THE ETERNAL YOUTH FALLACY IN THE FACE OF A PANDEMIC: SENIOR SPENDING PATTERNS AND THE SILVER ECONOMY IN THE UNITED STATES

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Abstract

Population ageing in the United States has resulted in a substantial increase in retiree households. Understanding consumer behaviour among older individuals is crucial for assessing their well-being and living conditions. This study emphasises the importance of recognising the unique needs and preferences of older consumers, as their consumption patterns have a significant influence on household expenditures. While the stereotype of frugal retirees has evolved and active seniors are now portrayed as high spenders, the Covid-19 pandemic highlighted seniors' practical and realistic approach to their spending and challenged the popular notion of a lifestyle of forever-young seniors. Seniors still prioritise essential goods and services. During the pandemic, health-related expenditures increased, and they adapted their leisure activities to home-based alternatives. Our study investigates whether pre-retirees and retirees have shifted from prioritising retirement savings to focusing on essential needs like healthcare and housing, or whether they are allocating resources for experiences and travel to enhance their quality of life before and after retirement. Seniors exhibit distinct consumption patterns, with higher expenditures on health, personal care, and leisure activities than younger age groups. Consequently, businesses and policymakers need to develop strategies that account for the diverse consumption patterns of seniors, rather than assuming they will adopt the preferences of younger generations. The silver economy represents a dynamic and expanding market, particularly in the health and social care sector, offering substantial opportunities for investment.

Keywords: ageing, consumption, Covid-19 pandemic, household, silver economy, well-being
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INTRODUCTION

Household consumption constitutes a substantial portion – approximately sixty percent – of the gross domestic product in developed economies and serves as a fundamental indicator of individual and family well-being (*Olafsson and Pagel, 2018*).

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Understanding the factors that shape household consumption behaviour, both in terms of quantity and composition, is crucial for designing effective social welfare initiatives. As households become more affluent and expand their spending beyond basic necessities, increased demand and growth is generated across multiple industries. Consequently, this drives innovation on the supply side and enhances the well-being of individuals and families *(Chai, 2018*). While a significant portion of consumption among low-income households focuses on meeting basic needs, the preferences of wealthier households lead to greater diversification (*Chai, Rohde, and Silber*, 2015). Three essential forms of heterogeneity can be observed: variation in spending across different income levels, across various goods, and over time, all of which are influenced by household preferences. Therefore, spending is closely tied to societal inequalities and this should be taken into consideration.

External shocks can significantly impact the economy, leading to a decline in consumption. The Covid-19 pandemic, for instance, has imposed restrictions on social interaction and mobility, which led to a substantial reduction in household consumer spending and an unprecedented and challenging recovery of consumption rates (*Martin et al*., 2020; *Perry et al*., 2021). Consumption patterns are influenced by diverse factors, and age and life cycle are significant determinants of income levels and the availability of resources for consumption.

Consumer aspirations vary across different lifestyles and levels of well-being, but income often serves as a constraining factor in fulfilling these aspirations. Households purchase goods and services that range from essential necessities to luxurious items, the prioritisation of which is an individual choice that can be statistically inferred as a collective probabilistic pattern (*Hurd and Rohwedder*, 2013; *Velarde and Herrmann*, 2014). Throughout an individual's life, their demand for goods and services is influenced by their overall sense of well-being. As income rises and opportunities expand, preferences evolve, and consumption tends to increase.

However, greater consumption does not always lead to enhanced well-being, especially when spending capacity is already high (*Witt*, 2019). Typical expenditure patterns undergo significant transformations throughout the life course, with certain types of spending being more prevalent at specific stages. For example, expenditures on education are common in young adulthood, while expenses relating to children are typical during middle age. During old age, elderly individuals often experience a decline in income, leading them to approach household expenses differently, which provides valuable insights into their values and priorities (*Hurd and Rohwedder*, 2006; 2013).

By examining consumption patterns information about well-being can be gathered to some extent. For instance, significant spending on healthcare may indicate health concerns that are impacting a person's overall well-being, while higher expenditures on leisure activities or travel may reflect greater life satisfaction and well-being. As societies worldwide undergo population ageing, the elderly are becoming an increasingly substantial segment of the consumer population. This shift is driven by longer life expectancy, improved material prosperity, and declining birth rates. Traditionally, pre-retirees and retirees prioritised saving for retirement over immediate spending on basic needs like healthcare and housing. It is crucial to investigate whether material prosperity influences this profile and whether pre-retirees and retirees can afford to shift their focus from retirement savings to immediate spending on basic needs and experiences. The rapid growth of the ageing population has a substantial impact on household consumption, and the diverse trajectories of individual residents contribute to a changing consumption landscape for goods and services.

The research question this gives rise to is: To what extent pre-retirees and retirees today can afford to depart from the traditional habit of prioritising retirement savings and instead prioritise spending on essential needs such as healthcare and housing? Moreover, can they allocate more resources to experiences and travel to make the most enjoyable use of their time both before and after retirement?

Understanding behavioural patterns, consumption habits, and the focus and the extent to which people focus on well-being is crucial for businesses and policymakers so that they can better cater to the needs of this demographic group. The recent Covid-19

pandemic is another research motivation for exploring potential differences in consumption habits between the elderly and the younger population.

CONCEPTUAL FRAMEWORK: RETIREMENT, CONSUMPTION, AND WELL-BEING

The concept of successful ageing (*Fiocco – Yaffe*, 2010; *Rychtaříková*, 2002) significantly shapes the collective level and composition of consumption among senior citizens. The active ageing of the elderly population holds profound implications for economic growth, social welfare, and healthcare (*Páleník et al.*, 2015). Additionally, it presents new opportunities for businesses to tap into a growing market, particularly in areas such as telemedicine, e-health, adapted vehicles, bioproducts, and anti-ageing products. Consumer behaviour is influenced by age-related factors that correspond to different life stages, including career, reproduction, and ageing.

Significant shifts in consumption patterns can be attributed to the transition from the working phase of life, changes in family dynamics, and the gradual decline in health with age. Consumption towards the end of the working life is closely linked to the motivation to save and defer consumption for future needs. The Modigliani life-cycle model, a standard framework for analysing household consumption and savings, emphasises that individuals aim to maintain a stable level of consumption throughout their lifetime and accordingly adjust their saving and borrowing behaviour (*Miniaci et al.*, 2003; *Xiao et al.*, 2011). They are inclined to save more during periods of higher income to build reserves for their future decline, while during times of lower income. The concept of hump savings, initially recognised by Harrod in 1948 (*Baranzini*, 2005), remains relevant in current research. As individuals progress through their productive years, they accumulate personal assets, create reserves for retirement, and experience a hump-shaped curve in their lifetime wealth. Although the precise timing and shape of the savings hump may vary across countries and time periods due to socioeconomic factors, the general idea of saving more in the middle of one's career to prepare for retirement holds true (*Clark et al.*, 2015; *Zaidi et al.*, 2019*)*.

