Disparate Financial Distress While Transitioning into Homeownership*

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Using linked property transaction data and credit records, we document group-level differences in financial distress before and after transitioning into homeownership. Black and female borrowers experience larger increases in post-purchase delinquency relative to White and male borrowers, respectively, as measured by 30+ day and 90+ day delinquency rates, even after accounting for stringent controls, credit score, and income-at-purchase. Post-purchase, Black and female borrowers also accumulate more student debt, while credit card balances rise for everyone, but faster for Black borrowers. Understanding disparities in sustaining homeownership informs our assessment of racial and gender disparities in the financial benefits of homeownership.

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1 Introduction

Homeownership is associated with a range of economic and social benefits, while the loss of homeownership can result in reductions in wealth accumulation (Goodman and Mayer 2018; Sodini, Van Nieuwerburgh, Vestman, and von Lilienfeld-Toal 2023; Artigue, Bayer, Ferreira, and Ross 2025). However, becoming a homeowner—especially through a mortgage—entails committing to a long-term, difficult-to-renegotiate contract (Agarwal, Amromin, Ben-David, Chomsisengphet, and Evanoff 2011, 2019; Korgaonkar 2023) that raises the adjustment costs of altering one's housing consumption in response to changing needs or circumstances. When households face income instability or broader negative economic conditions, meeting the fixed obligations of homeownership can become especially challenging. Despite well-documented disparities in wealth and income across households, we have limited evidence on which households are actually able to sustain the substantial shift in their balance sheets' size and composition which arises from the transition into homeownership. That is, are the inherent challenges in *transitioning to* homeownership unequally borne across households?

Severely distressed homeownership often ends in mortgage foreclosure. Pioneering work by Kermani and Wong (2024) shows that differences in mortgage foreclosure rates and severity can explain group-differences in homeownership returns. However, a mortgage borrower may experience varying degrees of distress across all household liabilities during their homeownership spell, and not end up in foreclosure. As of September 2016, only 11% of mortgage borrowers' non-current household liabilities were in collection, in foreclosure, or in bankruptcy.[1] Exclusively focusing on these outcomes would miss the 89% of non-current balances that were in more intermediate states of delinquency or distress. Rather than focusing on distress at the end of homeownership, we shed light on the fragility of household balance sheets in the near- to medium-term following the transition to homeownership.

In this paper, we document that women and Black homeowners experience an immediate jump

[1] These statistics were obtained from analysis of a 5% sample of a large credit bureaus consumer credit records.

in financial distress while transitioning to homeownership that white male homeowners do not experience. This is reflected in higher rates of 30+ and 90+ day delinquency, across all liabilities, and increases in non-mortgage balances immediately following entry into homeownership with a mortgage. Black borrowers experience a 4 percentage point (p.p.) and 2 p.p. increase in the probability of 30+ and 90+ day delinquency, respectively. Women borrowers only experience an increase in 30+ day delinquency of 1.6 p.p. This is accompanied by increased indebtedness, reflected in larger jumps in student debt and credit card balances. These groups appear to become more financially fragile after transitioning into homeownership. These effects subsist after controlling for individual fixed effects, credit score, property characteristics, location, and other stringent sets of controls. We also rule out that income at the time of purchase drives these jumps in financial fragility.

Becoming a homeowner significantly changes a household's asset and liability position, and has consequences for future consumption. It increases the adjustment costs of changing the amount of housing consumed and locks borrowers into a long-term, difficult-to-renegotiate contract which imposes significant penalties in the event of default. As a result, homeownership reduces flexibility and raises the stakes of financial missteps. Income volatility and post-purchase economic shocks—such as job loss or wage stagnation—can raise challenges in servicing fixed housing costs, especially for borrowers with fewer liquid assets. Some populations, such as racial minorities and women, may be more exposed to these dynamics given existing and persistent wealth gaps (Derenoncourt, Kim, Kuhn, and Schularick 2021), disproportionate exposure to unemployment risk, and disadvantages in the labor market (Bayer and Charles 2018). If Black or female borrowers anticipate lower returns to homeownership (Kermani and Wong 2024, Goldsmith-Pinkham and Shue 2023) or face persistently higher ownership costs (e.g., insurance, maintenance, or property taxes), they may rationally allocate repayment toward other obligations, or fall into distress despite their efforts. The results presented here suggest that the unevenly distributed costs of transitioning into homeownership compound structural disparities in income security, wealth accumulation, and housing quality.

