Volatile Work, Vulnerable Minds: Evidence from the SHED Data *

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Abstract

This study examines how behavioral vulnerability and employment volatility jointly structure household scarcity responses and forward-looking financial insecurity. Using microdata from the 2022 Survey of Household Economics and Decisionmaking (SHED), the analysis integrates three behavioral domains of scarcity—hardship, inflation-adaptation, and liquidity stress—with a composite measure of anticipatory financial insecurity. Across harmonized regression specifications, a consistent empirical architecture emerges: subjective financial fragility is the strongest predictor of all scarcity outcomes, loss aversion amplifies sensitivity to downside risk, and job-market instability—especially involuntary shocks—substantially elevates both acute and anticipatory forms of economic vulnerability. Voluntary job separations exert limited influence on hardship and inflation adaptation but significantly heighten liquidity stress, revealing domain-specific pathways through which labor-market dynamics shape household financial behavior. The results show that employment volatility operates not only as a structural constraint but also as a behavioral catalyst that shapes expectations, coping strategies, and perceived resilience. The paper contributes to research on financial fragility by demonstrating that scarcity is organized around a unified behavioral–volatility mechanism that links present constraints to forward-looking economic insecurity.

Keywords: Employment volatility; Income shocks; Behavioral vulnerability; Financial fragility
JEL Classification Codes: D 14, D84, I31, J60

*All remaining errors are my own.

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1 Introduction

In an era of rising economic uncertainty, individuals increasingly confront unstable employment conditions, irregular income flows, and persistent variation in the cost of living. Standard economic models generally assume that households respond to these shocks using stable preferences and objective financial information. Behavioral economics, however, has shown that subjective perceptions of financial fragility often diverge from observable economic circumstances and can meaningfully distort financial decisions (Kahneman & Tversky, 1979; Mullainathan & Shafir, 2013). These perceptual divergences are especially important in environments characterized by employment volatility, where instability can heighten psychological stress even in the absence of immediate material deprivation.

A substantial body of work documents the prevalence and consequences of financial fragility. Surveys have consistently shown that a large share of households remain unable to absorb modest shocks or maintain stable cash-flow positions (Board of Governors of the Federal Reserve System, 2024; Lusardi, Schneider, & Tufano, 2011). Research also shows that subjective financial assessments—including perceived liquidity, bill stress, and expectations about future finances—are strong predictors of distress, borrowing behavior, and material hardship, even after controlling for income and assets (Netemeyer et al., 2018). At the same time, work on expectations formation emphasizes that households use subjective beliefs to guide consumption, saving, and job search behavior, especially under uncertainty (Giglio, Maggiori, and Stroebel, 2021; Kuchler & Zafar, 2019).

Yet, despite these advances, previous research tends to examine hardship, inflation coping, liquidity stress, or forward-looking financial insecurity in isolation. What remains unclear is whether these outcomes reflect a common behavioral architecture—and, in particular, how subjective financial fragility and employment volatility jointly structure both contemporaneous scarcity responses and expectations about future resilience. Existing studies recognize that subjective vulnerability shapes financial strain—for example, through self-control problems and perceived fragility (Gathergood, 2012) or through income-driven liquidity constraints (Ganong & Noel, 2022)—but few have systematically integrated behavioral dispositions and labor-market instability into a unified empirical framework.

This paper addresses that gap by developing and estimating a behavioral–volatility model of economic scarcity. Using nationally representative data from the Survey of Household Economics and Decisionmaking (SHED), the analysis examines how subjective financial fragility, loss sensitivity, and employment volatility shape four domains: hardship-related scarcity, inflation-adaptation behavior, liquidity stress, and forward-looking financial insecurity. By employing harmonized regression specifications across all outcomes, the study isolates the core behavioral and structural mechanisms that organize both real-time responses to instability and anticipatory beliefs about future financial risk.

This study makes three contributions to the literature. First, it demonstrates that subjective financial fragility and employment volatility consistently outweigh traditional demographic char-

acteristics in predicting scarcity-related behaviors, providing evidence that vulnerability is fundamentally behavioral rather than purely socioeconomic. Second, it reveals that each scarcity domain reflects a distinct combination of the same underlying mechanisms—acute shocks driving hardship, precautionary behavior driving inflation adaptation, and both planned and unplanned transitions driving liquidity stress—showing that households activate different coping strategies depending on the nature of instability. Third, it extends this behavioral architecture to forward-looking financial insecurity, showing that present fragility and downside-risk sensitivity strongly shape pessimistic expectations about the future, thereby linking subjective vulnerability to a form of psychological path dependence.

By situating subjective fragility and employment volatility at the center of household decision-making, this paper offers a more comprehensive explanation for why economic insecurity persists even when opportunities for recovery or upward mobility remain available. The findings align with and extend recent work on financial fragility, expectations, and behavioral responses to instability (Lusardi et al., 2011; Giglio et al., 2021; Cai et al., 2023), providing an integrated framework for understanding how instability becomes internalized and self-reinforcing. This perspective underscores the need for policy interventions that stabilize both material conditions and expectations, addressing the dual economic and psychological channels through which volatility shapes financial well-being.

To situate the argument, Section 2 reviews the literatures on financial fragility, subjective expectations, and the behavioral consequences of labor-market volatility. Section 3 introduces the SHED data and details the construction of the scarcity measures, behavioral indices, and volatility indicators used throughout the analysis. Section 4 presents the regression framework and the main empirical results, followed by robustness tests that evaluate the stability of the behavioral–volatility patterns across alternative specifications. Section 5 summarizes the central empirical implications, and Section 6 extends the analysis through a broader discussion of interpretation, limitations, and the conceptual and policy implications that follow from viewing economic insecurity as a behavioral as well as structural phenomenon.

2 Literature Review

Economic vulnerability has long been examined through the dual lenses of behavioral decision-making and structural instability. Foundational research in behavioral economics has shown that individuals systematically deviate from the predictions of classical rational-choice models when facing uncertainty or scarcity. Prospect theory, introduced by Kahneman and Tversky (1979) and extended through reference-dependent models of loss aversion in Tversky and Kahneman (1991), provides the conceptual core for understanding how individuals overweight losses relative to gains, exhibit diminishing sensitivity, and anchor choices to salient reference points. Subsequent empirical and theoretical work has reaffirmed the centrality of loss aversion in shaping risk-taking, intertemporal trade-offs, and consumption adjustments, including field experiments demonstrat-

ing behavioral responses to wage incentives in Fehr and Goette (2007), parameter-free measurements of loss aversion in Abdellaoui, Bleichrodt, and Paraschiv (2007), and comprehensive assessments of prospect theory's role in contemporary economics in Barberis (2013). Complementary research has documented additional behavioral frictions–status quo bias (Samuelson and Zeckhauser, 1988), inertia in retirement savings (Madrian and Shea, 2001), and anticipatory adjustment mechanisms such as Save More Tomorrow (Thaler and Benartzi, 2004)–showing that preferences under uncertainty are governed by a mixture of cognitive constraints, reference dependence, and effort-minimizing heuristics. These insights form a necessary foundation for understanding the Loss Aversion Index (LAI) and the behavioral vulnerability constructs used in the present study.

Parallel to the development of behavioral decision theory, a growing body of work examines the psychological and cognitive dimensions of scarcity. Mullainathan and Shafir (2013) argue that scarcity generates a distinctive pattern of cognitive load, bandwidth taxation, and attentional tunneling that shapes decision quality across domains. Experimental evidence from psychology and economics demonstrates that scarcity-induced cognitive strain reduces executive functioning and impairs intertemporal planning, as shown in Mani et al. (2013), channels attention toward immediate deficits at the expense of long-run considerations (Shah, Mullainathan, and Shafir, 2012), and produces systematic behavioral distortions even absent changes in underlying resources. Together, these findings underscore that economic strain functions not only as a material constraint but also as a psychological condition that alters perception, judgment, and expectations. This perspective provides essential grounding for interpreting subjective financial well-being (SFW) and scarcity-related behaviors as outcomes driven by both economic conditions and cognitive mechanisms.

Household finance scholarship has increasingly situated financial vulnerability within a framework that blends behavioral frictions with structural constraints. Research on financial fragility identifies widespread exposure to liquidity shortfalls and limited capacity to absorb shocks. Lusardi, Schneider, and Tufano (2011) show that nearly half of U.S. households cannot cope with modest emergencies and that fragility arises from both income volatility and precautionary shortfalls. Measures of financial well-being developed by the Consumer Financial Protection Bureau (2015) and psychometric assessments such as the InCharge scale in Prawitz et al. (2006) and the subjective well-being index in Netemeyer et al. (2018) demonstrate that perceptions of vulnerability powerfully predict financial behavior above and beyond objective indicators. These studies reinforce a growing consensus that subjective assessments of stability or strain are not mere reflections of economic conditions—they shape coping behavior, risk-taking, and forward-looking belief formation. Classical accounts of household consumption smoothing and saving, including Browning and Lusardi (1996) and Jappelli and Pistaferri (2010), further demonstrate that liquidity constraints and expectations of future income jointly determine adjustment patterns, thereby linking fragility to intertemporal decision frameworks.

The behavioral mechanisms underlying scarcity increasingly intersect with research on expectations, beliefs, and subjective probability formation. Seminal findings show that personal ex-

periences shape macroeconomic expectations, influencing individuals' forecasts of inflation, unemployment, and market returns, as documented in Kuchler and Zafar (2019). The evidence in Giglio et al. (2021) that beliefs and portfolios co-evolve underscores that expectations are not passive beliefs but components of active financial decision-making. Research in behavioral household finance shows that self-control problems and subjective financial fragility strongly predict over-indebtedness and exposure to income shocks, suggesting behavioral constraints interact with economic volatility to amplify financial stress (Gathergood, 2012). Advances in neuroeconomics further demonstrate how neural representations of value and uncertainty guide belief updating and economic choice, as synthesized in Padoa-Schioppa (2011). These insights directly inform the conceptual basis for the Financial Insecurity Index (FII) employed in this study, which captures forward-looking assessments shaped by behavioral dispositions rather than solely by economic fundamentals.

The structural dimension of economic vulnerability is most visible in the domain of income instability, job insecurity, and labor-market volatility. Early conceptualizations of job insecurity emphasized its multidimensional nature, distinguishing between subjective fears of job loss and objective risks arising from economic conditions, as outlined in Greenhalgh and Rosenblatt (1984). Systematic reviews such as De Witte (2005) highlight that job insecurity is associated with deteriorating mental health, diminished motivation, and lower economic confidence across countries. In a broad sociological treatment, Kalleberg (2018) documents the rise of precarious work arrangements and employment volatility in advanced economies, emphasizing their long-term implications for financial instability and well-being. Empirical evidence from economics shows declining worker–firm attachment and rising employment instability in the United States (Farber, 2017), while research on unstable scheduling practices demonstrates that unpredictable hours contribute to economic insecurity and institutional distrust (Lambert, Henly, and Kim, 2019). These findings underscore that volatility in labor markets affects households through both income pathways and psychological channels.

Volatility also affects consumption dynamics and liquidity demand. Research on the sensitivity of spending to income shocks shows that households often exhibit excess sensitivity to transitory income, revealing the presence of liquidity constraints and forward-looking precautionary adjustments, as shown in Ganong and Noel (2022). More recent work on expectations and household behavior in macroeconomic fluctuations, including Cai, Favilukis, and Ludvigson (2023), continues to show that subjective perceptions of stability or threat shape both immediate consumption responses and broader decision frameworks. These insights directly relate to the Federal Reserve's (2024) documentation of widespread income volatility, limited emergency savings, and persistent uncertainty.

These strands of research converge on a shared insight: economic insecurity arises from the interaction of behavioral vulnerability, subjective expectations, and employment volatility. Behavioral economics explains why individuals facing uncertainty rely on heuristics shaped by loss sensitivity and scarcity-induced cognitive strain; household finance research shows that subjec-

tive financial well-being and perceived fragility strongly influence coping behavior; expectations research demonstrates that forward-looking beliefs amplify or mitigate exposure to volatility; and labor economics establishes that unstable employment has both material and psychological consequences. The present study synthesizes these literatures by examining how subjective financial fragility, downside-risk sensitivity, and job-market instability jointly structure multiple forms of scarcity–hardship, inflation adaptation, liquidity stress–and extend into forward-looking financial insecurity. In doing so, this research positions employment volatility not only as a structural constraint but also as a behavioral catalyst that shapes the cognitive and affective landscape through which households interpret and respond to economic uncertainty.

