Household financial decision-making plays a central role in many fields of economics, including finance, public economics, and macroeconomics. In addition to the academic interest in household finance, this field has been brought to the forefront of policy debates by both the Great Recession and the Covid pandemic. My research uses detailed microeconomic administrative data and natural experiment-based empirical strategies to uncover how households make financial decisions. I then examine the implications of the behavior I document for structural models of household decision-making, the design of public policy, and the evolution of the macroeconomy.

I am particularly interested in the role of liquidity in household financial decisions. An influential strand of the prior empirical and theoretical literature has focused on the causal effect of “helicopter drops” of money such as stimulus checks. My work complements this approach in three ways. First, it separates the causal effects of present and future cash flows, studying both the impact of predictable changes in future cash flows holding cash today fixed and the converse, the impact of current cash flows which must be repaid in the future. Second, it studies not just one-off windfalls but also the kinds of earnings shocks that households typically experience from month to month. Third, it examines why past liquidity is connected with current sensitivity.

Across a variety of domains, my research has found that households exhibit strong sensitivity to shocks to current cash flows but not to shocks to future cash flows. For example, I find that households’ responses to news about future cash flows are muted or non-existent. Households show little response to both bad news (that income will go down in the future when unemployment benefits are exhausted) or good news (that some of their mortgage debt has been forgiven). In contrast, an increase or decrease in households’ current cash flows leads to notable changes in both consumption and mortgage default, even when these changes are entirely predictable and even when these changes are offset by changes to future cash flows. These findings suggest that current liquidity is central for household decisions.

The centrality of liquidity has implications for economic models of consumer behavior. The sensitivity of household mortgage repayment decisions to current cash flows and their insensitivity to future cash flows is consistent with models where the private cost of mortgage default is high and borrowers face liquidity constraints. The sensitivity of household consumption decisions to current cash flows and their insensitivity to future cash flows is consistent with models with permanent heterogeneity where some households are myopic in their consumption and savings decisions.

The centrality of liquidity also has implications for the design of public policies. In the context of mortgage default, my research has shown that by front-loading borrower liquidity it is possible to re-design mortgage assistance policies with substantial gains to borrowers, lenders, and taxpayers. In the context of unemployment, my research has shown that targeting low-liquidity states of the world (in particular when regular unemployment benefits have been exhausted) can increase consumer welfare. Across both domains, my research has shown that providing liquidity to distressed households can help boost aggregate demand and assist in macroeconomic stabilization.

The remainder of this statement provides more detail on the two parts of my research agenda analyzing household financial decision-making: mortgages and income and consumption smoothing. All papers described in this research statement are joint with Peter Ganong at the University of Chicago’s Harris School of Public Policy.
1 Mortgages

In two papers, Peter Ganong and I have developed tests to understand the roles that current and future cash-flows play in determining the default and consumption behavior of mortgagors. The first paper is “Liquidity vs. Wealth in Household Debt Obligations: Evidence from Housing Policy in the Great Recession” (2020, American Economic Review).

Mortgage defaults soared during the Great Recession, precipitating the worst financial crisis since the Great Depression. By the time the crisis had subsided, about 10 percent of borrowers had undergone foreclosure. In normal times, and especially in recessions, borrowers who fall behind on their mortgages are commonly offered a modified contract, known as a “mortgage modification.” These modifications typically involve changes in both current payments (“liquidity”) and long-term debt obligations (“wealth”). It is thus difficult to tease apart the underlying mechanisms driving the borrower response to these modifications.

The key contribution of our paper is to disentangle the impact of these two channels by using quasi-experimental methods to study the effect of mortgage modification treatments which affect only wealth or affect only liquidity. The paper uses administrative mortgage servicing data, which we link to credit bureau data from TransUnion and bank account data from Chase to measure consumption. We isolate the effect of wealth by studying a treated group that benefits from a government program that forgives mortgage principal but sees no change in mortgage payments for five years relative to a control group that participates in a different government program. We isolate the effect of liquidity by studying a treatment group that sees a reduction in current mortgage payments through maturity extension with no change in the net present value of total mortgage payments owed. In both cases, assignment to treatment is determined in part by quantitative thresholds, enabling us to use regression discontinuity designs to estimate the causal impact of each treatment.