Estimating disparities requires one to clearly specify the appropriate benchmark for comparison. The ideal causal benchmark would randomly assign near-purchase homebuyers into groups, with one group having their mortgage paid off immediately as they transition into homeownership. This benchmark narrows our focus on the role of mortgage financing rather than the general differences between owning and renting, which entails different choices and preferences.[2] We, unfortunately, can't meet the ideal hypothetical benchmark. We, instead, document changes in financial outcomes as individuals enter homeownership with a mortgage, benchmarking them against those who do so without relying on debt; and approximate our ideal benchmark by comparing these two groups after accounting for individual-, neighborhood-, age cohort-, property characteristics-, and time fixed effects, and further accounting for other sources of heterogeneity (e.g., credit scores, income-at-purchase, time-varying neighborhood fixed effects). We show that the differences in pre-ownership outcomes between groups is statistically nonexistent.

To facilitate this analysis, we build a panel consisting of a randomized subsample of (anonymized) North Carolina residents, who enter homeownership between 2007 and 2019. This panel combines credit bureau information on their household liabilities with details about the property transaction, including the acquisition price and the amount of leverage used. In addition, information from voter records added to the data construction allows us to observe each homebuyer's race and gender, regardless of whether they used a mortgage or not. The richness of the property- and individual-level data enables us to absorb various levels of unobserved heterogeneity, and account for several competing explanations. We estimate event-study regressions that assess delinquency and debt balances at annual intervals pre- and post-move and examine how Black and female responses vary from White and male mortgaged homebuyers', respectively. As stated before, our specifications account for a large set of fixed effects, including individual and age fixed-effects to ensure comparison between similar homeowners. Using the granularity of our data, our specifications take into account: variation in local housing-market conditions, time-varying lending

[2] A naive causal benchmark would treat homeownership as the intervention, but this overlooks the conditions and preferences that lead to the decision-to-purchase and its timing.

standards, time-varying selection into property type, and persistent differences in the cost of credit across groups. We cannot rule out group differences in cost of credit (interest rates, or fees) that change over time.

Relative to the non-mortgaged household benchmark, the baseline mortgaged household in our sample is improving their credit record as they enter homeownership, with 30+ and 90+ day delinquent accounts decreasing, and debt balances remaining on trend relative to non-mortgaged homeowners. A likely explanation for this pattern is individuals anticipating the mortgage application. Differences in the delinquency rates begin to emerge following entry into homeownership. While White/male mortgaged households' delinquency rates converge to those of our benchmark, we observe relative increases in the delinquency rate of Black/female mortgaged homeowners. Our event studies (Figure 1) document that three years following home purchase, Black mortgaged homeowners are 6 p.p. more likely to have accounts that were 30+ days delinquent, and 9 p.p. more likely to have accounts that were 90+ days delinquent, relative to White mortagaged homeowners. Female mortgaged homeowners are also about 5 p.p. more likely to have 30+ day delinquent accounts three years post home purchase, but appear to transition into 90+ day delinquency at rates similar to male mortgaged homeowners. Our most stringent regressions specifications are consistent with these findings.

Households also have the option to borrow additional funds when faced with increased costs. We examine how two categories of household debt change around homeownership: credit-card balances—among the most expensive sources of household debt—and student debt—the second largest component of aggregate household liabilities (Figure 2). Relative to the non-mortgaged benchmark, the baseline mortgaged homeowner increases their bankcard balance, consistent with Benmelech, Guren, and Melzer (2023), who show that households increase consumption when they become homeowners. Black mortgaged homeowners see even greater increases in bankcard balances, suggesting that they use this line-of-credit to finance ownership costs and consumption. Female mortgaged homeowners increase their credit-card debt, but not relative to male mortgaged homeowners.

The baseline mortgaged homeowner pays down student debt at a faster rate than the non-mortgaged benchmark. However, Black mortgaged homeowners see a relative increase in student debt balances that offsets and exceeds baseline decreases. This may occur through cessation of payments on student debt, with balances negatively amortizing over time. Female mortgaged homeowners do continue repaying student debt albeit at a slower rate than the baseline (male) mortgaged homeowner.

Overall, our results suggest that particular groups—namely, Black borrowers and female borrowers—face relatively greater difficulty in maintaining their household credit performance following mortgaged homeownership. While these borrowers have historically faced lower access to homeownership and credit, several policies and government programs—such as the Community Reinvestment Act, or low down-payment FHA loans—have attempted to rectify these inequalities. However, certain groups may become more financially fragile when transitioning into homeownership with increased household leverage, perhaps creating a role for programs that increase financial literacy (Lusardi and Mitchell 2014) or provide financial counseling around major decisions, although these approaches may present their own set of challenges (Agarwal, Amromin, Ben-David, Chomsisengphet, and Evanoff 2020).