The existing scholarship highlights the central role of behavioral vulnerability, subjective financial assessments, and volatility-related stressors in shaping economic decision-making. To empirically investigate how these mechanisms operate within contemporary household environments, the following section introduces the SHED microdata and explains the construction of each variable used in the analysis, detailing how key behavioral, perceptual, and structural indicators map onto the scarcity outcomes examined in this study.

3 Data and Variable

This study draws on microdata from the 2022 Survey of Household Economics and Decisionmaking (SHED) to construct the measures used in the empirical analysis. The variables are organized into conceptually distinct categories that capture the behavioral, perceptual, and structural dimensions of household economic conditions. The analysis focuses on two dependent variables: the Scarcity Bias Indicators (SBIs), which represent behavioral manifestations of financial strain, and the Financial Insecurity Index (FII), which captures forward-looking perceptions of economic vulnerability. The independent variables include subjective financial assessments, behavioral bias measures, and job-security–related indicators, together with demographic and socioeconomic controls. This structure provides a coherent framework for examining how financial conditions and labor-market experiences shape both behavioral responses to scarcity and perceived economic fragility.

3.1 Demographic and Socioeconomic Controls

To isolate the behavioral and perceptual effects of financial instability from structural demographic differences, the model incorporates a comprehensive set of control variables. These include age (ppage), gender (ppgender), race (pprace), ethnicity (ppethm), marital status (ppmarit), educational attainment (ppeducat), household income level (I40), and household savings or investment holdings (ppfs0596). Homeownership status (pprent) is included as an indicator of economic stability and long-term asset security, while regional variation is captured through the nine-category census region variable (ppreg9). Survey weights are applied to ensure population representativeness. These controls account for structural heterogeneity in socioeconomic background, enabling

clearer identification of behavioral effects on job security outcomes.

Table 1: Descriptive Statistics: Demographic Characteristics of Respondents (N = 8,312)

Variable	Category	Count	Percent
Age			
	18–24	693	8.34
	25–34	1,765	21.23
	35–44	1,860	22.38
	45–54	1,694	20.38
	55–64	2,300	27.67
Gender			
	Female	4,042	48.63
	Male	4,270	51.37
Race			
	2+ races	366	4.40
	American Indian or Alaska Native	88	1.06
	Asian	392	4.72
	Black or African American	994	11.96
	Native Hawaiian/Pacific Islander	15	0.18
	White	6,456	77.67
Ethnicity			
	Hispanic	1,223	14.71
	Non-Hispanic	7,089	85.29
Income			
	Less than $15,000	1,939	23.33
	$15,000 to $49,999	1,557	18.73
	$50,000 to $74,999	1,062	12.78
	$75,000 to $99,999	881	10.60
	$100,000 to $149,999	1,195	14.38
	$150,000 to $199,999	801	9.64
	$200,000 or higher	877	10.55
Education			
	No high school diploma or GED	520	6.26
	High school graduate (or equivalent)	1,879	22.61
	Some college or Associate's degree	2,252	27.09
	Bachelor's degree or higher	3,661	44.04
Employment			
	Working full-time	5,191	62.45
	Working part-time	1,163	13.99
	Not working	1,958	23.56
Lay Off Exp			
	Yes		
Homeownership			
	Owned or being bought	5,736	69.01
	Rented	2,576	30.99

The descriptive statistics in Table 1 present the demographic composition of the analytic sample used in this study. To ensure that the measure of job security reflects active labor-market exposure rather than retirement-related factors, respondents aged 65 and older were excluded. The final sample consists of 8,312 individuals between the ages of 18 and 64, representing a diverse cross-section of U.S. working-age households.

The age distribution is relatively balanced across mid-career categories, with the largest shares between 35–44 (22.4 percent) and 55–64 (27.7 percent), indicating mature labor-force representation. Gender composition is nearly even, with 48.6 percent female and 51.4 percent male. The sample is predominantly White (77.7 percent), followed by Black or African American (12.0 percent), Asian (4.7 percent), and multiracial (4.4 percent) respondents, while 14.7 percent identify as Hispanic.

Socioeconomic indicators reveal a broad spectrum of financial circumstances, underscoring heterogeneity in economic stability within the working-age population. Nearly one-quarter of respondents report annual household income below $15,000 (23.3 percent), indicating a sizable segment with limited financial buffers and heightened vulnerability to income or employment shocks. In contrast, roughly one-third earn $75,000 or more, reflecting relatively stable or higher-income households with greater capacity to absorb short-term disruptions. Educational attainment skews upward, with 44.0 percent holding at least a bachelor's degree, consistent with established evidence linking education to higher earnings potential, employment stability, and adaptability to labor-market changes.

Employment patterns further illustrate the diversity of labor-market engagement. About 62.5 percent of respondents are employed full-time, 14.0 percent part-time, and 23.6 percent not currently working, suggesting that a notable proportion of adults experience irregular or intermittent employment—conditions frequently associated with perceived insecurity and reduced access to employer-based benefits. Housing tenure also varies substantially: approximately 69.0 percent of respondents either own their home or are making mortgage payments, whereas 31.0 percent rent their residence. Homeownership generally signifies accumulated wealth and financial stability, while renting often implies higher exposure to housing cost volatility and limited capacity to build equity over time.

3.2 Dependent Variables: Scarcity Biases & Financial Insecurity

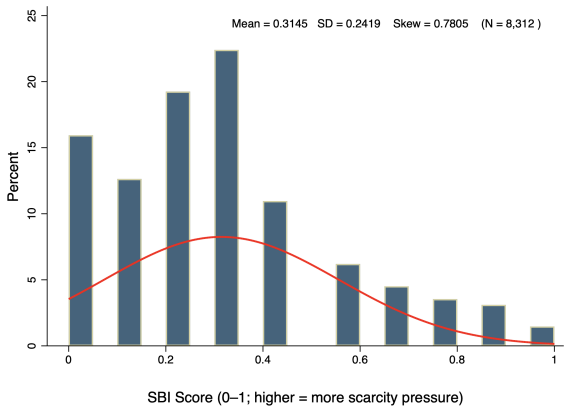
To capture how employment instability shapes behavioral and economic perceptions, the analysis focuses on two primary dependent variables: scarcity bias and financial insecurity. Scarcity bias reflects the extent to which individuals exhibit cognitive shifts associated with limited resources, such as heightened present focus or reduced bandwidth for forward-looking decisions. Financial insecurity measures respondents' perceived vulnerability regarding their future economic stability, including expectations about their ability to meet obligations and maintain resilience against potential shocks. Together, these measures provide a comprehensive lens for understanding how instability influences both psychological responses and economic decision-making.

3.2.1 Scarcity Bias Indicators (SBIs)

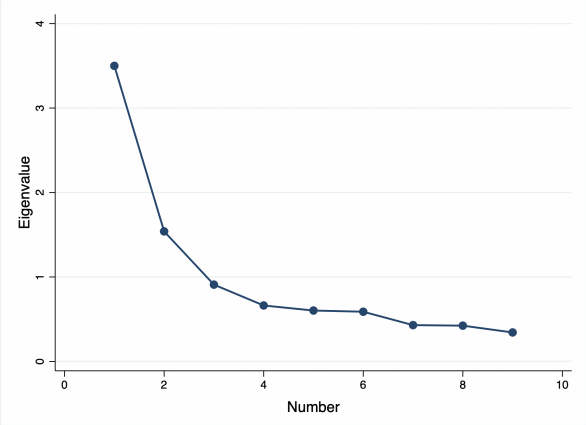
Grounded in scarcity theory (Mullainathan & Shafir, 2013), the Scarcity Bias Indicators (SBIs) capture behavioral manifestations of financial strain that emerge when constrained resources nar-

row attention, compress planning horizons, and induce short-term, reactive decision-making. Elevated scarcity bias reflects the cognitive and emotional burden created by economic pressure—manifesting in limited foresight, reduced flexibility, and heightened sensitivity to immediate costs (Mani et al., 2013; Shah et al., 2012). These behaviors are of substantive interest in this study because they represent consequential responses to financial insecurity, with potential implications for economic well-being, labor market engagement, and forward-looking decision-making.

The indicators consist of nine binary variables representing three conceptually distinct domains: healthcare hardship, inflation-related coping, and cash-flow pressure. Healthcare hardship includes five items measuring forgone medical, dental, or mental health care due to cost. Inflation-related coping consists of three adjustments to rising prices, such as switching to cheaper products, reducing consumption, or delaying purchases. Cash-flow pressure is captured by a single indicator reflecting whether household spending exceeds income. Each variable equals one when the respondent reports the behavior and zero otherwise.



(a) Distribution of the Scarcity Bias Score



(b) Scree plot from principal-component factor analysis

Figure 1: Visual summary of the Scarcity Bias Index (SBI). Panel (a) shows the empirical distribution of the SBS (bounded in $[0, 1]$ with moderate right skew), and panel (b) displays the scree plot of eigenvalues indicating a three-factor structure underlying the index.

Although these indicators can be summarized into an aggregate scarcity score by computing the respondent-level mean across the nine items, the underlying distribution reveals meaningful heterogeneity. Graph 1(a) displays the empirical distribution of the Scarcity Bias Score (SBS), a continuous measure ranging from 0 to 1 that reflects the proportion of scarcity-consistent behaviors reported by each respondent. The SBS is calculated as the row mean of the nine binary indicators, where each item is coded 1 when the behavior signals financial strain and 0 otherwise. This construction ensures that the score remains interpretable even in the presence of partial nonresponse, as the resulting value represents the share of available items for which scarcity-consistent behaviors are observed. Higher SBS values indicate a greater incidence of behavioral responses

associated with financial pressure.

The distribution is moderately right-skewed, with a mean of approximately 0.31 and a standard deviation of about 0.24. Most respondents cluster near the center of the scale, typically reporting two or three scarcity behaviors, while a smaller subgroup exhibits substantially higher scores (above 0.6), indicative of overlapping and persistent financial pressures. The extended right tail underscores that severe scarcity is concentrated among a minority of households, consistent with prior evidence that economic hardship is unevenly distributed across the population.

Graph 1(b) presents the scree plot from a principal-component factor analysis of the nine SBI items. The steep decline after the first three eigenvalues, followed by a clear flattening of the curve, indicates a three-factor structure that aligns with the conceptual domains of the indicators: cost-related healthcare hardship, inflation-induced coping behaviors, and cash-flow pressure. Components beyond the third contribute minimal additional variance, supporting the interpretation of the SBS as a multidimensional construct composed of several coherent yet distinct behavioral expressions of financial scarcity.

This visual patterns motivate a closer examination of how the nine scarcity indicators relate to one another. Before turning to the factor structure and subscale construction, it is necessary to assess the strength and coherence of the relationships among individual items.

Table 2: Pairwise correlations among Scarcity Bias Index (SBI) indicators

Variable	i20_more	e1_a	e1_b	e1_c	e1_d	e1_e	inf3_a	inf3_b	inf3_e
i20_more	1.000								
e1_a	0.174***	1.000							
e1_b	0.203***	0.527***	1.000						
e1_c	0.167***	0.411***	0.524***	1.000					
e1_d	0.201***	0.403***	0.591***	0.403***	1.000				
e1_e	0.186***	0.537***	0.634***	0.512***	0.503***	1.000			
inf3_a	0.120***	0.152***	0.196***	0.151***	0.189***	0.161***	1.000		
inf3_b	0.142***	0.158***	0.216***	0.164***	0.221***	0.180***	0.567***	1.000	
inf3_e	0.172***	0.191***	0.251***	0.204***	0.258***	0.217***	0.366***	0.404***	1.000

Notes. $N = 8{,}312$. Pearson correlations. $^{***}p < .001$. All variables are binary, where 1 indicates a scarcity-consistent behavior.