We find that modifications which affect only wealth have no effect on default or consumption for borrowers with negative home equity, while modifications which affect only liquidity yield substantial reductions in default. Thus, under plausible assumptions, we uncover the opportunity for a Pareto improvement: re-designing mortgage assistance policies to maximize liquidity provision can benefit borrowers, lenders, and taxpayers. Finally, we demonstrate that these empirical consumption and default patterns can arise from a simple model where underwater borrowers are liquidity constrained.

The finding of a zero MPC out of housing wealth for underwater borrowers has become a building block for subsequent macroeconomic modeling. The model in our paper shows that while highly leveraged borrowers with positive home equity do have high MPCs (consistent with the prior literature), the tight link between housing wealth and consumption breaks down when borrowers are underwater. Home equity gains do not relax collateral constraints for underwater borrowers and therefore do not affect consumption. Thus, collateral constraints drive a wedge between the MPC out of cash and the MPC out of housing wealth for underwater borrowers. Since the initial circulation of our paper, modern models of consumption and housing wealth have incorporated this wedge. For example, three papers recently published in the Review of Economic Studies (Berger et al. 2018, Guren et al. 2021, and Boar et al. 2022) demonstrate that their models can reproduce the zero MPC fact as a test of their models’ validity.
This paper has also been recognized in public-facing settings. A recent review article of the literature on mortgage default by Foote and Willen (2018) reproduces the figure from our paper which shows that wealth-focused modifications fail to reduce mortgage default. The paper also received the 2021 TIAA Paul A. Samuelson Award for outstanding scholarly research that can help increase Americans’ lifelong financial well-being.

The second paper, “Why Do Borrowers Default on Mortgages?” (2023, Quarterly Journal of Economics), turns our focus from policy effectiveness to measuring the quantitative importance of alternative theories of mortgage default. There are three leading theories of mortgage default: strategic default (driven by negative equity when a home has become a bad financial investment), cash-flow default (driven by negative life events such as the loss of a job, illness, or divorce), and double-trigger default (where both negative triggers are necessary). Housing economists have been struggling to distinguish between these theories for over thirty years because of a data problem: the administrative data which capture mortgage payments do not capture information on negative life events.

This paper attempts to make progress on this longstanding question with new data and an alternative research design. The new data come from linking mortgage servicing records to a measure of income using bank account data from JPMorgan Chase. The new method relies on the observation that there is a large set of mortgage defaults which unambiguously lack a strategic motive: defaults by borrowers with positive home equity. Under plausible assumptions, the income of defaulters with positive home equity provides a benchmark for what it would look like in the data if no negative equity defaults were strategic. We find empirically that the income loss before default of borrowers with negative home equity is very close to the no-strategic-default benchmark from borrowers with positive equity. Quantitatively, our estimates imply that only about 6% of underwater defaults are strategic, about an order of magnitude less than previously thought.

This finding is surprising from the perspective of standard default models because these models assume that strategic motives dominate for deeply underwater borrowers. They predict little income drop among deeply underwater defaulters, which is inconsistent with our empirical results. However, we show that an extension of the standard model where borrowers have a high private cost of defaulting can reconcile the two. This finding is useful because endogenous borrower default decisions play a central role in a wide class of macro finance models. Our results suggest that realistic models will feature forces that necessitate large income drops before default, even for deeply indebted borrowers. Several more recent models have adopted these features, targeting the empirical results that we document (Campbell et al. 2021; Chodorow-Reich et al. 2023; Gete and Zecchetto 2023; Low 2023).

The paper received the best paper award at the American Real Estate and Urban Economics Association National Meeting in 2021.

One main conclusion from these two mortgage papers is that homeowners do not treat their homes like a financial asset. They act as if defaulting is costly, and for the most part only do so when a negative event happens in their financial life that reduces the cash available to make their payments. This in turn implies that providing short-term cash to distressed borrowers can effectively and cheaply prevent many defaults, providing a blueprint for maximizing the amount of support that can be provided to distressed households during difficult times. The policy response to the Covid crisis was consistent with this lesson,
focusing on widespread immediate liquidity provision via mortgage forbearance rather than more drawn-out liquidity provision via mortgage modification. Emerging research suggests that this policy was effective at preventing defaults (Cherry et al. 2021).