Typically, the accumulation of wealth reaches its peak around the ages of 60–65, followed by a subsequent decline in assets. The end of the working career signifies a transition to a phase where individuals need to rely on their accumulated savings to cover their expenses. During this stage, often referred to as negative savings according to Modigliani's life-cycle model, an individual's consumption exceeds their income. However, the effectiveness of the hump savings strategy can be influenced by various factors, including changes in retirement policies, evolving labour market conditions, and the availability of alternative savings options such as pensions and retirement plans (*Hurd and Rohwedder*, 2022).

Changes in values and priorities could also be factors that contribute to the decline in spending. Engel's law, a concept introduced by Engel in 1857, remains a relevant framework for understanding contemporary consumption patterns within the context of modern economic interpretation. Despite its historical origin, the law continues to clarify how the distribution of resources shapes spending behaviours. Individuals with greater resources allocate a smaller proportion of their budget to basic needs like food and housing, in accordance with Engel's original observations (*Engel*, 1857). Moreover, the law informs our understanding of how increasing incomes lead to shifts in expenditure patterns, with a greater focus on categories such as healthcare, leisure, culture, and charitable donations. During productive age, households typically have higher incomes compared to pensioners, and as a result the relative importance of food, housing, and energy in their consumption patterns is lower.

The underlying mechanisms that contribute to the observed decline in consumption after retirement remain poorly understood (*Miniaci et al.*, 2003; *Olaffson – Pagel*, 2018). Previous research has focused on factors such as the reduction in consumer debt and the increase in liquid savings among retirees, which cannot be fully explained by work-related expenses alone. This discrepancy challenges the rational agent theory, which predicts pre-retirement saving due to expected income loss and subsequent dissaving after retirement.

The relationship between income, spending, savings, and healthcare costs in old age is complex. *De Nardi et al.* (2010) found that, for many elderly individuals, the risk of living longer and requiring costly medical care outweighs the desire to leave bequests. Social insurance programmes not only provide a safety net for the poorest but also benefit the affluent by insuring them against high medical expenses in their later years. The authors suggest that the risk of incurring substantial healthcare costs in old age can be a significant driver of saving for many higher-income elderly individuals.

Households who engage in more intensive shopping pay lower prices for the same goods (*Becker*, 1965). Here we can aptly introduce the concept of the opportunity cost of time, where individuals gain more time at the expense of potential income by reducing work hours. Consequently, those with the lowest opportunity cost of time, such as the elderly and low-income groups, tend to spend more time searching for bargains and paying less for items. On the other hand, middle-aged individuals face higher time demands and consequently pay higher prices for the same goods. Therefore, the opportunity cost of time is crucial for examining well-being through consumption since household expenditures can fluctuate even without changes in actual consumption. Changing consumption patterns among new retirees were previously predictable based on income changes *(Olafsson – Pagel*, 2018). However, traditional stereotypes of pensioners as inactive, unproductive, socially disengaged, and struggling to adapt to new circumstances have been challenged in recent years.

The senior citizen population has become increasingly diverse and dynamic, with many individuals leading active and engaged lifestyles. Older individuals also often prioritise experiential spending, such as travel and cultural events, over material possessions (*Patterson and Pegg*, 2009), which highlights the need for a nuanced understanding of consumption patterns. This shift has been driven by the emergence of a new social segment of pensioners who perceive themselves as youthful and adjust their consumer behaviour accordingly (*Lusardi and Mitchell*, 2011), underscoring the economic importance of financial literacy. Considering this evolving trend, retirement is expected to have a limited impact on consumption patterns in the future, particularly in developed countries. This emphasises the importance of addressing the changing lifestyles and consumption habits of senior citizens when examining the relationship between retirement and consumption. However, it is important to note that not all retirees experience the same positive outcomes, as retirement can be a challenging and difficult period, particularly for those facing social isolation, financial insecurity, and health issues (*Kim et al.*, 2021*)*.

In developed countries, where household resources are generally sufficient, different age groups exhibit distinct consumption and savings behaviour patterns (*Baláž*, 2011). The 49–64 age group is typically focused on retirement preparation, with an emphasis on saving as a key aspect of their economic behaviour. Conversely, the 65–74 age group, consisting of relatively young retirees who enjoy good health and an active lifestyle, compensate for lost time by engaging in travel and cultural activities. Meanwhile, the 75 plus age group, or older retirees, transition to a less active lifestyle, reducing spending on work-related expenses, recreation, culture, transportation, and clothing. Consequently, this age group contributes to a slowdown in price growth, except for healthcare and social work prices. Older retirees face increased vulnerability as they realise the possibility of outliving their savings due to extended life expectancy and become aware of the relatively low value of their savings, which are often held in low-risk accounts (*Mason et al.*, 2022). Therefore, it is essential to understand how retirement preparation affects the spending habits of pre-retirees and retirees.

METHODS AND DATA

The silver economy concept refers to the increased demand for goods and services tailored to the interests of older individuals as the population ages, with a focus on healthcare, leisure, and personal care products. To examine the effect of the silver economy on consumer behaviour in the United States, we utilise public use microdata on the household expenditure structure that include information on the age of the reference person of a consumer unit. The reference person is the first individual named by the respondent when

asked to identify the owner or renter of the residence. It is important to note that households and consumer units, while sometimes used interchangeably, do not always coincide. In some cases, a household can have more than one consumer unit. Specifically, we study the influence of retirement age on the consumption patterns of older individuals, using the pre-retirement age group as a baseline.

We employ the age category and use the 55–64 age group as the reference. The presence of a statistically significant and positive coefficient for certain consumption categories would indicate the existence of the silver economy effect, whereby older households allocate more spending to these goods and services compared to their slightly younger counterparts, regardless of income level, location, or data collection timing. The life cycle of households provides a straightforward and effective approach to identify whether these expenditures primarily pertain to healthcare services or are for other purposes.

It is crucial to consider potential sources of distortion in this approach, including the absence of influential household characteristics that may impact the silver economy effect, even when common structural differences are taken into account. Caution must also be exercised in interpreting causality when examining the relationship between age and consumption. The inclusion of age in the model does not establish causation, and only experimental data can offer definitive evidence in this regard. This research focuses on the consumption behaviour of pre-retirees and retirees, particularly regarding their evolving income and expenditure patterns over the life cycle.