The pairwise correlations reported in Table 2 show a clear and interpretable pattern that aligns with the theoretical structure of the scarcity indicators. The five healthcare hardship items (e1_a–e1_e) exhibit moderate to strong associations with one another, with correlations generally between 0.40 and 0.63. These relationships reflect the shared underlying mechanism of unmet medical needs that arise when financial constraints inhibit access to care. The three inflation-related coping behaviors (inf3_a–inf3_e) also correlate meaningfully within their domain, particularly between switching to cheaper products and reducing usage, which show the strongest association. This pattern is consistent with adaptive consumption adjustments that arise in response to rising costs.

Correlations across domains are positive but noticeably smaller, typically around 0.10 to 0.20. This indicates that individuals experiencing hardship in one area are somewhat more likely to exhibit scarcity behaviors in another, but the domains remain sufficiently distinct to justify sepa-

rate consideration. The cash-flow pressure indicator correlates weakly with both the hardship and coping items, reflecting its unique role as a signal of liquidity strain rather than a specific form of foregone consumption or behavioral adjustment.

The correlation matrix provides preliminary evidence for a multidimensional behavioral structure, characterized by internally cohesive clusters and moderate differentiation across domains. These patterns reinforce the suitability of factor analysis as a method for identifying the latent dimensions underlying the Scarcity Bias Indicators.

Table 3: Rotated Factor Loadings and Descriptive Statistics for the Scarcity Bias Indicators (SBIs)

Panel A. Rotated factor loadings (varimax) and uniqueness

Item (code and description)	Factor 1: Hardship	Factor 2: Inflation coping	Uniqueness
i20_more (spending > income)	0.285	0.226	0.868
e1_a (skipped prescription)	0.732	0.077	0.459
e1_b (skipped doctor visit)	0.835	0.146	0.281
e1_c (skipped mental health care)	0.719	0.091	0.475
e1_d (skipped dental care)	0.716	0.189	0.452
e1_e (skipped follow-up care)	0.822	0.088	0.316
inf3_a (switched to cheaper products)	0.076	0.823	0.317
inf3_b (used less or stopped using)	0.104	0.837	0.289
inf3_e (delayed major purchase)	0.209	0.674	0.503

Panel B. Subscale indicators descriptive (row means of 0/1 items)

Subscale (code)	Items (k)	N	Mean	SD
Cash-flow pressure (SBI_cashflow)	1	8,312	0.206	0.404
Cost-related hardship (SBI_hardship)	5	8,312	0.148	0.273
Inflation-induced coping (SBI_inflation)	3	8,312	0.628	0.379

Note. Extraction: principal-component factors; rotation: orthogonal varimax. Two factors were retained (eigenvalues = 3.08 and 1.96), jointly explaining 56.0% of total variance. KMO = 0.84; Bartlett's $\chi^2(36) \approx 22{,}000$, $p < .001$. Subscales are constructed as row means of binary scarcity indicators: `SBI_cashflow = {i20_more}`, `SBI_hardship = {e1_a, e1_b, e1_c, e1_d, e1_e}`, `SBI_inflation = {inf3_a, inf3_b, inf3_e}`. Each subscale score ranges from 0–1 (0 = no scarcity-consistent behaviors; 1 = all behaviors present). Sample restricted to adults ages 18–64 ($N = 8{,}312$).

Factor analysis was conducted to assess whether the nine behavioral indicators in the Scarcity Bias Score (SBS) reflect underlying latent constructs rather than unrelated symptoms of financial strain. Because the items represent conceptually distinct manifestations of scarcity–healthcare hardship, inflation-related coping, and cash-flow pressure–factor analysis offers an empirical test of whether these behaviors cluster into interpretable dimensions. A principal-component factor extraction with orthogonal varimax rotation revealed a clear two-factor structure (Table 3, Panel A). The first factor shows strong loadings on the five healthcare-related hardship items (0.72–0.84), indicating a cohesive latent dimension capturing forgone medical care. The second factor loads heavily on the three inflation-related coping behaviors (0.67–0.84), reflecting adjustments such as switching to cheaper goods, reducing usage, or delaying purchases. The cash-flow pressure indicator (spending greater than income) loads only modestly on these factors and exhibits high uniqueness (0.87), suggesting that it represents a distinct signal of financial strain rather than belonging to either dominant dimension.

The two retained factors account for approximately 56% of the total variance, and diagnostic tests confirm excellent factorability (KMO = 0.84; Bartlett's $\chi^2(36) \approx 22{,}000$, $p < 0.001$). Descriptive statistics for the resulting subscales appear in Table 3, Panel B. Hardship behaviors (mean = 0.148) are relatively uncommon, whereas inflation-induced coping behaviors (mean = 0.628) are widespread, consistent with elevated cost-of-living pressures. Cash-flow imbalance affects about 20% of adults, indicating a notable share of respondents experiencing liquidity strain. These results confirm that the SBI captures multiple, behaviorally distinct dimensions of scarcity.

Although the cash-flow indicator does not load strongly on the two latent factors, its inclusion remains theoretically justified. Overspending relative to income reflects a meaningful behavioral response to constrained financial slack: when liquidity is tight, financial decisions often become reactive and short-term oriented. Scarcity theory (Mullainathan & Shafir, 2013) emphasizes that such conditions narrow attention and reduce planning capacity—effects that may arise independently of healthcare avoidance or inflation-related consumption adjustments. The high uniqueness of the cash-flow item therefore indicates that it contributes nonredundant information about scarcity-related behavior.

Accordingly, the analysis treats cash-flow pressure, healthcare hardship, and inflation-induced coping as three separate behavioral dimensions. This multidimensional specification aligns with both the empirical structure of the data and theoretical perspectives that conceptualize financial scarcity as a set of interconnected, rather than uniform, behavioral responses. Modeling the subscales independently provides clearer interpretation and prevents distinct mechanisms of economic pressure from being conflated. This structure also allows the analysis to assess how different behavioral pathways–hardship, routine coping adjustments, and macro-level cost strain–uniquely predict acute financial vulnerability.

Having defined the behavioral dimensions of scarcity, the variable analysis next introduces the Financial Insecurity Index, an additional dependent variable that captures the structural and perceptual components of financial vulnerability.

3.2.2 Financial Insecurity Index (FII)

The Financial Insecurity Index (FII) captures the forward-looking dimension of perceived economic vulnerability, emphasizing individuals' expectations about their future financial stability and preparedness for potential shocks. Three survey items inform this construct. Future financial expectations (B6) measure respondents' anticipated financial trajectory, reflecting optimism or pessimism about their ability to maintain or improve their economic position. The existence of an emergency fund (EF1) provides a basic indicator of precautionary capacity, while emergency fund adequacy (EF7) assesses whether available reserves are sufficient to absorb short-term shocks–an important marker of resilience widely emphasized in household finance and well-being research (CFPB, 2015; Netemeyer et al., 2018).

All three items were recoded so that higher values represent greater perceived vulnerability, standardized to z-scores, and averaged to form a single index representing forward-looking finan-

cial insecurity. This approach combines subjective expectations with indicators of precautionary readiness, providing a multidimensional measure of anticipated financial fragility.

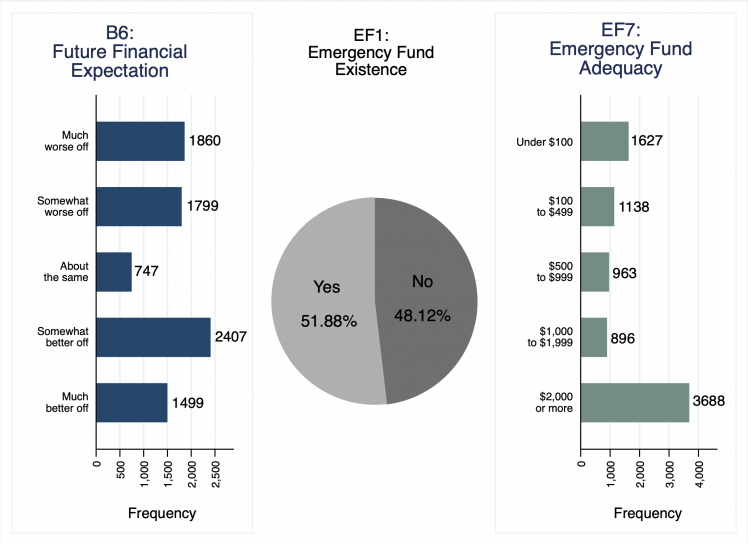


Figure 2: FII: Financial Insecurity Index.

Figure 2 presents the distribution of the three FII components. The left panel (B6) shows substantial heterogeneity in expected financial trajectories: while 47% of respondents anticipate being somewhat or much better off, approximately 44% expect their situation to worsen, indicating notable divergence in forward-looking confidence. The center panel (EF1) shows that only slightly more than half (52%) report having an emergency fund, suggesting that a sizable segment of households lack basic financial buffers. The right panel (EF7) reveals wide variation in savings adequacy: nearly 20% hold less than $100 in emergency funds, whereas 44% report $2,000 or more, underscoring sharp disparities in shock-absorption capacity. These distributions highlight a population characterized by mixed expectations and uneven preparedness for financial uncertainty.

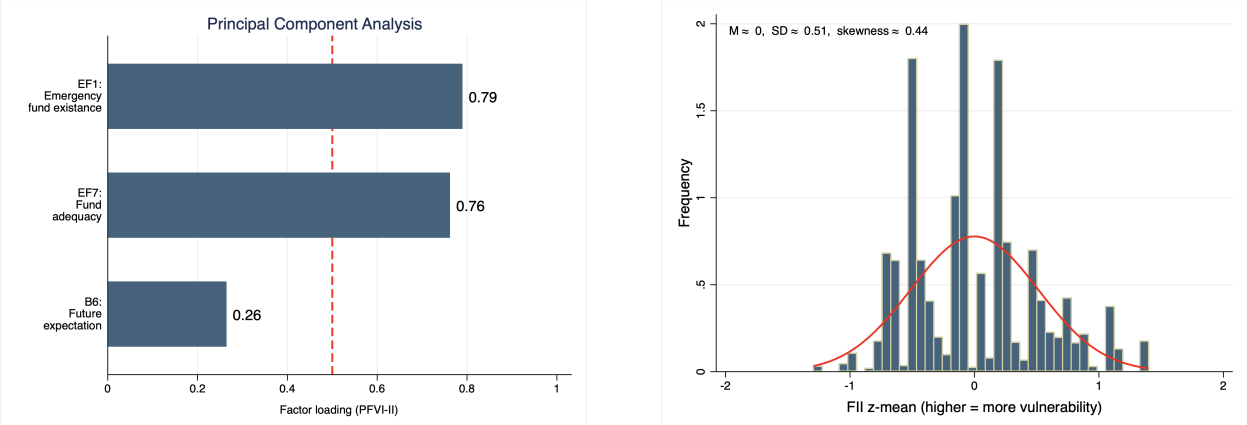
Table 4: Pearson Correlations among FII Components

	B6	EF1	EF7
B6	1.000	0.232	0.269
EF1		1.000	0.646
EF7			1.000

Notes: Pearson pairwise correlations computed on the analytic sample (N = 8,312; ages 18–64).
B6 = future financial expectation (1 = much worse off, 5 = much better off).
EF1 = emergency fund existence (0 = no, 1 = yes).
EF7 = emergency fund adequacy (1 = under $100, 5 = $2,000 or more).

The correlations in Table 4 indicate meaningful but non-redundant relationships among the three indicators. Future financial expectation is positively associated with both emergency fund measures, suggesting that individuals anticipating a more secure future are also more likely to possess precautionary savings. The strongest correlation arises between EF1 and EF7 (r = 0.65),

reflecting that the presence of emergency savings and their perceived adequacy represent closely connected aspects of financial preparedness. The moderate correlations across items support their combination into a coherent index while preserving distinct informational contributions.



(a) Factor loadings for FII components

(b) Distribution of the Financial Insecurity

Figure 3: Visual summary of the Financial Insecurity Index (FII) construct. Panel (a) shows factor loadings from principal-component extraction, and panel (b) displays the distribution of the standardized FII.

