generation

Variable	Gender or family status		
	Male labor income	Female labor income	Family income
	(1)	(2)	(3)
Gen X	0.181***	0.120***	0.114***
	(0.010)	(0.015)	(0.014)
Boomers	0.274***	0.243***	0.139***
	(0.009)	(0.014)	(0.013)
Control for:			
Age bins	Yes	Yes	Yes
Race	Yes	Yes	Yes
Education	Yes	Yes	Yes
Work status	Yes	Yes	Yes
Marital status	Yes	Yes	Yes
Family size	Yes	Yes	Yes
Memo:			
R-squared	.19	.22	.17
N	51,228	16,494	39,387

Source. Panel Study of Income Dynamics, public use dataset. Produced and distributed by the Institute for Social Research, University of Michigan, Ann Arbor, MI (2018).
Note. The table presents coefficient estimates from regressions of various income measures on cohort dummies and household socioeconomic and demographic characteristics. The sample includes three generations—baby boomers, Generation X, and the millennials. In each regression, the millennials are the omitted group. *** denotes statistical significance at the 99 percent level.

Table 3. Real Liabilities by Year and Generation
Thousands of 2016 dollars

	2017		2004	
Liability type	Young individuals (Millennials)	All individuals	Young individuals (Gen X)	All individuals
Total debt: mean	43.7	47.9	49.0	48.1
: median	19.6	21.3	23.1	22.4
: share (pct.)	81.8%	73.4%	80.2%	74.5%
Mortgage: mean	24.3	34.0	33.7	36.1
: median	105.4	89.4	94.0	81.8
: share (pct.)	18.6%	27.0%	27.7%	31.4%
Auto: mean	5.3	4.5	5.2	4.1
: median	10.2	10.6	11.6	11.4
: share (pct.)	40.4%	32.1%	35.5%	27.7%
Credit card: mean	2.3	3.0	3.4	3.9
: median	1.8	2.1	2.5	2.4
: share (pct.)	58.3%	55.0%	58.4%	57.4%
Student: mean	10.6	5.0	4.5	1.8
: median	17.9	16.4	12.8	10.5
: share (pct.)	33.5%	16.3%	19.8%	9.1%
Other debt: mean	1.2	1.4	2.2	2.2
: median	1.4	1.3	1.6	1.3
: share (pct.)	32.0%	32.2%	41.5%	38.2%
Memo:				
No. of open accts.	3.8	3.9	4.0	4.1
No. of inquiries	2.8	2.1	4.5	3.2

Source. Federal Reserve Bank of New York Consumer Credit Panel/Equifax.
Note. The table reports various components of household liabilities for the youngest working cohort and the population in 2004 and 2017. In 2004, the youngest cohort was Generatiom X, and in 2017 it was the millennials. Median values are conditional on having a positive balance.

Table 4. Real Assets by Year and Age Group/Generational Cohort
Thousands of 2016 dollars

Asset type	2016		2001		1989	
	Young households (Millennials)	All households	Young households (Gen X)	All households	Young households (Boomers)	All households
Total assets: mean	176.3	785.0	227.4	612.5	173.2	402.1
cond. median	55.0	189.5	104.7	200.8	63.3	152.1
Homeownership rate (pct.)	33.9%	63.7%	50.2%	67.7%	47.5%	63.9%
House value: mean	84.1	191.9	95.1	166.2	79.0	126.6
: cond. median	165.0	185.0	135.5	166.6	119.4	130.6
Financial assets: mean	30.9	215.1	52.1	185.8	31.9	98.8
: cond. median	4.4	8.0	6.8	16.6	5.6	13.9
Stock ownership (pct.)	14.7%	19.7%	27.5%	30.0%	13.8%	20.0%
: mean	10.6	103.7	18.0	78.6	3.5	22.0
: cond. median	8.0	52.0	9.3	36.6	5.6	14.9
Retirement balance: mean	18.8	119.1	16.8	75.0	6.6	26.4
: cond. median	15.0	60.0	11.5	39.8	7.5	20.5
Vehicle ownership (pct.)	82.6%	85.2%	82.5%	84.8%	84.3%	83.8%
Vehicle value: mean	17.4	21.6	17.5	21.1	12.5	15.3
: cond. median	16.0	17.0	17.1	18.3	11.4	13.1
Other real estate: mean	10.1	79.3	10.3	57.8	10.4	53.7
: cond. median	71.0	130.0	94.8	94.8	41.0	80.2
Bus. and other assets: mean	15.1	158.0	35.6	106.6	32.9	81.2
: cond. median	20.0	50.0	36.6	67.7	20.5	37.3
Memo:						
Total debt: mean	84.6	95.5	79.4	73.9	59.3	48.7
: cond. median	54.0	60.0	54.2	52.4	31.5	28.0
Net worth: mean	91.7	689.5	148.0	538.6	113.9	353.3
: cond. median	42.2	133.1	48.0	146.8	38.8	117.3
Gini of total assets	.70	.81	.69	.75	.69	.73
Gini of net worth	.75	.83	.75	.78	.74	.76