Distress during the homeownership spell. The literature to date has generally focused on two stages of homeownership: The beginning, and the end. Studies have documented unequal access to homeownership due to wealth gaps (Charles and Hurst 2002; Derenoncourt et al. 2021), approval gaps (e.g., Giacoletti, Heimer, and Yu 2025; Frame, Huang, Jiang, Lee, Liu, Mayer, and Sunderam 2025), the persistent effects of regulation such as red-lining (e.g. Rothstein 2017; Aaronson, Hartley, and Mazumder 2021; Fishback, LaVoice, Shertzer, and Walsh 2023), or biased home appraisal practices (e.g. Ambrose, Conklin, Coulson, Diop, and Lopez 2025). The evidence is mixed on whether minority homebuyers pay higher interest rates and fees on purchase mortgages (Bhutta and Hizmo 2020; Ambrose, Conklin, and Lopez 2020). Examining *completed* homeownership spells, recent work has found that the investment into homeownership may not be as profitable for

women and minorities compared to non-minorities (Goldsmith-Pinkham and Shue 2023; Kermani and Wong 2024). Some of this effect may arise due to higher foreclosure rates for minority borrowers (Kermani and Wong 2024), higher property taxes (Avenancio-León and Howard 2022) or inability to refinance loans when interest rates fall (Gerardi, Willen, and Zhang 2023).

What is less understood is an individual's experience of transitioning into homeownership once they have decided to acquire a home and a mortgage. Specifically, we know little about how the household balance sheet adjusts once an individual becomes a homeowner and takes on a large fixed liability to finance an illiquid asset, and whether homebuyers experience mild to severe distress on their *non-mortgage* financial obligations. Moreover, it is not obvious that minority borrowers should experience more or less distress compared to non-minority mortgaged homeowners once we control for the location (neighborhood) of the home, the amount of leverage used, borrower credit worthiness and selection into property type. After all, these individuals could have continued rentership or adjusted their choice of housing quantity and leverage to avoid financial fragility.

There may be a few reasons why financial distress arises. First, frictions in the housing market and the home purchase process may induce certain borrowers to consume larger than optimal housing quantities—e.g., purchasing in more expensive neighborhoods than desired or acquiring larger homes than those available for rent— and take on higher than optimal housing costs. Second, it may be rational for homebuyers to accept higher financial fragility in return for expected benefits of housing that are not directly captured in measures such as realized returns. For instance, the presence of large transaction costs may induce precautionary investment in larger homes to accommodate needs of a growing family. Or individuals may accept fixed-rate mortgages—which lock interest rates for long periods of time—in exchange for inflation protection (e.g., Malmendier and Wellsjo 2024). When these larger commitments are made, minority mortgaged homebuyers may have less capacity to absorb unexpected income or expense shocks compared to non-minority non-mortgaged homeowners due to their relatively weaker marginal debt capacity following entry into the mortgage contract.

Closely-Related Literature. Although prior research has examined the benefits of homeownership (e.g., Goodman and Mayer 2018; Sodini et al. 2023; Derenoncourt et al. 2021; Artigue et al. 2025) and disparities in housing wealth (e.g., Kermani and Wong 2024; Goldsmith-Pinkham and Shue 2023; Derenoncourt et al. 2021), we offer, to the best of our knowledge, the first empirical assessment of racial and gender differences in the financial burden of transitioning into and sustaining homeownership. While Kermani and Wong (2024) find higher foreclosure and 90-day+ delinquency rates for minorities, foreclosures account for only a small share of the broader population experiencing financial distress, and their delinquency analysis does not focus on transition into homeownership.[3]

In our view, the closest paper to ours is Bayer, Ferreira, and Ross (2016) who provide valuable evidence on racial and ethnic disparities in mortgage delinquency and foreclosure during the housing boom and bust, offering an in-depth view of ownership vulnerability in a period of exceptional market stress. Our study, in contrast, focuses on the change in financial distress that is experienced by households right before and after they purchase a home, and on examining disparities in non-mortgage borrowing by households to sustain that homeownership.