An exploratory factor analysis in Figure 3(a) further supports the unidimensional structure of the index. A single dominant factor (eigenvalue = 1.27) explains 42.5 percent of total variance, with the highest loadings on the emergency fund components—EF1 (0.79) and EF7 (0.76)—and a smaller loading on financial expectations (B6 = 0.26). This pattern indicates that forward-looking financial insecurity is driven primarily by perceived preparedness for shocks, with expectations about future financial conditions contributing additional, non-redundant information.

Methodologically, each index in this study is computed as the mean of standardized responses across conceptually related variables. Standardization removes differences in scale and ensures that all component items contribute equally to the composite measure. Each variable was first transformed into a z-score, defined as

$$z_i = \frac{x_i - \bar{x}_i}{s_i},$$

where x_i denotes the individual response, $\bar{x}_i$ is the sample mean, and s_i is the sample standard deviation of item i. The composite index is then calculated as the average of these standardized components. The Financial Insecurity Index (FII), constructed as the mean of standardized and reverse-coded items (B6, EF1, EF7), is defined as

$$\text{FII} = \frac{z_{B6} + z_{EF1} + z_{EF7}}{3},$$

where each component represents the standardized value of the corresponding item, recoded so that higher values indicate greater perceived financial vulnerability. The resulting index exhibits

an approximately normal distribution ($M \approx 0$, $SD \approx 0.51$) with mild right skewness, as shown in Figure 3(b). Most respondents cluster near the mean, indicating moderate levels of forward-looking insecurity, while a smaller segment reports substantially elevated vulnerability–typically reflecting pessimistic expectations or insufficient financial buffers. The slight right skewness is consistent with prior evidence that insecurity is concentrated among financially fragile households, whereas the relatively modest dispersion suggests that the majority of respondents fall within a narrow range of anticipated financial strain. These distributional characteristics confirm that the index captures meaningful population variability in perceived future fragility.

The Financial Insecurity Index provides insight into individuals' anticipated exposure to future financial strain. Since vulnerability also arises through employment instability, the analysis proceeds by introducing job security indicators, which capture current labor-market uncertainty and serve as key independent variables in explaining variation across the behavioral and financial outcomes examined in subsequent sections.

3.3 Job Security Indicators (JSI)

Job Security Indicators (JSI) represent a set of independent variables capturing respondents' exposure to employment instability and their behavioral responses to perceived labor-market uncertainty. Job insecurity is conceptualized as a multidimensional construct shaped not only by realized job loss but also by anticipatory actions and voluntary employment adjustments. While traditional labor economics emphasizes objective measures such as layoffs or contract type, research in applied labor studies and behavioral economics highlights that insecurity also arises from subjective interpretation, precautionary behavior, and adaptive responses under uncertainty (Greenhalgh & Rosenblatt, 1984; De Witte, 2005).

The analysis incorporates three binary indicators. The first, job-search behavior (D44_c), equals 1 when the respondent applied for a new job within the past year. This measure captures behavioral anticipation of instability, as precautionary job search frequently reflects concerns about future employment continuity or dissatisfaction with current work conditions (Clark & Postel-Vinay, 2009). The second indicator, experienced layoff (D44_f), equals 1 if the respondent lost a job during the same period. This variable captures realized employment instability and represents the most direct manifestation of job insecurity. The third indicator, voluntary quit (D44_e), equals 1 when the respondent left a job voluntarily. Although voluntary separation can reflect confidence in outside opportunities, it may also signal dissatisfaction or perceived instability in one's current position. For this reason, voluntary quits are included as a distinct behavioral response that may arise from either insecurity-driven or opportunity-driven motives.

These three measures capture complementary facets of employment vulnerability: anticipatory behavior, realized instability, and voluntary adjustment. Since the study examines how employment instability shapes subjective financial assessments and behavioral responses, the Job Security Indicators (JSI) function as central explanatory variables. Incorporating these measures into the empirical models makes it possible to assess how job-search activity, layoffs, and vol-

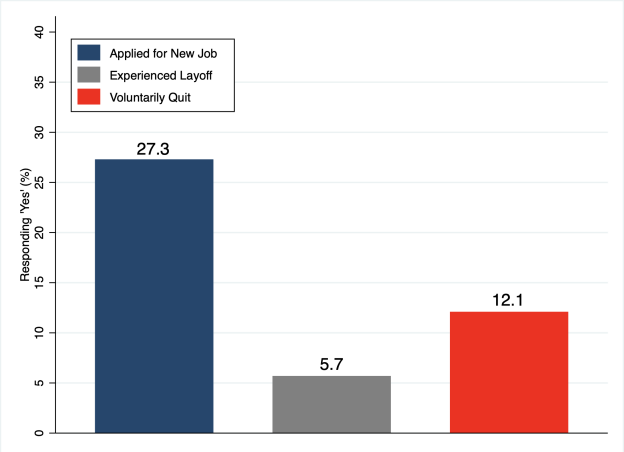


Figure 4: Distribution of Job Security Indicators (Ages 18–64).

untary turnover relate to patterns of loss aversion, scarcity-driven decision-making, and reduced labor-market dynamism.

Figure 4 summarizes the distribution of these indicators among working-age adults (18–64). Approximately 27.3 percent of respondents reported applying for a new job within the past year, indicating widespread precautionary or anticipatory job search. In contrast, only 5.7 percent experienced a layoff, suggesting that realized instability is relatively rare. Voluntary quits occurred among 12.1 percent of respondents, reflecting both dissatisfaction-driven turnover and mobility motivated by perceived outside opportunities. The contrast between high job search rates and relatively low layoff incidence illustrates that much of the insecurity experienced by workers is anticipatory rather than reactive.

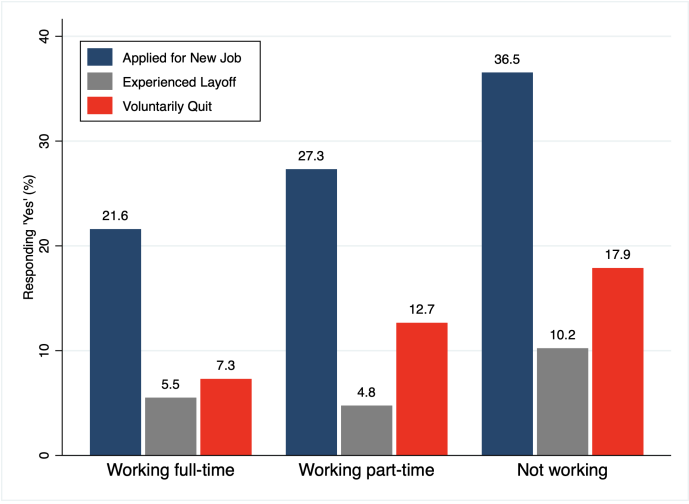


Figure 5: Job Security Indicators by Employment Status (%)

Figure 5 shows that the JSI indicators vary systematically across employment status. Job search behavior increases sharply as employment stability declines, ranging from 21.6 percent among

full-time workers to 36.5 percent among those not currently working. Layoff experience also rises modestly along this gradient, from 5.5 percent among full-time workers to 10.2 percent among non-working individuals. Voluntary quits similarly increase from 7.3 percent among full-time workers to 17.9 percent among non-employed respondents, suggesting that turnover may reflect instability or dissatisfaction rather than upward mobility.

These descriptive patterns demonstrate that the JSI variables capture meaningful heterogeneity in employment vulnerability across the labor market. They provide a theoretically grounded and empirically reliable set of independent variables for understanding how financial scarcity, financial insecurity, and behavioral factors shape workers' labor-market exposure, perceptions, and decisions.

Having established how labor-market vulnerability varies across individuals, the analysis next turns to the subjective dimension of financial stability. This construct captures how individuals internally assess their financial condition and liquidity, offering a perceptual counterpart to behavioral scarcity indicators and job-security measures.

3.4 Subjective Financial Well-being Index (SFW)

The Subjective Financial Well-being Index (SFW) captures the perceptual dimension of economic stability, focusing on how individuals evaluate their current financial condition, their recent financial trajectory, and their capacity to manage short-run liquidity demands. Whereas objective indicators such as income or wealth describe the resources available to a household, subjective financial well-being reflects how individuals internalize their financial circumstances and anticipate their ability to meet obligations, withstand shocks, and maintain stability. Prior research emphasizes that these subjective assessments incorporate psychological, evaluative, and forward-looking elements that are not fully captured by observable characteristics (Prawitz et al., 2006; CFPB, 2015; Netemeyer et al., 2018)..

The SFW index is constructed from four survey items. Current financial status (B2) provides a global evaluation of overall standing. Perceived change relative to the prior year (B3) introduces a dynamic element, identifying whether respondents feel their circumstances are improving, deteriorating, or stagnating. Confidence in paying monthly bills (B7a) and confidence in covering a modest emergency expense (B7b) capture perceptions of liquidity and short-term resilience. The $400 emergency expense benchmark has been repeatedly validated as a salient threshold for financial fragility. Each item is reverse-coded so that higher numerical values correspond to greater perceived vulnerability.

Figure 6 depicts substantial heterogeneity in subjective financial well-being. A majority of respondents report "doing okay" or "living comfortably," indicating a baseline of manageable financial conditions for many households. About one-third report "just getting by" or "finding it difficult to get by," consistent with persistent financial strain. Most respondents rate their financial situation as "about the same" as last year, pointing to stagnation rather than improvement, while a larger share feel worse off than better off. Liquidity measures reveal even more concern:

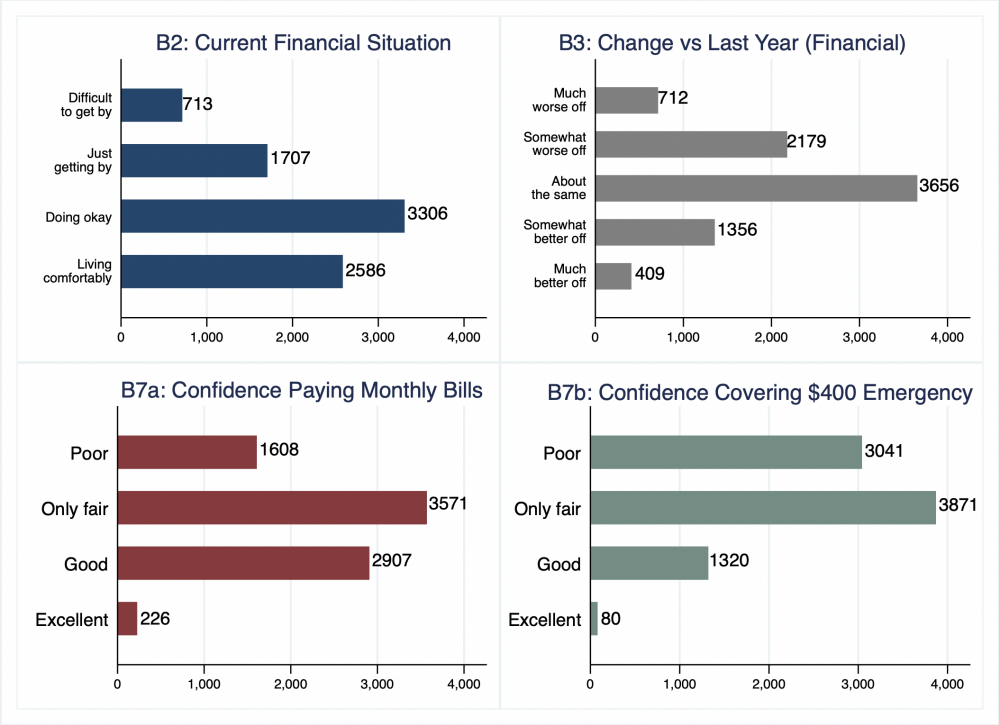


Figure 6: Distribution of Subjective Financial Well-being Items

most respondents express limited confidence in paying monthly bills and very low confidence in covering a $400 emergency. These patterns indicate widespread liquidity constraints and limited short-term resilience, suggesting that many households remain financially vulnerable despite nominal stability.