2 Income and Consumption Smoothing

In a second line of work, Peter Ganong and I study how changes in income affect consumption. The first paper in this line of work is “Consumer Spending During Unemployment: Positive and Normative Implications” (2019, American Economic Review, lead article). While the mortgage papers discussed above seek to quantify the importance of liquidity versus wealth, this paper zooms in on liquidity to understand why liquidity matters. This paper studies the monthly evolution of spending during unemployment using the high-frequency Chase bank account data. It has not been possible to measure the monthly evolution of spending in existing public-use survey datasets.

One particularly interesting feature of unemployment from a theoretical perspective is the exhaustion of unemployment insurance benefits, which is a predictable decline in income. The exhaustion is predictable because in most US states, unemployment benefits last exactly six months. We use this feature to formulate a new test between two broad classes of consumption models. A model with rational consumers predicts that households will gradually cut spending in advance of benefit exhaustion so as to avoid a sharp drop in consumption when benefits do expire. In contrast, leading behavioral models predict that households will not cut spending until benefits run out. This test is innovative because many prior theoretical and empirical papers focused on increases in income (the so-called “helicopter drops”), but spending behavior in response to an increase does not distinguish between rational and behavioral models.

The paper’s key empirical finding is that nondurable spending is nearly constant during benefit receipt and then drops sharply by 12 percent in the month that benefits are exhausted. Thus, in the context of spending patterns during unemployment, our findings reject the rational model, but are consistent with the behavioral model. The key intuition behind the new test is that liquidity constraints in a rational model cannot explain why households would fail to save in anticipation of a predictable income decline. Instead, households must not be perfectly forward looking, as in behavioral models with present-biased or myopic behavior.

Additional empirical findings reinforce the conclusion that even people who are anticipating an income decline—and therefore have the most to gain from smoothing consumption—do not smooth consumption in the way that is predicted by the rational model with liquidity constraints. In New Jersey, unemployment insurance (UI) payments begin quickly, such that many workers receive their last paycheck and their first UI check in the same week. This induces a sawtooth pattern in average income around onset, and spending follows the same sawtooth pattern. This suggests that much of the extra check is spent immediately, even though households know their income is likely to fall sharply in the following month. As further evidence of excess sensitivity, Gerard and Naritomi (2021) replicate both the sawtooth pattern at onset and the drop at exhaustion using data from Brazil with a different, non-bank-based measure of nondurable spending.

The paper has contributed to the consumption literature in at least two ways. First,
it pioneered a novel method for testing consumption models by studying high-frequency consumption behavior around a predictable decline in income. Three recent published and soon-to-be-published papers adopt our approach of using predictable income declines to study consumption models: Baugh et al. (2021), Jorring (2020), and Andersen et al. (2024).

Second, the latest generation of macroeconomic models of consumption seek to match the real-world sensitivity of consumption to income. Examples of recent macro consumption models that target this paper’s estimates include Kekre (2022), Ilut and Valchev (2022), and Laibson et al. (2023).

The paper also analyzes the normative implications of these spending patterns. We evaluate these implications using a generalization of the canonical Baily-Chetty formula for the optimal level of unemployment insurance benefits. We show that the welfare gains from improved consumption-smoothing due to extending the duration of UI benefits are four times as large as from raising the level of UI benefits. The intuition is that welfare can be improved by targeting assistance to a household’s lowest-liquidity state.

My next paper in this line of work is titled “Wealth, Race, and Consumption Smoothing of Typical Labor Income Shocks” (2023, Reject and Resubmit, American Economic Review, also coauthored with Damon Jones, Fiona Greig, Chris Wheat, and Diana Farrell). Like the previous paper, this paper also introduces a new empirical strategy to address a fundamental question in the consumption-smoothing literature. Most modern studies in this literature instrument for income using unusual windfalls, such as stimulus checks and lottery winnings. These studies consistently find that consumption is highly sensitive to such windfalls. However, the consumption literature has developed two competing interpretations of this empirical finding. The first interpretation rationalizes high windfall spending through two-asset consumption-savings models in which either preferences (such as myopia) or technology (such as a high-return illiquid asset) lead to low liquidity as well as a substantial response to income fluctuations, even frequently occurring ones. The second interpretation treats windfall spending as “near rational” behavior. This argument is based on the observation first developed in Cochrane (1989) that there is close to zero welfare cost of failing to smooth consumption in the face of small or infrequent income changes.