Source. Survey of Consumer Finances.
Note. The table reports various household balance sheet elements (prevalence, levels, and inequality) for the youngest working cohort and the population in 1989, 2001, and 2016. In 1989, the youngest cohort was the baby boomers; in 2001, it was Generation X; and in 2016, it was the millennials. Conditional medians are conditional on a having a positive balance.

Table 5. Households in the 1986 – 2016 Consumer Expenditure Surveys by Age and Generation

Age	Generation				
	Millennials (1981 - 1997)	Gen X (1965 - 1980)	Boomers (1946 - 1964)	Silent (1928 - 1945)	Greatest (1915 - 1927)
< 20	182	62			
20 to 24	1,616	1,487	131		
25 to 29	2,272	3,848	1,655		
30 to 34	1,303	5,684	4,010		
35 to 39	120	5,986	6,574		
40 to 44		4,213	8,657	505	
45 to 49		2,144	9,148	2,039	
50 to 54		327	9,103	3,264	
55 to 59			6,994	4,526	18
60 to 64			4,080	5,202	963
65+			2,025	14,875	16,187
All	**5,493**	**23,751**	**52,377**	**30,411**	**17,168**

Source. Authors' calculations based on the 1986 – 2016 Consumer Expenditure Surveys.
Note. Figures include consumer units that responded to all four Consumer Expenditure Survey interviews, reported before-tax income, eductainal attainment, and consistently reported the age of head of household. The age and generation of each consumer unit is determined by the average age of the reported head of household over the four interviews.

Table 6. Regression Analysis of Total Spending by Generation
2016 dollars

Variable	Specification				
	Generation	+ age	+ economic	+ demog.	Full
	(1)	(2)	(3)	(4)	(5)
Generation					
Gen-X	10,256 ***	1,974 ***	1,560 ***	-510 *	-802 ***
	(373)	(371)	(264)	(262)	(260)
Boomers	13,598 ***	-687 *	2,714 ***	415	-674 **
	(351)	(413)	(295)	(292)	(295)
Silent	4,236 ***	-9,001 ***	3,314 ***	387	-497
	(371)	(549)	(402)	(397)	(411)
Greatest	-12,255 ***	-16,199 ***	250	-3,314 ***	-3,168 ***
	(352)	(617)	(446)	(438)	(444)
Married				6,521 ***	5,798 ***
				(176)	(191)
Work			2,792 ***	2,727 ***	1,800 ***
			(206)	(200)	(190)
Income			0.437 ***	0.411 ***	0.380 ***
			(0.004)	(0.004)	(0.005)
Family Size				1,558 ***	2,314 ***
				(83)	(86)
Age		2464 ***	404 ***	302 ***	434 ***
		(35)	(29)	(27)	(28)
Age^2		-23.1 ***	-4.2 ***	-2.5 ***	-3.5 ***
		(0.3)	(0.3)	(0.3)	(0.3)
R^2	.06	.09	.53	.55	.57

Note. Robust standard errors are in parentheses. Asterisks denote statistical significance: * is $p < 0.10$, ** is $p < 0.05$, and *** is $p < 0.01$. The estimation period is 1986 to 2016. The sample size 129,200 households. Millennials are the omitted group. Dependent variables are real total expenditures. Included in the set of control variables for column (5) but not reported are: Educational attainment, retirement status, student status, spouse work status, spouse student status, presense of children, family size, race indicator, and the aggregate unemployment rate.