The consumer expenditure surveys programme in the United States offers valuable data on consumer expenditures, income, and demographic characteristics. These data are provided in various aggregated formats and in microdata files for public use. The U S Census Bureau collects the data on behalf of the U S Bureau of Labor Statistics through two surveys. The interview survey primarily focuses on gathering data on large and recurring expenses that respondents can reasonably recall over an extended period, typically three months. On the other hand, the diary survey is designed to collect data on frequently purchased items that may be challenging to recall accurately, even after a few weeks. This category includes expenses for food and beverages both at home and in restaurants, housekeeping supplies and services, nonprescription drugs, and various personal care products and services. Given that our model relies solely on data from the interview survey, the ability to accurately capture expenses relating to frequently purchased items may be limited, which could lead to underestimation in the model's representation of certain expenditure categories.

The primary use of consumer expenditure data is to revise the relative importance of goods and services in the consumer price index market basket. The public use microdata files contain individual responses to the surveys, with adjustments made to protect respondent confidentiality while allowing researchers to analyse expenditure, income, and demographic data beyond what is available in published tabulations. For our paper, we will utilise the interview survey. The interview survey follows a rotating panel design, where approximately ten thousand addresses are contacted each calendar quarter, resulting in approximately six thousand usable interviews. Each quarter, one-fourth of the contacted addresses are new to the survey, and after four consecutive quarters a housing unit is dropped from the sample and replaced with a new address (*US Bureau of Labor Statistics*, 2023).

During the survey, respondents provide information on all expenses incurred by the consumer unit, as well as financial and demographic data. However, the surveys do not inquire about the specific purchaser or consumer of each item, which limits the ability to connect the data with individual demographic information. Inferring demographic information for households with multiple members is challenging compared to single-member households. For our purposes, we rely on the concept of a reference person. Our approach distinguishes consumer units based on the age category of the reference person. However, it's important to acknowledge that seniors can be found in various household types, and this limitation affects our comprehensive understanding of senior-related expenses. The available data from the quarterly survey offer a comprehensive overview of household consumption at the national level in the United States, including detailed information on demographic, socioeconomic, and financial factors.

These data allow for chronological comparisons and the segmentation of households based on cross-sectional variables, with age being the key variable of interest. By utilising standard 10-year age categories, we can capture significant behavioural differences that may arise as individuals age beyond 65 and 75 years. To examine household consumption behaviour in relation to age, a multidimensional regression model is appropriate. We employ a fixed effects approach using dummy variables for relevant interest categories. The dependent variable in the model is expenditures on various goods and services for a given surveyed quarter ($C_{i,q}$).

The independent variables encompass reference person attributes, including age (D_a), gender, race, education, household attributes such as income and family size, location-specific characteristics (D_b), and temporal factors (D_q, D_y, P). The age categories of particular interest are 65–74 and 75 plus. In addition to incorporating a linear year-trend (D_y), we include a control variable to distinguish between pre-pandemic (2015–2019) and pandemic (2020–2022) expenditures (P), which is interacted with age ($P*D_a$). To account for the temporal autocorrelation inevitably present, we include the lagged dependent variable from the previous quarter ($logC_{i,q-1}$) among the predictors. The econometric model can be expressed as:

$$logC_{i,q} \sim logC_{i,q-1} + D_a + D_b + D_q + D_y + P + P*D_a + e$$

where $logC_{i,q}$ represents the logarithm of household expenditures in the surveyed quarter, $logC_{i,q-1}$ is the logarithm of lagged household expenditures, D_a represents the age categories, D_b includes household and reference person characteristics, D_q denotes quarter timing factor, D_y represents the linear year trend, P captures the distinction between pre-pandemic and pandemic expenditures, $P*Da$ represents the interaction between age and the pandemic distinction, and e represents the error term. The model incorporates a comprehensive set of variables, with estimated coefficients shedding light on household characteristics and their influence on expenditure decisions. In selecting reference categories for variables, our emphasis is on highlighting the primary age effect on retirement. Although certain reference categories, such as for race or residential location, may not represent the largest groups in the sample, they are chosen to account for demographic and environmental nuances. Importantly, these reference categories serve primarily as control variables and do not significantly impact the overall regression model, as our primary focus remains on understanding the age effect during retirement.

Financial items, representing both partial and total expenditures, are adjusted for inflation and expressed in a stable currency using the first quarter of 2015 as the base (indexed at 100.0). These values are then logarithmically transformed to estimate the consumption scaling coefficient relative to total household expenditures. This analytical approach reveals a power law model within the data, where one quantity is proportionally related to another raised to a specific power. It also unveils distinct scaling patterns in the expenditures across various consumption categories throughout the United States.

RESULTS

Table 1 compares demographic and socioeconomic characteristics between pre-pandemic and pandemic periods, based on weighted consumer expenditure surveys in the United States. The data provide insights into important trends and particularly about household consumption patterns in relation to population ageing. The data reveal an ageing population with a significant representation of older age groups.

This trend is crucial for understanding the changing dynamics of household consumption, as older individuals often have different spending patterns and priorities from younger age groups. There has been a notable increase in homeownership during the pandemic. This trend suggests a preference among individuals and families to invest in their own properties rather than renting. As the population ages, homeownership becomes increasingly important, as older adults often seek stability and the ability to age in place. This trend can have implications for the types of housing-related expenditures and investments made by households.

Considering income levels, there were decreases in the lower income brackets during the pandemic, while the higher income brackets showed increases. Income disparities have a significant impact on house-

hold consumption patterns. Higher disposable income provides more freedom to allocate expenditure, which differs from the patterns observed for individuals with lower incomes. This trend is key for understanding the variability in the impact of population ageing on consumption patterns, as older adults may have different financial resources and spending options.

Table 1 **Demographic and socioeconomic characteristics from consumer expenditure interview surveys, weighted to reflect the U S population (2015–2022)**

	2015–2019	2020–2022
Age (years, %)		
Up to 24	5.6	4.4
25–34	16.3	15.9
35–44	16.6	17.1
45–54	18.0	17.0
55–64	18.8	18.7
65–74	14.3	15.9
75 and more	10.4	11.0
Gender (%)		
Men	47.4	47.5
Women	52.6	52.5
Consumer unit (number)		
People	2.5	2.5
Housing tenure (%)		
Homeowner	63.0	65.2
Renter	37.0	34.8
Race (%)		
White	67.5	66.0
Black	12.9	12.8
Hispanic	13.3	14.5
Other	6.3	6.7
Education (%)		
Elementary or less	3.3	2.9
High school	30.5	28.2
College	66.3	69.0
Income after taxes (thousands of dollars, %)		
Up to 10	7.9	5.9
10–20	11.0	8.8
20–50	31.6	28.4
50–100	30.3	31.0
100–200	15.2	19.8
200 and more	4.0	6.2
Census region (%)		
Midwest	23.4	22.3
Northeast	17.7	17.1
South	37.9	38.9
West	20.9	21.6
Location type (%)		
Rural	6.5	6.2
Urban	93.5	93.8

Note: The variables include reference person attributes, such as age, gender, race, and education, along with location-specific characteristics and household-specific features like income and family size.
Source: Interview Survey, US Bureau of Labor Statistics (2023).