Table 5: Pearson correlations among Subjective Financial Well-being items

Item	B2	B3	B7a	B7b
B2	1.000	0.431	0.357	0.245
B3		1.000	0.322	0.309
B7a			1.000	0.600
B7b				1.000

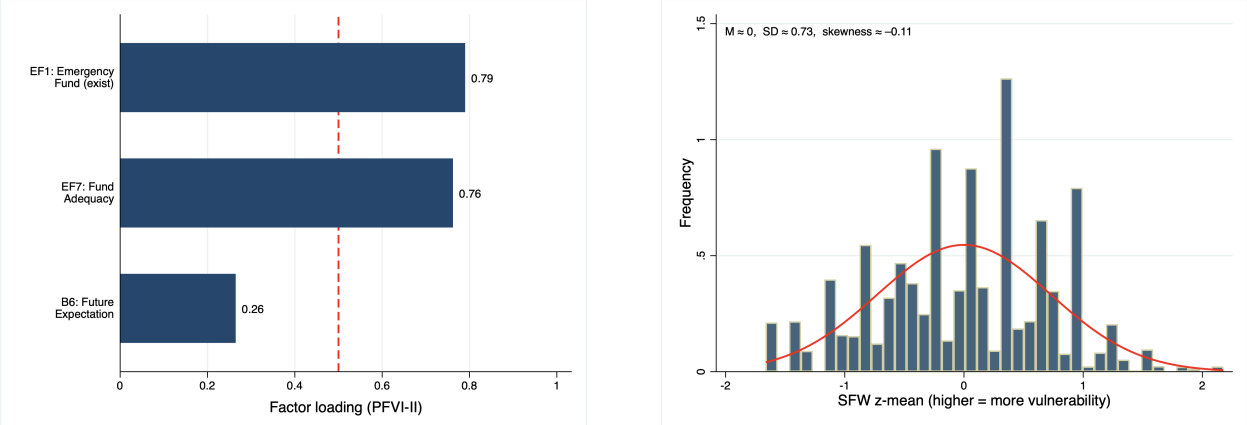
Notes. Pearson pairwise correlations computed on the analytic sample ($N = 8{,}312$, ages 18–64). All items are reverse-coded so that higher values represent greater perceived financial vulnerability.

The correlation structure in Table 5 indicates two closely related facets of subjective financial well-being. Current financial status (B2) is moderately associated with perceived change over the past year (B3 = 0.431), showing that respondents' level and trend evaluations cohere. Those who report stronger present financial standing also tend to describe their situation as improving relative to the previous year. Current status also correlates with confidence in paying monthly bills (B7a = 0.357) and in covering a $400 emergency (B7b = 0.245), linking overall self-assessed standing to short-run liquidity resilience.

The liquidity measures themselves are tightly connected. Confidence paying monthly bills

and confidence covering a $400 expense exhibit a strong correlation (B7a–B7b = 0.600), suggesting a shared underlying construct of cash-flow security. Perceived improvement over the past year relates meaningfully to both liquidity items (B3–B7a = 0.322; B3–B7b = 0.309), consistent with the idea that positive financial momentum supports both routine obligations and small shocks.

This pattern suggests two conceptual dimensions: (1) a status-and-trajectory component combining present standing and recent financial change, and (2) a liquidity-resilience component capturing confidence in meeting immediate financial demands. The moderate correlations across the two groups indicate that they are related but not redundant, supporting the integration of these perceptions into a unified measure of subjective financial well-being.



(a) Factor loadings for SFW items

(b) Distribution of the SFW Index

Figure 7: Visual summary of the Subjective Financial Well-Being (SFW) construct. Panel (a) shows factor loadings from principal-component extraction, and panel (b) displays the distribution of the standardized SFW index.

To assess whether the Subjective Financial Well-being (SFW) items reflect a single underlying construct, an exploratory factor analysis was conducted using principal-component extraction. All four items—current financial status (B2), perceived financial change (B3), confidence in paying monthly bills (B7a), and confidence in covering a modest emergency expense (B7b)—loaded strongly on a single factor, as illustrated in Figure 7(a). The first component had an eigenvalue of 2.14 and explained 53.5 percent of the total variance, indicating a substantial amount of shared information across items. Factor loadings ranged from 0.67 to 0.80, with liquidity-related items (B7a, B7b) loading most strongly. Uniqueness values (0.36–0.55) show that a majority of each item's variance is accounted for by the common factor rather than item-specific noise. These results support interpreting SFW as a uni-dimensional construct capturing respondents' subjective assessments of financial stability, recent financial momentum, and perceived liquidity resilience.

Based on the factor analysis, a single SFW index was constructed by averaging the standardized (z-scored) responses across the four items, each reverse-coded so that higher values indicate

lower subjective financial well-being (greater perceived strain). The index is defined as:

$$\text{SFW} = \frac{1}{4}\left(z_{B2} + z_{B3} + z_{B7a} + z_{B7b}\right),$$

where z_{B2}, z_{B3}, z_{B7a}, and z_{B7b} represent the standardized values of each item.

The resulting distribution is approximately normal ($M \approx 0$, $SD \approx 0.73$) with mild left skew (skewness ≈ -0.11), as shown in Figure 7(b). This pattern indicates that most respondents report moderate levels of subjective financial stability, while a smaller group experiences substantially heightened strain. Cronbach's alpha ($\alpha = 0.71$) indicates acceptable internal consistency, demonstrating that the four items collectively measure a coherent latent dimension of subjective financial well-being. The SFW index therefore provides a psychometrically supported measure of perceived short-term financial stability and liquidity, serving as an important independent variable in the empirical analysis linking subjective financial strain to labor-market behavior.

With subjective financial well-being quantified, the next step is to incorporate behavioral predispositions that operate alongside financial perceptions. The following subsection introduces loss-aversion dimensions as key behavioral biases relevant for understanding economic responses under scarcity.

3.5 Behavioral Bias: Loss Aversion Dimensions

A substantial body of behavioral economics research demonstrates that individuals often deviate from the predictions of standard rational-choice models when facing financial stress, uncertainty, or instability. Psychological mechanisms such as loss aversion, limited attention, myopic focus, and decision inertia shape how households evaluate risks, respond to shocks, and adapt to changing economic conditions (Kahneman & Tversky, 1979; Thaler, 1991; Mullainathan & Shafir, 2013). These behavioral tendencies become particularly salient under conditions of resource scarcity, when cognitive load and emotional stress can alter financial judgment, reduce planning capacity, and amplify sensitivity to potential losses. Within labor markets, prior work shows that such biases influence search intensity, willingness to change jobs, responses to negative shocks, and expectations about future employment stability (DellaVigna, 2009; Madrian & Shea, 2001; Chetty et al., 2014). Incorporating behavioral dimensions into empirical models therefore provides a more complete understanding of how individuals interpret and react to economic risks, beyond what can be inferred from objective financial indicators alone.

The Loss Aversion Indicators (LAIs) quantify individuals' sensitivity to potential financial losses and their adaptive or defensive responses when facing actual or anticipated declines in income or purchasing power. Rooted in prospect theory (Kahneman & Tversky, 1979), loss aversion reflects the asymmetry in how individuals evaluate gains and losses–losses loom larger than equivalent gains, triggering disproportionately strong behavioral responses. Empirical evidence shows that perceived losses in purchasing power amplify both credit reliance and employment turnover intentions (Tversky & Kahneman, 1991; Fehr & Goette, 2007), while loss-averse individ-

uals exhibit stronger hedging or withdrawal behavior under negative shocks (Abdellaoui et al., 2007; Barberis, 2013).

In this study, two indicators capture complementary dimensions of loss aversion: a behavioral measure (BNPL1), representing the use of deferred-payment mechanisms to mitigate immediate loss salience, and an attitudinal measure (FL0_rev $= 10 -$ FL0), representing self-reported discomfort with financial risk. Higher values in both variables indicate stronger behavioral sensitivity to financial loss and greater attitudinal aversion to uncertainty, reflecting multidimensional tendencies toward loss avoidance under perceived adversity.

Behavioral loss avoidance reflects observable financial actions that reveal a preference to delay or fragment the experience of loss, such as using deferred-payment options to reduce immediate spending discomfort. This dimension corresponds to experienced utility, where decision-making is influenced by the emotional response to potential loss–consistent with the "pain of paying" framework (Prelec & Loewenstein, 1998). Recent empirical research shows that the use of buy-now-pay-later services is associated with greater financial vulnerability and short-term avoidance of immediate payment costs (Larrimore, 2024; Ashby, 2025; Hayashi & Routh, 2025; Guttman-Kenney, 2023).

Attitudinal risk aversion originates from classical utility theory, where individuals with concave utility functions derive diminishing marginal utility from wealth and therefore prefer certainty over risky prospects (Pratt, 1964; Arrow, 1971). In this framework, risk tolerance and risk aversion represent inverse expressions of the same underlying preference for uncertainty–those with higher risk tolerance exhibit a greater willingness to accept variance in outcomes, while risk-averse individuals prefer stability and predictability.

Building on this foundation, attitudinal risk aversion is conceptualized as a cognitive and dispositional orientation toward uncertainty, reflecting expected-utility evaluations of potential outcomes. Individuals with higher reversed risk-tolerance scores demonstrate greater discomfort with uncertainty and a stronger preference for safety over potential gain. This dimension represents a stable psychological predisposition that shapes broader financial and personal decision patterns. Empirical research on financial risk attitudes supports this interpretation, showing that self-reported willingness to take risk serves as a consistent and reliable indicator of dispositional aversion to uncertainty and loss (Kwak & Grable, 2024; Hemrajani et al., 2023; Clark, 2024).

Table 6 summarizes the descriptive and inferential statistics for the two loss-aversion indicators: the behavioral measure (BNPL1) and the attitudinal measure (FL0_rev). The BNPL1 variable captures whether respondents used Buy Now Pay Later (BNPL) services within the past year, representing a behavioral manifestation of short-term loss avoidance. Only 13% of respondents reported BNPL use ($M = 0.13$, $SD = 0.34$), indicating that deferred-payment mechanisms are relatively uncommon but meaningful behavioral markers of financial self-regulation.

The attitudinal indicator, FL0_rev, reflects self-reported aversion to risk by reversing the standard 0–10 financial risk-tolerance scale. The resulting distribution ($M = 5.94$, $SD = 2.71$) spans the full range of possible values, with a median of 6 and slight negative skew (-0.03), suggest-

Table 6: Summary of Behavioral and Attitudinal Loss Aversion Indicators

Variable	Obs	Mean	SD	Min	Max
BNPL1	8,312	0.13	0.34	0	1
FL0_rev	8,312	5.94	2.71	0	10
Spearman's ρ (BNPL1, FL0_rev) = 0.0519***					

Group	Obs	Mean	SD	Std. Err.	95% CI [LL, UL]
Non-users (BNPL = 0)	7,224	5.89	2.70	0.032	[5.82, 5.95]
Users (BNPL = 1)	1,088	6.29	2.77	0.084	[6.13, 6.46]
$t(8{,}310) = 4.61^{***}$ $p < .001$					
Cohen's $d = 0.15$ (small effect)					

Notes. BNPL1 = behavioral loss avoidance (1 = used BNPL service); FL0_rev = reverse-coded risk tolerance (higher = more loss-averse); ***$p < .001$. Descriptive and inferential statistics are based on 8,312 working-age respondents.

ing that a majority of respondents display moderate to high discomfort with financial uncertainty. This pattern supports its interpretation as a stable cognitive disposition toward risk avoidance.

A bivariate correlation test revealed a small but statistically significant positive association between BNPL1 and FL0_rev ($r = 0.05$, $p < .001$), indicating that individuals who engage in deferred-payment behavior also tend to report higher levels of attitudinal risk aversion. This relationship was further tested using a two-sample t-test comparing mean FL0_rev scores between BNPL users and non-users. The difference was statistically significant, $t(8{,}310) = 4.61$, $p < .001$, with BNPL users reporting higher average risk aversion ($M = 6.29$) than non-users ($M = 5.89$). The corresponding Cohen's $d = 0.15$ indicates a small but meaningful effect size.

These findings validate the conceptual distinction and empirical complementarity of the two indicators. BNPL1 reflects context-specific behavioral loss avoidance, whereas FL0_rev captures dispositional sensitivity to risk. Their positive association underscores that behavioral tendencies to delay or fragment financial losses often coincide with higher cognitive aversion to uncertainty—supporting their joint inclusion as behavioral and attitudinal dimensions of loss aversion.