2 Data & Empirical Specification

Our analysis compares mortgaged and non-mortgaged homebuyers to elicit the household balance sheet consequences of transitioning into homeownership. To compare these borrowers and further investigate whether minority homebuyers face greater challenges in managing their homeownership, we combine data on home purchase transactions with credit and voting records. We then take this data to a series of event-study specifications.

[3] Kermani and Wong (2024) provide valuable evidence on delinquency after ARM payment resets, cross-credit-score delinquency rates two years post-purchase, and average (rather than within-individual) non-mortgage debt by race since purchase. These are strengths of their analysis, but do not capture—nor were intended to—the transition into homeownership, which is the focus of this study.

2.1 Data

The core data set for our analysis is property-level transaction deeds data gathered by CoreLogic. Each observation in the data reflects details of a single home purchase, including the transaction date, the sale amount, the type of property, the buyer's name, and the seller's name. It also contains indicators of whether the transaction is a foreclosure sale, interfamily related sale, new construction, investor purchase, or a corporate purchase. With these indicators, we are able to limit our observations to arms-length nonforeclosure secondary residential property transactions. In addition to the transaction details, we also have property-specific static information including property type, fipscode, zipcode and the year of build, that are used to merge the data with additional sources.

We merge this property data to (i) a randomized sub-sample of consumer credit records from a major credit bureau and (ii) public voter registration records for individuals in North Carolina. The merge with voter registration allows us to observe an individual's race, gender and marital status. The combined dataset includes information on borrowers' credit scores, liabilities (such as auto loans, installment loans, and credit card balances), and measure of performance (such as defaults, foreclosures, and bankruptcy events). In compliance with strict federal privacy regulations, the credit bureau facilitated researcher access while preserving anonymity. Summary statistics are presented in Table A1.

2.2 Empirical Specification

A key challenge in measuring disparities lies in selecting an appropriate benchmark. A meaningful measure should capture empirical regularities—differences in outcomes that persist after accounting for the key features central to shaping the outcomes of interest. For example, benchmarks for gender and racial pay gaps must typically adjust for levels of education and experience that are central to the wage-setting process, while analyses of unequal property taxation should account for exposure to the same taxing entities and amenity-providing institutions. Importantly, the bench-

mark need not imply a causal relationship; otherwise, we risk discarding what is often the object of inquiry itself—understanding the conditions and mechanisms that generate vulnerability.

Benchmark. Becoming a homeowner locks you into a long-term, difficult to renegotiate contract. As a result, homeowners face large adjustment costs to change the amount of housing consumed. Moreover, this transaction represents a large adjustment to both the asset and liability positions on a household balance sheet. Thus, the benchmark in our analysis must embed homeownership and take as its point of departure all homebuyers that have made their purchase of a home without a mortgage. Against this naive benchmark, we could compare homebuyers who use a mortgage to assess whether financing the purchase introduces vulnerabilities to the balance sheet. This naive benchmark is helpful for assessing the financial distress of mortgaged homeowners focusing the analysis on the role of mortgage debt rather than broader differences between owners and renters. It is also policy-relevant, as interventions typically target mortgage burdens, not homeownership itself. But it still presents challenges. Location, the life-cycle of the individual, and individual traits might play a role in the determination of financial distress. A more complete benchmark must account for these features that shape a household's capacity to service both mortgage and non-mortgage debt obligations. Our more complete benchmark thus compares mortgaged against non-mortgaged homebuyers after accounting for individual, time, age, and neighborhood fixed effects. It then distinguishes between White/Black homebuyers in one specification, and male/female homebuyers in another.

Empirical Specification. Our specification compares those becoming homeowners using mortgage to those that do not have a mortgage—individuals who are presumably financially unconstrained and not subject to the same rigid financial obligations. We start with the following naive specification:

$$Y_{ith} = \sum_{k=-5}^{10} \left(\beta_k \cdot \mathbb{1}(G_i = 1) \cdot \mathbb{1}(t = k) + \gamma_k \cdot \mathbb{1}(t = k)\right) + \theta_i + \theta_t + \theta_{buy} + \theta_a + \varepsilon_{ith} \tag{1}$$

In this specification, Y_{ith} denotes the financial outcome of interest of individual i at "year"/event-time t,[4] observed in tract h. The model includes individual (θ_i), event time (θ_t), years since purchase (θ_{buy}), and age (θ_a) fixed effects. The term $\mathbb{1}(G_i = 1)$ indicates whether individual i belongs to the minority group, and $\mathbb{1}(t = k)$ is an indicator for being in mortgage-event-time k. We are interested in measuring the full set of mortgage-event-time (γ_k) and group-mortgage-event-time (β_k) indicators for each year k from -5 to $+10$ relative to the time of mortgaged home purchase. For each event time, β_k captures the differential response of mortgaged individuals belonging to group G in event year k, and γ_k accounts for the response common to all mortgaged individuals in year k, including those outside group G (i.e., male or White individuals).