The model data indicate a slight increase in the proportion of individuals with a college education during the pandemic. Higher educational attainment often contributes to increased earning potential and economic stability. This trend suggests that the United States is undergoing a shift towards a more educated population. Higher education can likewise influence preferences, employment opportunities, and income levels. There were slight changes in the distribution of different racial groups during the pandemic. Diversity can impact household consumption patterns, as different cultural backgrounds may have distinct preferences and priorities.

Table 2 presents information on income and expenditures, which offers insights into the dynamics of consumer behaviour. Average annual income levels increased during the pandemic period, both before and after taxes. This suggests a positive trend in the financial wellbeing of the population. The growth in income levels may impact consumer spending patterns, as individuals potentially have more disposable income to allocate to various categories. Total expenditures exhibited a modest increase, indicating that consumers maintained their spending habits despite the challenges posed by the pandemic.

Within specific spending categories, several changes were observed. Essential categories like food, housing, transportation, and healthcare experienced moderate increases, reflecting the continued prioritisation of these necessities in consumer spending. Conversely, certain discretionary categories such as apparel and services, education, personal care products and services, and reading showed decreases in expenditures. These changes reflect the altered consumer preferences and priorities during the pandemic, with individuals scaling back on non-essential expenses. The overall positive trend in income levels and sustained consumer expenditures suggests relative stability and confidence in the economy.

Table 2 **Annual average income levels and quarterly consumer expenditures across primary spending categories, weighted to reflect the US population (2015–2022)**

	2015–2019	2020–2022	Difference (%)
Income (annual)			
Before taxes	72,600.1	76,255.4	5.0
After taxes	62,618.1	67,187.9	7.3
Expenditures (quarterly)			
Total expenditures	9,010.7	9,168.6	1.8
Food	1,320.9	1,383.5	4.7
Alcoholic beverages	80.5	76.4	-5.0
Housing	2,944.1	3,061.1	4.0
Apparel and services	161.8	104.8	-35.2
Transportation	1,537.2	1,558.9	1.4
Healthcare	726.6	745.8	2.6
Entertainment	418.0	410.2	-1.9
Personal care products and services	57.8	52.3	-9.4
Reading	11.8	10.0	-15.3
Education	192.6	129.8	-32.6
Tobacco products and smoking supplies	51.6	46.6	-9.7
Miscellaneous	82.7	91.2	10.2
Cash contributions	323.3	364.6	12.8
Personal insurance and pensions	1,102.0	1,133.6	2.9

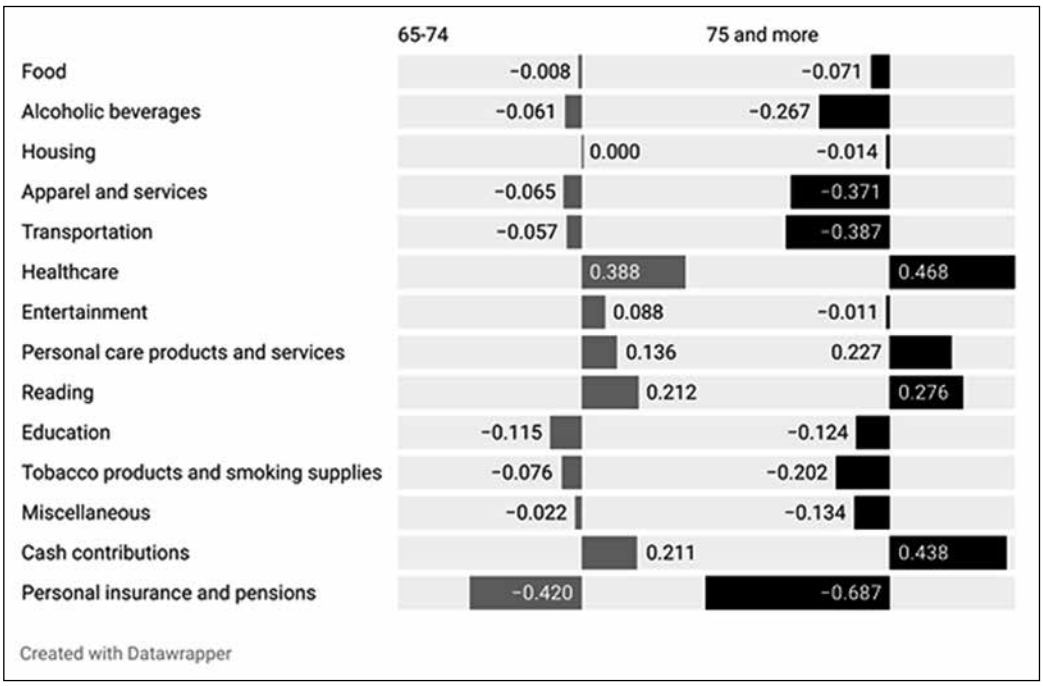
Note: Consumer expenditures are divided up into primary household expenditure categories. The third column presents the percentage difference between the pre-pandemic period (2015–2019) and the pandemic period (2020–2022).
Source: Interview Survey, US Bureau of Labor Statistics (2023).

As individuals transition from their working years to retirement, their consumption patterns undergo notable changes. The statistical analysis documented in Appendix 1 provides us with, among other findings, insights into these age groups' consumption behaviours. The closely aligned R^2 and adjusted R^2 values in regressions, given the substantial number of observations, signify a positive outcome. This suggests that the models effectively capture the variance in the data while indicating a reliable and robust fit for our analysis.

Younger seniors (aged 65–74) typically exhibit reduced expenditures in various categories, particularly in transportation (–0.057), compared to individuals in the pre-retirement phase (Figure 1). In terms of the percentage change, transitioning from pre-retirement to retirement age results in an expected decrease in the mean by approximately 5.5%, as calculated using exp(–0.057) = 0.945. Younger seniors may no longer have the same commuting needs as they did during their working years, which leads to reduced transportation expenses. Similarly, educational expenditures (–0.115) tend to decrease as individuals in this age group are less likely to pursue formal education anymore.