Figure 8 visualizes the distribution of attitudinal loss aversion (FL0_rev) by BNPL participation status. BNPL1 was coded as 1 for respondents who used Buy Now Pay Later (BNPL) services and 0 otherwise, while FL0_rev was computed as $10 - \text{FL0}$, such that higher values indicate greater financial risk aversion. The red dashed line represents non-users, and the blue solid line represents BNPL users. Both distributions exhibit similar overall shapes, with peaks around the midrange (values of 4–6), but the distribution for BNPL users is slightly right-shifted, indicating higher average FL0_rev scores. This suggests that BNPL users tend to display stronger aversion to financial risk and loss, consistent with their greater behavioral tendency to delay or fragment immediate payment obligations.

Non-users exhibit slightly lower density at higher FL0_rev values, consistent with lower over-

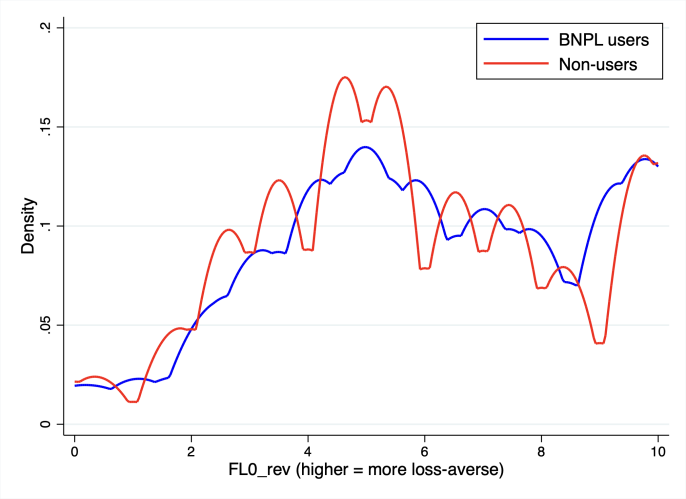


Figure 8: Kernel density of attitudinal loss aversion (FL0_rev) by BNPL use

all risk aversion. The substantial overlap between the two curves reflects moderate heterogeneity across respondents; however, the mean difference is statistically significant, $t(8{,}310) = 4.61$, $p < .001$, with a small effect size ($d = 0.15$). This pattern reinforces the interpretation that individuals who use deferred-payment mechanisms are somewhat more loss-averse, consistent with behavioral tendencies to mitigate the immediate salience of financial loss.

Table 7: Nonparametric Tests for Distributional Differences in FL0_rev by BNPL Use

Test	**Statistic**	**Value**	**p-value**
Kolmogorov–Smirnov	D	0.075	$< .001$
Mann–Whitney Rank-Sum	z	-4.73	$< .001$

Notes. Tests compare the distribution of FL0_rev (reverse-coded risk tolerance) between BNPL users (BNPL1 = 1) and non-users (BNPL1 = 0). Both tests reject the null hypothesis of identical distributions, indicating that BNPL users exhibit systematically higher risk aversion. Based on $N = 8{,}312$ observations.

To further assess distributional differences beyond mean comparisons, nonparametric tests were conducted. According to Table 7, the two-sample Kolmogorov–Smirnov test rejects the null hypothesis of identical distributions ($D = 0.075$, $p < .001$), indicating that the cumulative distributions of FL0_rev differ significantly between BNPL users and non-users. A complementary Mann–Whitney rank-sum test confirms this result ($z = -4.73$, $p < .001$), suggesting that BNPL users generally exhibit higher values of FL0_rev across the distribution, not only in mean level. These nonparametric findings reinforce the robustness of the observed association: individuals who employ deferred-payment mechanisms tend to be systematically more loss-averse, both behaviorally and attitudinally.

For subsequent regression analyses, BNPL1 and FL0_rev are included separately as independent variables, representing the behavioral and attitudinal dimensions of loss aversion, respec-

tively. This specification maintains conceptual clarity by distinguishing observable financial behavior from dispositional attitudes toward risk, each reflecting a distinct mechanism of loss avoidance. Loss aversion, however, primarily reflects defensive reactions to potential losses and does not account for the broader psychological effects of persistent resource limitation. The following section incorporates these measures into a unified empirical framework to quantify how loss aversion interacts with employment volatility and financial vulnerability in shaping multiple dimensions of scarcity.

4 Regression Analysis

This section examines how employment volatility and behavioral vulnerability jointly shape three dimensions of scarcity—hardship-related scarcity, inflation-adaptation scarcity, and liquidity stress—using ordinary least squares models with standardized predictors. A fourth specification (reported in Online Appendix Table A.1) extends the framework to forward-looking financial insecurity (FII). All models include a common set of regressors: the Subjective Financial Well-being index (SFW) and the Loss Aversion Index (LAI), indicators of recent job-market disruptions, and a battery of demographic and socioeconomic controls. Because the indices are standardized, coefficients can be interpreted as the change in each outcome associated with a one–standard-deviation increase in the respective predictor, allowing direct comparison across behavioral mechanisms and scarcity domains.

By estimating a unified model across all scarcity outcomes, the analysis isolates the joint contribution of subjective vulnerability and behavioral dispositions to distinct expressions of economic stress. This common specification makes it possible to identify both shared mechanisms and domain-specific manifestations of scarcity, providing an integrated view of how financial constraints emerge through behavioral, perceptual, and structural channels.

4.1 Behavioral Vulnerability, Employment Volatility, & the Architecture of Scarcity

A unified modeling framework allows the three scarcity outcomes to be examined in a comparable way, ensuring that differences across hardship, inflation-adaptation, and liquidity stress reflect substantive behavioral and economic mechanisms rather than differences in model structure. By estimating each outcome using the same set of predictors—behavioral vulnerability, employment volatility, and demographic controls—the analysis provides a coherent basis for identifying where scarcity responses are driven by common underlying forces and where they diverge across domains.

Table 8 reports the estimates from three harmonized OLS specifications–model (1) for hardship-related scarcity, model (2) for inflation-adaptation responses, and model (3) for liquidity stress–allowing for a structurally aligned comparison across distinct scarcity domains. The results reveal a consistent empirical architecture: subjective financial fragility and labor-market instability form the dominant axes along which scarcity behavior is organized, while standard demographic char-

acteristics are largely residual once behavioral dispositions and employment volatility are incorporated.

Table 8: OLS Regression Results for Scarcity Outcomes & Forward-Looking Financial Insecurity

Variable	(1) Hardship		(2) Inflation-Adaptation		(3) Liquidity Stress		(4) Financial Insecurity	
	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE
Behavioral and Financial Indices								
SFW_z	0.1044***	0.0044	0.1936***	0.0054	0.1148***	0.0044	0.3888***	0.0096
LAI_z	0.0327***	0.0034	0.0316***	0.0041	0.0158***	0.0033	0.1452***	0.0071
Job Security Indicators								
Applied for new job	0.0521***	0.0078	0.0393***	0.0098	0.0208**	0.0082	0.0844***	0.0168
Layoff	0.1029***	0.0162	0.0799***	0.0154	0.1532***	0.0162	0.0750**	0.0293
Voluntary quit	-0.0049	0.0098	-0.0008	0.0124	0.0641***	0.0116	-0.0553**	0.0212
Age (Base: 35–44)								
18–24	-0.0449***	0.0122	-0.0313*	0.0162	-0.0231*	0.0130	0.0271	0.0271
25–34	0.0026	0.0088	0.0174	0.0119	-0.0151*	0.0089	0.0262	0.0198
45–54	-0.0128	0.0084	0.0047	0.0117	-0.0188**	0.0086	-0.0152	0.0201
55–64	-0.0401***	0.0078	-0.0169	0.0111	-0.0238***	0.0083	-0.1626***	0.0190
Education (Base: High school graduate)								
No HS diploma/GED	0.0639***	0.0161	-0.0423**	0.0175	0.0388***	0.0145	0.1785***	0.0272
Some college/Assoc.	0.0211**	0.0084	0.0492***	0.0107	0.0182**	0.0086	-0.0938***	0.0196
Bachelor's degree+	-0.0157**	0.0077	0.0295***	0.0107	0.0135*	0.0081	-0.3359***	0.0191
Employment (Base: Not working)								
Working full-time	-0.0086	0.00773	0.0188*	0.0099	-0.0489***	0.0081	-0.1440***	0.0176
Working part-time	0.0053	0.0100	0.0276**	0.0125	0.0036	0.0109	-0.0899***	0.0223
Race/Ethnicity (Base: Black, Non-Hispanic)								
Hispanic	0.0068	0.0122	0.0995***	0.0158	-0.0060	0.0121	-0.0774***	0.0263
White, Non-Hispanic	-0.0172*	0.0101	0.0600***	0.0135	-0.0367***	0.0100	-0.0874***	0.0219
Other, Non-Hispanic	0.0028	0.0135	0.0520***	0.0183	-0.0005	0.0139	-0.0680**	0.0296
Gender (Base: Female)								
Male	-0.0259***	0.0057	-0.0394***	0.0079	-0.0201***	0.0061	-0.0201	0.0136
Housing (Base: Owned/occupied w/o payment)								
Rented for cash	0.0320***	0.0070	-0.0258***	0.0089	-0.0000	0.0070	0.1932***	0.0155
Constant	0.1614***	0.0138	0.5454***	0.0182	0.2152***	0.0139	0.3122***	0.0306

Notes: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$. Robust standard errors.
Model statistics: Hardship: $R^2 = 0.1878$; Inflation-Adaptation: $R^2 = 0.1792$; Liquidity Stress: $R^2 = 0.1638$; FII: $R^2 = 0.4126$.

In model (1), hardship-related scarcity–manifested through foregone or delayed medical care–emerges primarily as a behavioral response to perceived financial vulnerability rather than an artifact of static socioeconomic status. The standardized SFW index carries the largest coefficient in the model, with a one–standard-deviation increase associated with roughly a 0.10 rise in hardship. This magnitude surpasses the influence of most structural indicators and nearly matches the effect of involuntary job loss. The LAI coefficient, though smaller, is sharply estimated: a 0.03 increase in hardship for each standard deviation of loss aversion underscores that aversive sensitivity to downside risk materially shapes the willingness to defer essential care. These patterns suggest

that the behavioral underpinnings of scarcity extend beyond pure resource constraints and reflect the psychological salience of financial threat.

Employment volatility further intensifies this behavioral channel. Layoffs–an archetypal form of involuntary labor-market shock–induce hardship levels comparable to or exceeding the effect of a full standard deviation increase in SFW. The positive association with job search reinforces the interpretation that scarcity is responsive to anticipatory forms of insecurity as well. By contrast, voluntary quits exhibit no relationship to hardship once other covariates are held constant, suggesting that discretionary labor mobility does not generate the same behavioral pressure as shocks perceived to be externally imposed or unanticipated. The hardship estimates thus reveal that acute scarcity responses are shaped predominantly by behavioral fragility and involuntary volatility shocks, with demographic characteristics playing a comparatively minor role once these forces are accounted for.

In model (2), inflation-adaptation scarcity–capturing modifications to consumption bundles under rising prices–exhibits an even stronger behavioral gradient. Here, the effect of SFW almost doubles relative to hardship, with a coefficient of approximately 0.19. This magnitude suggests that inflation-coping strategies represent a forward-looking, precautionary response channel activated most strongly among individuals experiencing heightened financial fragility. LAI again enters positively and significantly, consistent with models in which loss-averse households display heightened sensitivity to erosion in purchasing power.

Labor-market instability plays a parallel role in this anticipatory scarcity domain. Layoffs and recent job search produce sizable increases in inflation-adaptation behavior, implying that individuals experiencing earnings instability not only confront acute constraints but also reshape their intertemporal allocation decisions in anticipation of further shocks. The absence of an effect for voluntary quits once more reinforces the interpretation that behavioral adaptation is driven predominantly by uncertainty rather than by planned transitions. The heightened responsiveness of inflation-adaptation to subjective fragility indicates a distinct precautionary channel–one rooted in forward-looking adjustments rather than reactions to acute deprivation–further differentiating this domain from hardship.