Table 7. Spending Shares by Category, Year, and Generation
Percent of total expenditures

Category	Year						Changes			
	2016		2001		1986		2001 to 2016		1986 to 2016	
	Young households (Millennials)	All households	Young households (Gen-X)	All households	Young households (Boomers)	All households	Young households (M - GX)	All households	Young households (M - B)	All households
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Housing	41.5	39.2	38.8	37.6	37.0	35.1	2.7	1.6	4.5	4.1
Transp.	20.8	19.3	25.3	23.4	25.3	23.8	-4.6	-4.1	-4.5	-4.5
Food	18.7	17.6	15.8	16.1	15.7	17.1	2.9	1.5	2.9	.5
Health	6.2	9.7	3.6	6.3	3.5	5.4	2.6	3.3	2.7	4.2
Entert.	5.1	5.6	5.6	5.7	5.8	5.5	-.5	-.2	-.8	.0
Apparel	2.5	2.2	4.3	4.1	5.6	5.9	-1.8	-1.9	-3.0	-3.6
Education	1.8	2.5	2.3	1.9	1.3	1.5	-.5	.6	.5	1.0
Alc. Bev.	1.4	1.0	1.4	1.0	1.9	1.4	.0	.0	-.5	-.3
Tobacco	.7	.7	.9	.9	1.1	1.2	-.3	-.2	-.4	-.4
Pers. Care	.6	.8	.6	.7	.9	1.1	.1	.1	-.2	-.3
Misc.	.5	1.2	1.1	1.7	1.2	1.4	-.5	-.5	-.7	-.2
Reading	.1	.2	.3	.4	.6	.7	-.2	-.2	-.5	-.5

Source. Consumer Expenditure Survey.
Note. The table presents expnditure shares for various categories of expnediture for all households and the youngest working cohorts in 1989, 2001, and 2016. In 1989, the youngest cohort was the baby boomers; in 2001, it was Generation X; in 2016, it was the millennials.

Table 8. Regression Analysis of Selected Spending Categories by Generation
2016 dollars

Variable	Category and specification					
	Auto	Auto	Food	Food	Housing	Housing
	(1)	(2)	(3)	(4)	(5)	(6)
Generation						
Gen X	671 ***	38	952 ***	-171 ***	3,233 ***	75
	(122)	(127)	(35)	(30)	(139)	(109)
Boomers	572 ***	-21	1,230 ***	-13	2,847 ***	-1,053 ***
	(114)	(135)	(33)	(33)	(127)	(124)
Silent	-35	234	628 ***	208 ***	-698 ***	-1,848 ***
	(116)	(159)	(34)	(40)	(136)	(172)
Greatest	-1,522 ***	-83	-517 ***	216 ***	-5,007 ***	-2,828 ***
	(114)	(172)	(35)	(45)	(129)	(183)
Married		950 ***		511 ***		847 ***
		(58)		(18)		(76)
Work		106 *		-16		-297 ***
		(61)		(18)		(82)
Income		0.021 ***		0.011 ***		0.116 ***
		(0.001)		(0.000)		(0.002)
Family Size		312 ***		867 ***		238 ***
		(26)		(11)		(32)
Age		0.1		95.3 ***		60.9 ***
		(8.5)		(2.5)		(12.0)
Age^2		-0.19 **		-0.87 ***		-0.23 **
		(0.07)		(0.02)		(0.12)
R^2	.01	.05	.05	.44	.05	.40

Note. Robust standard errors are in parentheses. Asterisks denote statistical significance: * is $p < 0.10$, ** is $p < 0.05$, and *** is $p < 0.01$. The estimation period is 1986 to 2016. The sample size is 129,200 households. The dependent variables are real expenditures on the category of spending designated by the column heading. Millennials are the omitted group. Included in the set of control variables for column (5) but not reported are: Educational attainment, retirement status, student status, spouse work status, spouse student status, presence of children, family size, race indicator, and the aggregate unemployment rate.