Elderly individuals aged 75 and over demonstrate a consumption pattern that closely resembles the one observed among those aged 65–74 but with more pronounced effects. They display reduced transportation expenditures and the decrease is substantial (–0.387). Additionally, older seniors tend to allocate a greater portion of their resources to healthcare (0.468) and to personal care expenses (0.227) compared to individuals nearing retirement. As age advances, healthcare becomes a more significant consideration. Similarly, personal care expenses rise as older individuals prioritise self-care and well-being. Furthermore, reading emerges as a category to which older seniors allocate more of their resources (0.276) compared to those approaching retirement. The need for intellectual stimulation often continues to grow with age, resulting in higher spending on reading.

Figure 1 **Regression coefficients for primary consumption categories in households with reference persons aged 65–74 and 75 and over relative to the pre-retirement category of 55–64**



Source: Interview Survey, US Bureau of Labor Statistics (2023).

The evolving consumption patterns observed as individuals transition from pre-retirement to post-retirement age groups provide insights into the intricacies of the United States' unique system, which sets it apart from other nations with comprehensive public services. Healthcare expenditures show an increase in both age groups (0.388, 0.468), underscoring the growing importance of medical services as individuals progress in age. The heightened focus on healthcare spending points at the role that health and well-being play in the lives of retirees. Additionally, we observe a surge in cash contributions in these age groups (0.211, 0.438), which include donations and personal gifts. This can be attributed to retirees potentially having more disposable income, enabling them to direct resources towards philanthropic and personal pursuits.

At the same time, the data reveal a decline in personal insurance and pension-related expenditures (–0.420, –0.687) as individuals transition into retirement. This indicates a reduced focus on financial safety nets during the later stages of life, which is potentially attributable to the accumulation of savings and investments built over their working years. This observation underscores the changing financial dynamics that occur as retirees manage their resources while navigating the complexities of the retirement system. The United States' system places a major responsibility on individuals to fund these facets of retirement, thus resulting in the disparities in expenditure behaviour. Our findings provide insights into the nuances of retirement economics in the United States, offering guidance for policymakers and researchers seeking to gain a deeper understanding of challenges encountered.

Spending patterns illustrate the changing lifestyles and priorities that accompany the ageing process. Younger seniors may still be more actively engaged in the workforce or exploring new passions and interests, resulting in different consumption patterns. However, as individuals progress into the older senior category, their focus shifts towards maintaining and enhancing their health, embracing self-care, and seeking intellectual fulfilment. Understanding these consumption patterns is crucial for various stakeholders, including policymakers and businesses. Policymakers can develop programmes and initiatives to support affordable healthcare and access to personal care services for the elderly. Meanwhile, businesses can tailor their offerings to meet the specific needs and preferences of older consumers.

The Covid-19 pandemic brought about significant changes in the consumption patterns of senior categories of consumers. During the pandemic, overall total expenditures experienced a decrease compared to the pre-pandemic period (–0.025). Also, seniors across both age groups reduced their overall spending in response to the economic uncertainties and disruptions. Specifically, the pandemic had a noticeable effect on certain expenditure categories. Apparel and services, which encompassed clothing, saw a significant decline in spending (–0.676). The restrictions and social distancing measures implemented during the pandemic led to a decrease in non-essential shopping and leisure activities. However, it is important to note that the pandemic's impact varied across different expenditure categories.

For instance, healthcare expenditures declined for all consumers (–0.083) but remained stable across age categories, suggesting that seniors maintained their healthcare-related spending. This can be attributed to the continued need for medical services and treatments despite the challenging circumstances. Additionally, the pandemic influenced the digital landscape, prompting a shift in consumption patterns. With the onset of stay-at-home measures, online shopping and digital services experienced a surge in popularity. The shift toward digital platforms has opened up new avenues for individuals of all age groups to access a range of goods, services, and entertainment (*Marston et al., 2020*). However, it is crucial to note, as highlighted by *Buffel et al.* (2023), the continued importance of maintaining non-digital channels for communication, participation, and access to services. These avenues include telephone-based interactions and the distribution of vital information in printed form in order to cater to those who may lack digital proficiency or experience digital exclusion.

The pandemic also led to reduced spending in certain areas, such as apparel and services, while it at the same time highlighted the essential nature of healthcare expenditures and the need to adopt digital platforms. The shifts underscored how priorities evolved and people adapted to the challenges brought

about by the pandemic. These findings reinforce the notion that the silver economy effect is real and robust, although it may take a slightly different form than that portrayed in popular marketing. The silver economy effect primarily applies to expenditures on well-being, healthcare, and specific products and services tailored to the needs of older adults, such as medical devices, senior-friendly housing, and specialised travel packages. As seniors transition into retirement, they often give priority to enhancing their immediate surroundings within their households to accommodate their new retirement lifestyle.

CONCLUSION

The global population is experiencing a significant and irreversible ageing process, driven by declining fertility rates and increasing life expectancy. This demographic shift has profound implications for household consumption patterns. The age and life cycle of the population play a crucial role in determining income levels and the availability of resources for consumption. As households age, their spending patterns undergo notable changes. Our research reveals that the 65 plus age group exhibits spending patterns that are distinct from other age groups. Retirees allocate a higher proportion of their expenses to health and leisure activities compared to households in the higher middle age range (55–64 years).

It is important to note that adopting a US perspective alone is insufficient for understanding global spending trends. The spending structure of households varies significantly across different economies, particularly in less developed regions. Low-income households, for instance, allocate a larger share of their expenditure to meeting basic material needs, such as housing and food, a share greater than what is observed on average among American consumers. Opportunities for businesses in the silver economy may be primarily limited to higher-income segments of the population. Policymakers and stakeholders face the challenge of improving the living standards of senior households, particularly in areas such as healthcare, senior-friendly housing, and other services that cater to the unique needs of seniors.

However, the response from policymakers thus far has been slow. The empirical analysis presented in this study provides compelling evidence that seniors continue to maintain their distinct consumption patterns and have not significantly deviated from their traditional preferences. They have not embraced the more liberal spending habits of younger generations and demonstrate a continued adherence to more conservative consumption behaviours. This challenges the notion that seniors defy ageing and try to stay forever young, as their consumption patterns suggests rather that they adopt a practical and realistic approach to ageing. The study thus highlights the need to embrace ageing gracefully and to recognise the unique needs of seniors. It also sheds light on how individuals adjust their consumption during unpredictable crises, such as the Covid-19 pandemic. The finding that seniors have higher expenditures on healthcare supports the traditional life-cycle theory and emphasises the importance of optimising well-being over the course of one's lifetime.