Our paper makes progress on this debate by studying a source of frequently-occurring income fluctuations that, if not smoothed, have a substantial welfare cost: typical labor income shocks. To credibly identify the consumption response to such shocks we construct an instrument based on changes in co-worker average pay. This instrument isolates variation in monthly labor income purged of an individual worker’s endogenous labor supply decision.

We find that consumption remains highly sensitive even to typical month-to-month labor income volatility. Moreover, because we can construct our instrument for every worker in every month, and we implement it in a bank account dataset with direct administrative measures of liquid assets, we are able to precisely assess the extent of heterogeneity in this sensitivity by household liquidity. We find that low-liquidity households are substantially more sensitive than high-liquidity households. These findings support the low-liquidity interpretation of excess sensitivity over the near-rational interpretation.

This paper also makes a contribution to the literature on racial inequality. Although an extensive body of work documents the causes and long-term persistence of the racial wealth gap, less is known about its consequences on households’ lives from month to month. Since we find that consumption sensitivity is tightly related to liquid wealth gaps, and it is well known
that race is one of the most important markers of wealth gaps, it is natural to expect that one of the consequences of these wealth gaps may be racial inequality in consumption sensitivity. Indeed, we find that Black and Hispanic households are twice as sensitive to monthly income shocks as White households. Moreover, we find that racial wealth inequality can almost entirely account, in a statistical sense, for racial disparities in consumption sensitivity. We consider the welfare implications of the sensitivity we document by calibrating a stylized model based on Lucas (1987), who developed a framework to measure the welfare cost of aggregate fluctuations. When we apply this framework to analyze the cost of individual fluctuations, we find that transitory income volatility has a large welfare cost for the average household. Because of racial disparities in consumption sensitivity, this welfare cost is twice as high for Black and Hispanic households than it is for White households.

Although this paper demonstrates that consumption sensitivity is indeed related to low liquidity, one important unresolved question is where this low liquidity comes from for typical households. In many benchmark heterogeneous agent models, all households have the same preferences and face the same environment ex-ante. In these models, high MPCs are entirely driven by households with temporarily low liquidity who happen to be near a constraint. However, an alternative explanation for the liquidity-MPC correlation is that some households have permanently high propensities to spend (due to ex-ante heterogeneity in either preferences or environment), which leads them to save less and therefore have low liquidity. Differentiating “temporary low liquidity causes high MPCs” from “permanently high MPCs cause low liquidity” is challenging because both liquidity and MPCs are endogenous. Households facing a temporary liquidity crunch will have high MPCs, and households with permanently high MPCs will run down their liquidity. In “Spending and Job-Finding Impacts of Expanded Unemployment Benefits: Evidence from Administrative Micro Data” (2023, Conditionally Accepted, American Economic Review, also coauthored with Fiona Greig, Daniel Sullivan, and Joseph Vavra), we try to distinguish between these two explanations by leveraging the unique, quasi-random increase in liquidity generated by the massive unemployment insurance benefit expansion during the pandemic. This benefit expansion was so large that it moved normally low-liquidity unemployed households into a high-liquidity state.

Using a variety of empirical strategies, we show that households receiving these generous unemployment benefit supplements still have large MPCs, even when they have temporary high liquidity. This result suggests that temporarily low liquidity cannot be the only explanation for high MPCs. Indeed, we show that households with lower liquidity measured years before the pandemic have higher MPCs to UI supplements throughout the pandemic. This finding that households who were low liquidity years before they received a transfer continue to have high MPCs even after they have been moved to a high liquidity state strongly suggests that some permanent household characteristic has a role in driving both high MPCs and low liquidity.

This paper makes two additional contributions outside of the consumption-smoothing literature. First, by combining our empirical analysis with a structural model we quantify the overall effects of UI supplements during this significant episode in recent macroeconomic history. We find that increased unemployment benefits were important for explaining aggregate spending dynamics—but not employment dynamics—during the pandemic. Second, by unpacking the particular channels driving these large spending and small employment effects

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we show that temporary unemployment benefit supplements are a promising countercyclical tool. In particular, employment distortions from temporary supplements are likely to be small in future recessions when the job-finding rate is already depressed, and the spending effects are likely to be large due to the persistent heterogeneity we document.