Model (3), which focuses on liquidity stress, reveals the domain in which employment volatility exerts its most powerful influence. Liquidity stress–measured by whether recurring expenditures exceed income and whether income has declined–is especially sensitive to layoffs, with a coefficient of approximately 0.15, the second-largest in the entire table. Unlike in models (1) and (2), voluntary quits here exhibit a large and significant association with liquidity strain, indicating that even planned employment transitions produce a measurable tightening of short-run budget constraints. The SFW coefficient remains the dominant behavioral predictor, reinforcing the idea that cash-flow pressure is mediated not only by objective income dynamics but also by subjective assessments of financial resilience. Although LAI's effect attenuates in magnitude relative to the other two models, its positive association signals that pessimistic weighting of potential losses contributes to liquidity-oriented forms of scarcity as well. The sizable effect of voluntary quits on

liquidity strain points to a scarcity mechanism unique to cash-flow management, illustrating that even deliberate employment transitions can compress short-run budgets in ways not observed for hardship or inflation-adjustment behaviors.

Across all three models, the empirical pattern reveals a consistent mechanism: employment volatility heightens behavioral vulnerability, and this interaction produces scarcity responses across multiple domains–essential consumption, inflation coping, and cash-flow management. The results suggest that volatility does not merely reduce resources; it alters the perceived risk environment in ways that reshape household behavior even in contexts where upward mobility or reemployment may still be feasible.

4.2 Domain-Specific Expression of Scarcity & the Attenuated Role of Static Demographics

Although models (1)–(3) in Table 8 share a common behavioral and volatility structure, the domain-specific patterns shed light on how scarcity is differentially instantiated across types of financial pressure. Hardship represents an archetypal cost-blocking behavior, highly sensitive to perceived fragility and involuntary shocks. Inflation adaptation, by contrast, reflects a shifting of consumption patterns prior to actual deprivation and is most elastic with respect to subjective financial strain. Liquidity stress responds most directly to income transitions–both involuntary and voluntary–revealing the cash-flow consequences of labor-market mobility and the ways in which short-run volatility can bind household budgets.

Once SFW, LAI, and employment volatility are included, the explanatory power of static demographics diminishes considerably. Age effects are small and often counterintuitive: younger and older adults sometimes report lower scarcity exposure than middle-aged respondents, a pattern consistent with life-cycle differences in consumption smoothing, insurance availability, or social support networks. Educational attainment exhibits a non-monotonic structure: low education amplifies hardship and liquidity stress, whereas higher education predicts greater inflation-adaptation behavior. This suggests that education influences not only economic stability but also the repertoire of coping strategies available to households under different scarcity regimes.

Racial and ethnic differences largely attenuate once behavioral and volatility factors are absorbed, especially for hardship and liquidity stress. The persistence of racial differences in inflation-adaptation behavior in model (2)–where Hispanic, White, and Other non-Hispanic respondents display greater adaptive responses than their Black non-Hispanic counterparts–suggests heterogeneous exposure to informational networks, price-monitoring strategies, or differential vulnerability to inflation salience. Gender differences are more uniformly present, with men reporting lower scarcity across all domains, consistent with documented differences in risk perception and financial stress reporting.

Housing tenure matters principally for hardship and inflation adaptation, where renters face elevated hardship but lower adaptation relative to owners without housing payments–a contrast that reflects the dual role of rent obligations as both a fixed financial burden and a constraint on

substitutability within household budgets. In liquidity stress, however, housing tenure ceases to differentiate respondents, implying that cash-flow shortfalls are driven overwhelmingly by income volatility and subjective fragility rather than by fixed asset positions.

Collectively, the three models demonstrate that employment volatility and behavioral vulnerability, rather than static demographic identity, form the core determinants of scarcity behavior. The empirical pattern suggests a mechanism wherein volatility heightens psychological fragility, which in turn restricts behavioral capacity and amplifies exposure to scarcity. Even in environments where objective opportunities for upward mobility exist, the behavioral costs of volatility–foregone care, intensified price-coping strategies, and cash-flow fragility–can entrench economic insecurity in ways that limit households' ability to pursue those opportunities.

4.3 Forward-Looking Financial Insecurity as an Extension of Behavioral Scarcity

Whereas the preceding models analyze contemporaneous scarcity—manifested through foregone essential care, inflation-driven consumption adjustments, and liquidity strain—model (4) extends the framework to a forward-looking dimension of economic vulnerability. The Financial Insecurity Index (FII) synthesizes three components: expectations regarding next year's financial situation (B6), the presence of an emergency fund (EF1), and the adequacy of emergency savings (EF7). Each indicator is reverse-coded so that higher values reflect greater insecurity and standardized to facilitate direct comparison with the behavioral and volatility covariates employed in earlier specifications. This construction enables an assessment of whether the same behavioral–volatility architecture that governs hardship, adaptation, and liquidity stress also structures anticipatory perceptions of risk. In this sense, the FII model tests whether volatility exerts influence not only on current scarcity responses, but also on households' forward-looking evaluations of their financial resilience.

Model (4) in Table 8 evaluates the extent to which the behavioral–volatility framework extends to anticipatory forms of financial vulnerability, as captured by the Financial Insecurity Index (FII). The results reveal a strikingly coherent pattern: the predictors that organize contemporaneous scarcity responses also structure forward-looking assessments of financial insecurity, but their relative magnitudes and roles provide insight into the cognitive mechanisms through which households internalize labor-market instability and subjective fragility.

The coefficient on the Subjective Financial Well-being index (SFW) is exceptionally large (0.39), far exceeding its effect in the hardship, inflation-adaptation, or liquidity-stress models. Because SFW is standardized, this magnitude implies that subjective perceptions of one's current financial fragility translate strongly and systematically into expectations of future vulnerability. In other words, households appear to extrapolate their present strain into future states, a finding consistent with models of pessimism, availability bias, and the psychological carryover of perceived instability. This result underscores that behavioral vulnerability is not simply a reaction to scarcity but a mechanism that shapes forward-looking beliefs about resilience and exposure to risk.

Loss aversion (LAI) exerts a similarly important influence. The coefficient of 0.15, which is

larger than its effect in the liquidity-stress model, indicates that individuals who disproportionately weight potential losses tend to anticipate a significantly more precarious future financial trajectory. This pattern aligns with theoretical predictions in behavioral macro-finance, where agents with higher loss sensitivity form more pessimistic expectations and maintain lower internal assessments of their ability to weather shocks. The persistence of LAI across all scarcity domains–and its elevated role in FII–suggests that downside sensitivity is a key channel through which volatility becomes internalized into forward-looking judgments.

Employment volatility remains a central structural force. Layoffs and recent job search both predict higher FII, illustrating that uncertainty about current earnings is strongly linked to expectations of deteriorating financial conditions. This is consistent with the interpretation that job-market turbulence produces not only immediate budget constraints but also a cognitive recalibration of future financial possibilities. Interestingly, voluntary quits–significant in liquidity stress but not in hardship or adaptation–display a negative coefficient here, suggesting that planned labor mobility may reduce perceived future risk, possibly reflecting optimism associated with expected job matching, wage improvements, or upward career transitions. This contrast between involuntary shocks and discretionary mobility further reinforces the conceptual distinction between destabilizing sources of volatility and strategic transitions that households may interpret as beneficial or protective.

Sociodemographic patterns indicate a layered but distinct structure. Younger and middle-aged adults exhibit no substantive differences from the 35–44 baseline, but individuals aged 55–64 report dramatically lower FII, highlighting a life-cycle mechanism in which accumulated savings, stable income streams, or lower expectations of income growth reduce forward-looking insecurity. Education exerts strong gradients: individuals without a high school diploma exhibit substantially higher FII, whereas those with a bachelor's degree report sharply lower values. These patterns are consistent with human-capital-based models of future earnings expectations and buffer-stock behavior. Employment status further amplifies this structure, with full-time and part-time workers both reporting meaningfully lower FII relative to non-working respondents, suggesting that stable labor-force attachment provides informational or psychological certainty that tempers pessimistic expectations.

Racial and ethnic differences, though statistically significant, are considerably smaller in magnitude than those associated with behavioral indices or job-market shocks, reinforcing earlier findings that static demographics play a secondary role once volatility and behavioral vulnerability are accounted for. Housing tenure, however, exhibits a large and robust effect: renters experience substantially higher forward-looking insecurity, even controlling for income, employment, and subjective vulnerability. This finding highlights the structural role of housing costs, contractual rigidity, and exposure to rent shocks in shaping expectations of financial fragility.

Model (4) demonstrates that forward-looking financial insecurity is far from an arbitrary subjective construct: it is the product of the same behavioral–volatility architecture that organizes contemporaneous scarcity, but with enhanced sensitivity to subjective fragility and downside

risk. The results provide compelling evidence that employment volatility does not merely generate immediate budgetary constraints; it restructures the cognitive frame through which individuals evaluate future risks, often amplifying perceived insecurity even in the absence of immediate hardship. This forward-looking dimension underscores the broader theoretical point of the paper: volatility propagates through behavioral channels that bind present constraints to anticipatory beliefs, thereby reinforcing and perpetuating economic vulnerability across temporal horizons. The amplified influence of subjective fragility and downside-risk sensitivity on expectations of future insecurity shows how volatility becomes internalized into households' anticipatory frameworks, producing a forward-looking layer of vulnerability that transcends contemporaneous scarcity.

4.4 Comparing Models (1)–(4): An Integrated Architecture of Scarcity & Financial Vulnerability

The four regression models taken together reveal a unified yet domain-differentiated structure of how households experience and anticipate economic strain. Models (1) through (3) capture contemporaneous scarcity manifestations–foregone essential care (hardship), consumption adjustments to rising prices (inflation-adaptation), and short-run cash-flow imbalances (liquidity stress)–while model (4) extends this framework to a forward-looking assessment of financial insecurity. Across all specifications, two empirical regularities anchor the results. First, subjective financial fragility (SFW) and loss sensitivity (LAI) consistently overshadow traditional sociodemographic predictors, indicating that scarcity-related behavior is fundamentally shaped by behavioral vulnerability rather than by static characteristics alone. Second, employment volatility—particularly involuntary layoffs and uncertainty-driven job search—acts as a structural amplifier of scarcity responses, reinforcing the behavioral channel in each domain.

Despite these commonalities, the four outcomes differ systematically in the mechanisms through which behavioral vulnerability and labor-market instability exert their influence. Models (1)–(3) show that contemporaneous scarcity is jointly determined by perceived fragility and recent job shocks, but with domain-specific expressions: hardship is most responsive to acute disruptions, inflation-adaptation reflects precautionary consumption adjustments, and liquidity stress captures the cash-flow consequences of both involuntary and voluntary employment transitions. These distinctions highlight that the same underlying drivers—financial fragility and instability—manifest differently depending on whether households face essential expenditures, shifting price environments, or recurring budget constraints.

Model (4), which examines the Financial Insecurity Index (FII), reveals a qualitatively different structure. Behavioral vulnerability exerts substantially larger effects on FII than in any contemporaneous model: the coefficient on SFW is approximately double to quadruple those in models (1)–(3), and the influence of LAI is similarly magnified. This pattern indicates that individuals project current fragility and downside-risk sensitivity into pessimistic expectations about their financial future. Employment volatility also behaves differently in this domain. While layoffs heighten insecurity across all outcomes, voluntary quits reduce FII—suggesting that perceived

agency in job transitions softens expectations of future risk, even if such transitions temporarily elevate liquidity stress. Education and housing tenure display stronger gradients in the FII model than in the other specifications, implying that human capital and residential stability function as anchors for future-oriented beliefs rather than simply buffers against present constraints.

These results demonstrate that forward-looking insecurity is not merely an extension of contemporaneous scarcity but a distinct psychological construct governed by an amplified behavioral channel. Whereas hardship, adaptation, and liquidity stress reflect immediate responses to financial strain, FII captures how individuals internalize volatility and vulnerability when forming expectations about future resilience. The substantially higher explanatory power of model (4) ($R^2 = 0.41$) further underscores that anticipatory financial judgments are more structured and less noisy than real-time scarcity behaviors. Across all four models, the overarching empirical message is clear: the interaction of employment volatility and behavioral vulnerability organizes the architecture of scarcity, but its influence is strongest and most systematic when households assess prospective rather than current financial risk.