Instead of assuming that seniors will adopt the preferences of younger generations, businesses and policymakers should focus on developing strategies that cater to the distinct consumption patterns of seniors. Investments in healthcare technology, senior-friendly housing, and transportation services tailored to the needs of older adults are crucial for addressing the demands of the silver economy. Affordability and accessibility should be prioritised to enhance the overall well-being of seniors. Meeting the expectations of seniors for products and services that promote health and independence should be a focus for businesses and policymakers in order to tap into the growing potential of the silver economy.

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APPENDIX

Appendix 1 **Regression coefficients in log-linear models for total expenditures and primary household consumption categories within the U. S. population (2015–2022)**

	Total expenditures	1. Food	2. Alcoholic beverages	3. Housing	4. Apparel and services
Intercept	0.680 (2.355)	−5.913 (3.315)*	−3.761 (9.386)	14.670 (3.046)***	−50.817 (12.793)***
Lagged expenditure	0.729 (0.002)***	0.673 (0.002)***	0.673 (0.002)***	0.701 (0.002)***	0.366 (0.003)***
Age (Ref.: 55–64)					
Up to 24	−0.066 (0.010)***	−0.015 (0.014)	0.165 (0.039)***	−0.178 (0.013)***	0.126 (0.053)**
25–34	−0.004 (0.006)	0.007 (0.009)	0.211 (0.025)***	0.019 (0.008)**	0.259 (0.033)***
35–44	−0.005 (0.006)	0.015 (0.008)*	0.081 (0.024)***	0.015 (0.008)*	0.166 (0.032)***
45–54	−0.003 (0.006)	0.007 (0.008)	0.058 (0.022)***	−0.001 (0.007)	0.091 (0.030)***
65–74	0.000 (0.006)	−0.008 (0.008)	−0.061 (0.023)***	0.000 (0.007)	−0.065 (0.031)**
75 and more	−0.007 (0.006)	−0.071 (0.009)***	−0.267 (0.026)***	−0.014 (0.008)*	−0.371 (0.035)***
Gender (Ref.: Men)					
Women	−0.005 (0.003)*	−0.024 (0.004)***	−0.108 (0.012)***	−0.001 (0.004)	0.111 (0.016)***
Consumer unit					
People	0.015 (0.001)***	0.043 (0.002)***	−0.071 (0.005)***	0.016 (0.002)***	0.107 (0.007)***
Housing tenure (Ref.: Homeowner)					
Renter	−0.010 (0.004)***	−0.062 (0.005)***	−0.074 (0.014)***	0.061 (0.005)***	0.221 (0.019)***
Race (Ref.: Hispanic)					
White	0.015 (0.005)***	−0.008 (0.007)	0.120 (0.019)***	−0.004 (0.006)	−0.092 (0.026)***
Black	−0.014 (0.006)**	−0.051 (0.009)***	−0.096 (0.025)***	−0.017 (0.008)**	0.004 (0.034)
Other	−0.001 (0.007)	−0.011 (0.010)	−0.192 (0.027)***	−0.008 (0.009)	−0.202 (0.037)***
Education (Ref.: Elementary or less)					
High school	0.009 (0.009)	0.025 (0.012)**	0.059 (0.034)*	0.020 (0.011)*	−0.095 (0.047)**
College	0.055 (0.009)***	0.059 (0.012)***	0.204 (0.035)***	0.076 (0.011)***	0.196 (0.047)***
Income after taxes (Ref.: Up to 10)					
10–20	0.026 (0.007)***	0.031 (0.010)***	0.009 (0.029)	0.033 (0.009)***	0.007 (0.039)
20–50	0.147 (0.006)***	0.131 (0.009)***	0.201 (0.025)***	0.137 (0.008)***	0.235 (0.034)***
50–100	0.252 (0.007)***	0.200 (0.009)***	0.431 (0.026)***	0.228 (0.009)***	0.491 (0.035)***
100–200	0.368 (0.008)***	0.266 (0.010)***	0.668 (0.029)***	0.332 (0.010)***	0.847 (0.039)***
200 and more	0.494 (0.010)***	0.344 (0.013)***	0.974 (0.038)***	0.452 (0.012)***	1.318 (0.051)***
Census region (Ref.: Midwest)					
Northeast	0.016 (0.005)***	0.036 (0.006)***	0.065 (0.018)***	0.051 (0.006)***	0.161 (0.025)***
South	−0.003 (0.004)	0.040 (0.006)***	−0.110 (0.016)***	−0.005 (0.005)	−0.222 (0.021)***
West	0.029 (0.004)***	0.054 (0.006)***	0.032 (0.017)*	0.058 (0.005)***	0.043 (0.023)*
Location type (Ref.: Rural)					
Urban	0.034 (0.006)***	0.035 (0.008)***	0.108 (0.023)***	0.088 (0.008)***	0.229 (0.032)***
Time (Ref.: January–March)					
April–June	0.028 (0.004)***	−0.002 (0.006)	0.022 (0.016)	0.027 (0.005)***	0.327 (0.022)***
July–September	0.031 (0.004)***	−0.003 (0.006)	−0.028 (0.016)*	0.019 (0.005)***	0.231 (0.022)***
October–December	0.034 (0.004)***	−0.021 (0.006)***	−0.041 (0.016)**	0.007 (0.005)	0.831 (0.022)***
Year	0.001 (0.001)	0.004 (0.002)**	0.002 (0.005)	−0.006 (0.002)***	0.025 (0.006)***
Pandemic (Ref.: Pre–pandemic)	−0.025 (0.008)***	−0.019 (0.012)	−0.039 (0.034)	−0.001 (0.011)	−0.676 (0.046)***
Pandemic * Up to 24	0.012 (0.019)	0.024 (0.027)	0.114 (0.077)	0.098 (0.025)***	−0.095 (0.105)
Pandemic * 25–34	−0.010 (0.011)	0.000 (0.016)	−0.068 (0.045)	−0.009 (0.015)	−0.135 (0.062)**
Pandemic * 35–44	0.000 (0.011)	−0.010 (0.015)	0.053 (0.043)	−0.006 (0.014)	−0.127 (0.058)**
Pandemic * 45–54	0.007 (0.011)	0.005 (0.015)	−0.038 (0.042)	0.013 (0.014)	−0.136 (0.058)**
Pandemic * 65–74	0.003 (0.01)	−0.013 (0.015)	0.014 (0.041)	0.003 (0.013)	0.139 (0.056)**
Pandemic * 75 and more	0.006 (0.011)	−0.005 (0.016)	0.017 (0.045)	0.024 (0.015)	0.240 (0.062)***
Model details					
N	101,344	101,358	101,358	101,345	101,358
R^2	0.726	0.579	0.544	0.628	0.240
Adj. R^2	0.726	0.579	0.544	0.628	0.240