In the course of preparing the previous paper, Peter Ganong, Joseph Vavra, and I wrote two brief descriptive papers examining the economic policy response to the Covid pandemic. As part of the CARES Act, the US Congress legislated a temporary $600 supplement to weekly unemployment benefits, which was the largest increase in unemployment benefits in US history. In “US Unemployment Insurance Replacement Rates During the Pandemic” (2020, Journal of Public Economics), we quantify the distribution of benefit replacement rates. The median statutory replacement rate was 145% and three-in-four workers had replacement rates above 100%, meaning that most unemployed workers received more income from unemployment than they had from their prior jobs. We study the spending and job-finding consequences of this benefit expansion in the causal paper described above (Ganong et al. 2023a).

As part of the paper, we released an open-source benefit calculator. This calculator has been used by dozens of subsequent papers. Furthermore, the Biden Administration used the calculator when they sought to design a supplement that would achieve a median replacement rate of 100%. Finally, the calculator was also used by our team to provide technical advice to the U.S. Department of Labor, the Senate Finance Committee, the White House Council of Economic Advisers, and the Congressional Budget Office.

For the second brief descriptive paper, we documented the dramatic changes in spending and savings behavior associated with the onset of the pandemic and the economic policy response to it in “Initial Impacts of the Pandemic on Consumer Behavior: Evidence from Linked Income, Spending, and Savings Data” (2020, Brookings Papers on Economic Activity, also coauthored with Natalie Cox, Erica Deadman, Diana Farrell, Fiona Greig, and Arlene Wong). The paper has two main results. First, it shows that the spending of low-income households recovered more quickly than the spending of high-income households at the onset of the pandemic. Second, it shows that the level of checking accounts rose in the wake of the pandemic, with the largest relative increase for low-income households. Given that employment losses were higher for low-income households, the paper argues that aggressive fiscal support likely facilitated both of these patterns. We subsequently documented this link between fiscal support, spending, and savings in more detail in the causal paper described above (Ganong et al. 2023a).

3 Selected Work In Progress

In ongoing work, I am tackling a second unresolved question building off of Ganong et al. (2023b). In that paper, we start from the observation that labor income is highly volatile from month-to-month (in the SIPP the standard deviation of monthly labor income changes is 30 percent), and build an empirical strategy to study how this volatility passes through into consumption. But how is it possible that monthly earnings volatility is this high in the first place? Together with Peter Ganong, Christina Patterson, Joseph Vavra, and Alex Weinberg, I am working with administrative data from a large payroll processor to unpack the sources and implications of this degree of earnings volatility.
Although it is well known that base wages are largely stable from month-to-month and, when they do adjust, almost always adjust upwards, we are finding that this wage stability does not translate into earnings stability for the majority of U.S. workers. Even within stable employment relationships, and even when wages are constant, we find that many workers nevertheless face substantial monthly earnings volatility. For hourly workers, earnings instability is symmetric, largely unpredictable to the econometrician, and is driven by hours instability. For salaried workers, earnings instability is positively skewed, more predictable, and comes largely from irregular pay such as bonuses and commissions. Along a number of dimensions, volatility is higher for hourly than for salaried workers. Overall, we find that transitory earnings shocks are significantly more prevalent than implied by benchmark models of the earnings process which are calibrated to annual data. Furthermore, we are finding that workers perceive this volatility as having large welfare costs. Leveraging a research design based on worker quits in a model of a frictional labor market, we are finding that workers have a high willingness to pay to reduce earnings volatility. As the project progresses we are working to document the implications of this new granular understanding of the earnings process for structural models of consumption and for the design of public and private sector policies to address earnings risk.

In the medium term, I expect that this examination of earnings volatility will also feed back into my mortgage-related research agenda. The key conclusion from that work is that liquidity shocks drive mortgage default decisions. I expect that a better understanding of the sources of earnings-related liquidity shocks will have implications for ex-ante mortgage design and ex-post interventions for distressed borrowers, which I plan to examine in future work.
References