4.5 Robustness Checks: Raw (Non-Standardized) Behavioral Indices

To assess whether the behavioral gradients documented in Models (1)–(4) are an artifact of z-standardizing SFW and LAI, all four specifications were re-estimated using raw (non-standardized) indices. The raw SFW measure averages reverse-coded indicators of present financial strain on their original ordinal scale; the raw LAI measure combines BNPL use and reverse-coded risk tolerance without normalization. These alternative measures preserve the original cardinality of the survey responses and allow direct evaluation of the stability of behavioral effects.

Table 9: Robustness Check: OLS Regression Results Using Raw Behavioral Indices

Variable	(1R) Hardship		(2R) Inflation-Adaptation		(3R) Liquidity Stress		(4R) FII	
	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE
Behavioral Indices								
SFW_{raw}	0.1306***	0.0053	0.2352***	0.0064	0.1457***	0.0053	0.4760***	0.0113
LAI_{raw}	0.0147***	0.0024	0.0135***	0.0031	0.00248	0.0024	0.0970***	0.0054
Job Security Indicators								
Applied for new job	0.0529***	0.0078	0.0399***	0.0098	0.0205**	0.0082	0.0895***	0.0168
Layoff	0.1006***	0.0163	0.0757***	0.0155	0.1495***	0.0161	0.0680**	0.0293
Voluntary quit	-0.0031	0.0098	0.0018	0.0124	0.0657***	0.0115	-0.0481**	0.0212
Age (Base: 35–44)								
18–24	-0.0450***	0.0122	-0.0311*	0.0162	-0.0223*	0.0129	0.0261	0.0268
25–34	0.0045	0.0088	0.0199	0.0119	-0.0132	0.0088	0.0300	0.0197
45–54	-0.0134	0.0084	0.0040	0.0117	-0.0196**	0.0086	-0.0183	0.0200
55–64	-0.0421***	0.0078	-0.0188	0.0111	-0.0249***	0.0083	-0.1725***	0.0189
Education (Base: HS Graduate)								
No HS diploma/GED	0.0620***	0.0161	-0.0444**	0.0176	0.0372**	0.0145	0.1718***	0.0269
Some college/Associate	0.0215**	0.0084	0.0496***	0.0107	0.0176**	0.0086	-0.0833***	0.0194

(continued on next page)

Variable	(1R) Hardship		(2R) Inflation-Adaptation		(3R) Liquidity Stress		(4R) FII	
	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE
Bachelor's+	-0.0182**	0.0078	0.0263**	0.0108	0.0105	0.0081	-0.3250***	0.0191
Employment (Base: Not working)								
Working full-time	-0.0046	0.0078	0.0236**	0.0099	-0.0468***	0.0081	-0.1196***	0.0175
Working part-time	0.0065	0.0100	0.0289**	0.0125	0.0040	0.0109	-0.0810***	0.0222
Race/Ethnicity (Base: Black, Non-Hispanic)								
Hispanic	0.0049	0.0122	0.0969***	0.0159	-0.0085	0.0120	-0.0800***	0.0261
White, Non-Hispanic	-0.0236**	0.0101	0.0537***	0.0135	-0.0413***	0.0100	-0.1087***	0.0218
Other, Non-Hispanic	-0.0027	0.0135	0.0460**	0.0183	-0.0051	0.0138	-0.0844**	0.0293
Gender (Base: Female)								
Male	-0.0301***	0.0058	-0.0444***	0.0080	-0.0245***	0.0061	-0.0236	0.0135
Housing (Base: Owned/Occupied w/o Payment)								
Rented for cash	0.0341***	0.0070	-0.0235***	0.0089	0.0014	0.0069	0.1962***	0.0154
Constant	-0.2446***	0.0205	-0.1498***	0.0270	-0.1951***	0.0205	-1.3232***	0.0463

Notes: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$. Robust standard errors.
Model statistics: Hardship: $R^2 = 0.1860$; Inflation Adaptation: $R^2 = 0.1796$; Liquidity Stress: $R^2 = 0.1697$; FII: $R^2 = 0.4183$.

Across all four outcomes—hardship-related scarcity, inflation-adaptation, liquidity stress, and forward-looking financial insecurity—the raw-scale regressions yield estimates that are qualitatively identical to the baseline standardized models. SFW remains the dominant predictor in every specification, with large, precisely estimated coefficients whose magnitudes mirror the relative ordering observed in the standardized models (largest for FII, second-largest for inflation adaptation, and smaller but still substantial for hardship and liquidity stress). LAI retains its expected positive association with hardship, adaptation, and future insecurity, with attenuation only in the liquidity-stress model, exactly matching the pattern in the primary results.

The job-security indicators also display the same structure: layoffs consistently predict higher scarcity in all three contemporaneous models and remain significant in the forward-looking specification; voluntary quits remain insignificant in hardship and adaptation but significantly positive in liquidity stress; job search continues to show positive associations of similar magnitude. These consistencies confirm that employment volatility effects are not dependent on the scaling of behavioral indices.

The R^2 values in the robustness models differ only trivially from the baseline specifications (e.g., 0.186 vs. 0.1878 for hardship; 0.1796 vs. 0.1792 for adaptation; 0.1697 vs. 0.1638 for liquidity stress; 0.4183 vs. 0.4126 for FII). These differences reflect only the mechanical change in predictor variance and not any substantive alteration in explanatory power.

The raw-measure regressions demonstrate that the core empirical architecture of behavioral vulnerability and employment volatility is highly robust to variable scaling. The behavioral-disposition gradients and volatility effects identified in the main models are not artifacts of z-scoring but represent stable, substantively meaningful relationships across all four scarcity domains.

5 Conclusion

This study advances a unified behavioral–volatility framework for understanding how households experience and anticipate economic scarcity. Using harmonized regression models across four outcomes, the analysis shows that subjective financial fragility and employment instability form the central architecture through which scarcity behaviors are organized. Across hardship, inflation-adaptation, liquidity stress, and forward-looking financial insecurity, these behavioral and volatility forces consistently overshadow traditional demographic characteristics, indicating that vulnerability emerges not only from resource constraints but from the psychological and behavioral processes through which instability is interpreted.

The results reveal that scarcity is multifaceted rather than uniform. Hardship reflects acute exposure to involuntary shocks; inflation-adaptation captures precautionary adjustments to rising prices; liquidity stress reflects the budgetary consequences of both unexpected and voluntary employment transitions. These patterns demonstrate that households do not respond to instability with a single behavioral rule but instead activate distinct coping strategies depending on the perceived severity, timing, and controllability of financial pressures.

The forward-looking Financial Insecurity Index (FII) provides a deeper insight into how volatility shapes expectations. The amplified role of subjective fragility and loss sensitivity in predicting future insecurity shows that households internalize instability into pessimistic beliefs, even when objective indicators of upward mobility or labor-force recovery remain available. This anticipatory mechanism—where present strain is extrapolated into future risk—highlights a cognitive channel through which instability becomes self-reinforcing. It suggests that volatility propagates across time not solely through income dynamics, but through the beliefs that households form about their capacity to withstand future shocks.

These findings complement and extend recent research on financial fragility and subjective expectations (Cai et al., 2023; Simonse et al., 2024; Gathergood, 2012; Giglio et al., 2021) by showing that the mechanisms linking instability to economic stress operate jointly through behavioral vulnerability and downside-risk beliefs. The strong coherence between contemporaneous scarcity and forward-looking insecurity positions the behavioral–volatility architecture as a unifying model for understanding how households navigate uncertainty.

Viewed through this lens, the findings offer direct support for the central thesis of the study: employment volatility generates behavioral constraints that reinforce economic insecurity even when opportunities for mobility remain ostensibly open. Volatility does not operate only through lost income or disrupted employment trajectories; it alters the subjective risk environment, elevates perceived fragility, and constrains the behavioral repertoire with which households approach financial decisions. By reshaping both current actions and future expectations, volatility creates a form of psychological path dependence that can impede mobility even in favorable structural conditions.

Understanding economic insecurity therefore requires attending to the interplay between objective instability and subjective vulnerability. Policies that smooth income shocks, reduce uncer-

tainty, or lower the cognitive burden associated with financial fragility may offer benefits far beyond immediate material relief. Interventions that stabilize expectations—through early-warning supports, targeted financial counseling, or job-transition guarantees—may help weaken the behavioral constraints that allow volatility to become self-perpetuating. Recognizing volatility as both an economic and psychological condition is essential for designing durable strategies to promote household resilience in an increasingly unstable labor-market landscape.

6 Discussion

The empirical results presented in this study reveal a coherent behavioral–volatility structure underlying multiple expressions of scarcity. Across hardship, inflation adaptation, liquidity stress, and forward-looking financial insecurity, subjective financial fragility consistently emerges as the strongest predictor of scarcity behaviors, followed by loss aversion and involuntary job-market shocks. Static demographics, in contrast, contribute only minimally once behavioral dispositions and employment instability are accounted for. Together, these patterns indicate that scarcity is not merely a function of resource constraints but reflects a deeper interaction between cognitive vulnerability and structural volatility.

The findings suggest that perceived fragility operates as a psychological amplifier: individuals who feel financially unstable interpret new information and economic shocks through a more pessimistic frame, adopt more constrained behavioral strategies, and extrapolate current stress into future states. This interpretation accords with behavioral theories emphasizing loss sensitivity, attentional narrowing, and scarcity-induced cognitive load, as well as with household-finance research showing that subjective well-being and perceived resilience often outperform income-based measures in predicting financial behavior. The results also reinforce expectation-formation theories, particularly those demonstrating that beliefs about risk and future stability evolve jointly with exposure to volatility. In this sense, the evidence shows that employment instability does not merely impose budget constraints; it alters the psychological environment through which households evaluate options and anticipate future risk.

These findings carry several implications for theory and policy. Behaviorally, they position volatility as a catalyst that shapes the formation of expectations, risk perceptions, and coping strategies. This lens aligns with broader shifts in macro-behavioral research that view household expectations as endogenous to economic uncertainty. From a policy perspective, the results underscore that interventions aimed solely at raising income or smoothing consumption may overlook a key mechanism through which scarcity persists: the psychological imprint of instability. Efforts that reduce volatility—through predictable scheduling, more stable earnings trajectories, or portable benefits—may therefore have behavioral benefits beyond their material effects. Additionally, policies that reduce cognitive load in financial decision-making, such as simplified savings tools or targeted guidance during employment transitions, may weaken the channels through which volatility generates persistent insecurity.

At the same time, several limitations temper the conclusions that can be drawn. The cross-sectional nature of the SHED data limits any claim about dynamic causal pathways or the persistence of behavioral vulnerability over time. Self-reported measures of financial fragility, loss aversion, and insecurity, although validated, may incorporate perceptual biases or transient emotional states. The survey's measures of job instability capture major transitions but not finer distinctions in work quality such as hours volatility, underemployment, or informal labor. Finally, the harmonized OLS specifications provide a consistent comparative structure but cannot fully account for simultaneity or reciprocal causation between scarcity behaviors and subjective financial assessments.

These limitations suggest productive avenues for future research. Longitudinal or linked administrative data could trace how subjective fragility evolves in response to repeated or persistent shocks. Experimental or quasi-experimental designs could improve identification of the causal channels through which volatility affects cognitive and behavioral outcomes. Greater attention should also be paid to heterogeneity: while demographic effects attenuate once behavioral and volatility measures are included, structural disadvantages—credit access, housing rigidity, or community-level uncertainty—may shape how households internalize risk and respond to scarcity. Future work might explore how behavioral vulnerability interacts with social context, institutional constraints, or cultural norms to produce divergent pathways of insecurity.

Overall, the results show that economic vulnerability is best understood not as a purely financial condition, but as the product of an interaction between structural instability and behavioral susceptibility. Subjective fragility and volatility together shape how individuals navigate scarcity, respond to shocks, and form expectations about the future. Recognizing this interaction is essential for designing interventions that enhance stability, resilience, and the behavioral capacity to engage with long-term financial opportunities.

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