Continued	5.	6.	7.	8.	9.
	Transportation	**Healthcare**	**Entertainment**	**Personal care**	**Reading**
Intercept	–49.424 (7.062)***	–25.937 (8.416)***	71.821 (9.628)***	–17.933 (9.816)*	56.889 (7.595)***
Lagged expenditure	0.606 (0.002)***	0.713 (0.002)***	0.552 (0.003)***	0.534 (0.003)***	0.471 (0.003)***
Age (Ref.: 55–64)					
Up to 24	0.008 (0.029)	–0.675 (0.035)***	–0.059 (0.040)	–0.182 (0.04)***	–0.166 (0.031)***
25–34	0.050 (0.018)***	–0.286 (0.022)***	0.030 (0.025)	–0.107 (0.026)***	–0.159 (0.020)***
35–44	0.017 (0.018)	–0.236 (0.021)***	0.075 (0.024)***	–0.028 (0.025)	–0.152 (0.019)***
45–54	0.015 (0.017)	–0.106 (0.020)***	0.032 (0.023)	–0.020 (0.023)	–0.125 (0.018)***
65–74	–0.057 (0.017)***	0.388 (0.021)***	0.088 (0.023)***	0.136 (0.024)***	0.212 (0.018)***
75 and more	–0.387 (0.019)***	0.468 (0.023)***	–0.011 (0.026)	0.227 (0.027)***	0.276 (0.021)***
Gender (Ref.: Men)					
Women	–0.059 (0.009)***	0.032 (0.010)***	0.071 (0.012)***	0.056 (0.012)***	0.049 (0.009)***
Consumer unit					
People	0.060 (0.004)***	0.018 (0.004)***	0.030 (0.005)***	–0.008 (0.005)	–0.020 (0.004)***
Housing tenure (Ref.: Homeowner)					
Renter	–0.237 (0.011)***	–0.196 (0.013)***	–0.256 (0.015)***	–0.124 (0.015)***	–0.050 (0.011)***
Race (Ref.: Hispanic)					
White	–0.054 (0.014)***	0.194 (0.017)***	0.229 (0.020)***	–0.051 (0.020)**	0.179 (0.016)***
Black	–0.138 (0.019)***	0.056 (0.023)**	–0.014 (0.026)	–0.149 (0.026)***	–0.016 (0.020)
Other	–0.147 (0.021)***	0.086 (0.025)***	–0.089 (0.028)***	–0.257 (0.029)***	–0.018 (0.022)
Education (Ref.: Elementary or less)					
High school	0.188 (0.026)***	0.077 (0.031)**	0.264 (0.035)***	0.203 (0.036)***	0.018 (0.028)
College	0.299 (0.026)***	0.187 (0.031)***	0.452 (0.035)***	0.438 (0.036)***	0.206 (0.028)***
Income after taxes (Ref.: Up to 10)					
10–20	0.091 (0.022)***	0.111 (0.026)***	0.090 (0.029)***	0.006 (0.030)	–0.031 (0.023)
20–50	0.518 (0.019)***	0.318 (0.022)***	0.395 (0.026)***	0.333 (0.026)***	0.121 (0.020)***
50–100	0.655 (0.020)***	0.539 (0.024)***	0.667 (0.027)***	0.610 (0.027)***	0.229 (0.021)***
100–200	0.739 (0.022)***	0.66 (0.026)***	0.903 (0.03)***	0.964 (0.031)***	0.353 (0.023)***
200 and more	0.802 (0.028)***	0.742 (0.034)***	1.164 (0.039)***	1.274 (0.039)***	0.564 (0.030)***
Census region (Ref.: Midwest)					
Northeast	–0.049 (0.014)***	–0.098 (0.016)***	0.002 (0.019)	0.021 (0.019)	0.017 (0.015)
South	0.029 (0.012)**	–0.027 (0.014)*	–0.097 (0.016)***	–0.129 (0.016)***	–0.107 (0.013)***
West	0.049 (0.013)***	–0.109 (0.015)***	0.036 (0.017)**	0.020 (0.018)	0.082 (0.014)***
Location type (Ref.: Rural)					
Urban	–0.019 (0.017)	–0.017 (0.021)	–0.006 (0.024)	0.223 (0.024)***	–0.005 (0.019)
Time (Ref.: January–March)					
April–June	0.034 (0.012)***	–0.068 (0.014)***	0.254 (0.016)***	0.077 (0.017)***	0.011 (0.013)
July–September	0.014 (0.012)	–0.038 (0.015)***	0.218 (0.017)***	0.040 (0.017)**	0.042 (0.013)***
October–December	–0.050 (0.012)***	–0.026 (0.015)*	0.395 (0.017)***	0.025 (0.017)	0.112 (0.013)***
Year	0.025 (0.004)***	0.013 (0.004)***	–0.035 (0.005)***	0.009 (0.005)*	–0.028 (0.004)***
Pandemic (Ref.: Pre-pandemic)	–0.150 (0.025)***	–0.083 (0.030)***	–0.047 (0.034)	–0.298 (0.035)***	–0.010 (0.027)
Pandemic * Up to 24	0.022 (0.058)	0.030 (0.069)	–0.028 (0.079)	0.131 (0.081)	0.108 (0.063)*
Pandemic * 25–34	–0.025 (0.034)	–0.020 (0.041)	–0.048 (0.046)	–0.010 (0.047)	0.111 (0.037)***
Pandemic * 35–44	–0.034 (0.032)	0.025 (0.038)	–0.089 (0.044)**	–0.093 (0.045)**	0.099 (0.035)***
Pandemic * 45–54	–0.001 (0.032)	–0.044 (0.038)	–0.050 (0.043)	–0.039 (0.044)	0.048 (0.034)
Pandemic * 65–74	–0.040 (0.031)	0.013 (0.037)	0.014 (0.042)	0.015 (0.043)	0.004 (0.033)
Pandemic * 75 and more	0.003 (0.034)	0.021 (0.041)	0.068 (0.046)	–0.005 (0.047)	0.061 (0.037)*
Model details					
N	101,4	100,9	101,4	101,4	101,4
R^2	0.533	0.656	0.428	0.387	0.290
Adj. R^2	0.533	0.656	0.428	0.387	0.290

Continued	10. Education	11. Tobacco products	12. Miscellaneous	13. Cash contributions	14. Personal insurance
Intercept	45.552 (8.951)***	4.347 (6.827)	−12.932 (11.281)	44.624 (12.647)***	16.676 (6.557)**
Lagged expenditure	0.360 (0.003)***	0.776 (0.002)***	0.399 (0.003)***	0.588 (0.003)***	0.757 (0.002)***
Age (Ref.: 55–64)					
Up to 24	0.356 (0.037)***	−0.149 (0.028)***	−0.353 (0.047)***	−0.382 (0.052)***	0.268 (0.027)***
25–34	0.044 (0.023)*	−0.059 (0.018)***	−0.307 (0.030)***	−0.404 (0.033)***	0.163 (0.017)***
35–44	0.115 (0.023)***	−0.021 (0.017)	−0.162 (0.029)***	−0.214 (0.032)***	0.105 (0.017)***
45–54	0.281 (0.021)***	0.031 (0.016)*	−0.086 (0.027)***	−0.096 (0.030)***	0.085 (0.016)***
65–74	−0.115 (0.022)***	−0.076 (0.017)***	−0.022 (0.027)	0.211 (0.031)***	−0.420 (0.016)***
75 and more	−0.124 (0.024)***	−0.202 (0.019)***	−0.134 (0.031)***	0.438 (0.034)***	−0.687 (0.019)***
Gender (Ref.: Men)					
Women	0.018 (0.011)*	−0.014 (0.008)*	−0.031 (0.014)**	0.063 (0.016)***	0.015 (0.008)*
Consumer unit					
People	0.104 (0.005)***	0.021 (0.003)***	−0.011 (0.006)*	0.005 (0.006)	−0.003 (0.003)
Housing tenure (Ref.: Homeowner)					
Renter	−0.021 (0.013)	0.054 (0.010)***	−0.074 (0.017)***	−0.215 (0.019)***	0.056 (0.010)***
Race (Ref.: Hispanic)					
White	0.045 (0.018)**	0.175 (0.014)***	0.030 (0.023)	0.049 (0.026)*	−0.071 (0.013)***
Black	0.029 (0.024)	0.089 (0.018)***	0.018 (0.030)	0.112 (0.034)***	0.019 (0.018)
Other	0.072 (0.026)***	0.095 (0.020)***	−0.133 (0.033)***	−0.165 (0.037)***	−0.063 (0.019)***
Education (Ref.: Elementary or less)					
High school	−0.061 (0.033)*	0.060 (0.025)**	0.119 (0.041)***	−0.024 (0.046)	−0.088 (0.024)***
College	0.118 (0.033)***	−0.056 (0.025)**	0.268 (0.042)***	0.264 (0.047)***	−0.101 (0.024)***
Income after taxes (Ref.: Up to 10)					
10–20	0.001 (0.027)	0.021 (0.021)	−0.028 (0.034)	0.001 (0.038)	0.391 (0.020)***
20–50	−0.038 (0.024)	0.005 (0.018)	0.242 (0.030)***	0.264 (0.034)***	0.978 (0.018)***
50–100	0.024 (0.025)	−0.014 (0.019)	0.456 (0.031)***	0.501 (0.035)***	1.472 (0.020)***
100–200	0.190 (0.027)***	−0.082 (0.021)***	0.622 (0.035)***	0.692 (0.039)***	1.747 (0.022)***
200 and more	0.573 (0.035)***	−0.140 (0.027)***	0.716 (0.045)***	1.036 (0.050)***	1.950 (0.028)***
Census region (Ref.: Midwest)					
Northeast	0.003 (0.017)	−0.069 (0.013)***	−0.033 (0.022)	−0.095 (0.025)***	−0.028 (0.013)**
South	−0.030 (0.015)**	−0.034 (0.011)***	−0.255 (0.019)***	−0.059 (0.021)***	0.002 (0.011)
West	0.008 (0.016)	−0.085 (0.012)***	−0.019 (0.020)	0.012 (0.023)	−0.020 (0.012)*
Location type (Ref.: Rural)					
Urban	0.050 (0.022)**	−0.098 (0.017)***	−0.029 (0.028)	−0.074 (0.031)**	−0.002 (0.016)
Time (Ref.: January–March)					
April–June	−0.119 (0.015)***	0.019 (0.012)	−0.540 (0.019)***	0.475 (0.021)***	−0.012 (0.011)
July–September	0.388 (0.016)***	0.012 (0.012)	−0.481 (0.020)***	0.397 (0.022)***	−0.016 (0.011)
October–December	−0.161 (0.016)***	−0.005 (0.012)	−0.364 (0.020)***	0.977 (0.022)***	−0.017 (0.011)
Year	−0.023 (0.004)***	−0.002 (0.003)	0.007 (0.006)	−0.022 (0.006)***	−0.008 (0.003)**
Pandemic (Ref.: Pre-pandemic)	−0.035 (0.032)	−0.009 (0.024)	0.104 (0.040)***	−0.084 (0.045)*	−0.056 (0.023)**
Pandemic * Up to 24	−0.192 (0.074)***	0.030 (0.056)	0.004 (0.093)	−0.031 (0.104)	0.008 (0.054)
Pandemic * 25–34	−0.077 (0.043)*	0.018 (0.033)	0.126 (0.054)**	0.043 (0.061)	−0.009 (0.032)
Pandemic * 35–44	−0.167 (0.041)***	0.045 (0.031)	0.124 (0.051)**	−0.003 (0.058)	0.004 (0.030)
Pandemic * 45–54	−0.158 (0.040)***	−0.038 (0.031)	0.075 (0.051)	0.011 (0.057)	0.036 (0.029)
Pandemic * 65–74	0.056 (0.039)	0.015 (0.030)	−0.060 (0.050)	0.005 (0.056)	−0.004 (0.029)
Pandemic * 75 and more	0.104 (0.043)**	0.058 (0.033)*	−0.122 (0.054)**	0.071 (0.061)	−0.033 (0.032)
Model details					
N	101,4	101,4	101,4	101,4	101,4
R^2	0.205	0.647	0.206	0.420	0.839
Adj. R^2	0.205	0.647	0.206	0.420	0.839

Note: Standard errors are indicated in parentheses. Statistical significance is denoted as: *10%, **5%, and ***1%. The independent variables considered in the analysis encompass reference person attributes, such as age, gender, race, and education, as well as household characteristics, including income, family size, and location-specific features, alongside temporal factors.

Source: Interview Survey, U. S. Bureau of Labor Statistics (2023).