As we previously discussed, drawing inference based on these comparisons is challenging. Homeowners from each group may sort into different types of properties (home age, square-footage, number of bedrooms), or be more or less willing to spend on a home purchase (Columns 1–4 of Table A2). Home buyers also make a choice of how much leverage to use if any. Mortgaged home buyers are simultaneously choosing a property and level of indebtedness (mortgage LTV) (Columns 5–6 of Table A2). Additionally, there may be meaningful unobservable differences in wealth endowment and preferences between mortgaged vs. non-mortgaged homebuyers from different groups. Our empirical approach must contend with these choices, and their subsequent influence on a household's ability to service its existing mortgage and non-mortgage debt.

Our specification accounts for these unobservable differences using an individual-level panel and a rich combination of fixed-effects. Individual fixed-effects (θ_i) control for differences in wealth levels and general static unobserved heterogeneity across homebuyers. Age fixed effects (θ_a) control for life-cycle changes in wealth and income. Together, these fixed-effects might account for the first-order differences between mortgaged and non-mortgaged homebuyers. Appendix Figure A1 validates our approach. It demonstrates that upon controlling for only individual fixed-effects and age fixed-effects, there is little residual variation between mortgaged and non-

[4]To address well-documented concerns about bias in staggered DiD designs (e.g., De Chaisemartin and d'Haultfoeuille 2020; De Chaisemartin and D'Haultfoeuille 2022; Goodman-Bacon 2021; Callaway and Sant'Anna 2021), we implement the "stacking" approach proposed by Cengiz, Dube, Lindner, and Zipperer (2019).

mortgaged home homeowners, and between Black/female and White/male homebuyers in pre-homepurchase credit scores and financial outcomes. In Figure A2, we show that the trivially expected increase in mortgage balance following origination takes hold and that the event is not cancelled by our rich set of fixed effects. Moreover, after including fixed effects, there are no mortgage balance differences across race or gender.

We further expand this specification to include time × tract fixed (θ_{th}) effects to account for neighborhood changes over time, time × property characteristics to account for time-varying selection into different types of homes, as well as time × financial characteristics controls. Standard errors are clustered at the tract level to account for spatial correlation in the residuals.

We consider four outcomes of interest. To assess both moderate to severe financial distress, we examine whether borrowers have any accounts that were 30+ days delinquent in the past two years, and accounts that were 90+ days delinquent in the past two years. Importantly, these variables reflect delinquencies on all types of consumer credit, not just mortgage debt. This would capture any borrowers falling behind on non-mortgage debt in order to remain current on their mortgage. Furthermore, an individual's financial fragility may increase even without changes in delinquency if they take on more debt to avoid distress. Thus, we examine the evolution of bankcard balances—one of the highest cost components of household liabilities—and student debt balances—the second largest liability in aggregate behind mortgage debt.

3 Empirical Patterns about Transitioning into Homeownership

This section documents three empirical patterns about the financial challenges about transitioning into homeownership in the United States. By documenting how delinquency rates and non-mortgage debt evolve after a home purchase—particularly for Black and female borrowers—these patterns provide a clearer picture of the unequal burdens that can emerge following the transition into homeownership. Although we do not aim to draw causal inferences, these descriptive patterns offer valuable insight into group-specific dynamics that get overlooked when one focuses on only

the most severe outcomes, such as mortgage foreclosure or bankruptcy.

3.1 Mortgaged vs. Non-Mortgaged Distress: Improving Credit Prior to Purchase

Figures 1a and 1b show that, in the years leading up to home purchase, both Black and White borrowers exhibit a modest downward trend in delinquencies. This decline is evident in the estimated coefficients, which gradually fall as the purchase date approaches. For 30+ day delinquencies (panel a), Black borrowers' downward trend is larger in magnitude but not statistically distinguishable from the baseline effect. For 90+ day delinquencies (panel b), Black borrowers exhibit an additional downward trend in delinquencies beyond White mortgaged homeowners. The pattern is consistent with borrowers improving their credit profiles prior to entering the mortgage market. In both figures, the slope of the decline is similar across groups, and confidence intervals for both series overlap, suggesting no differential trend prior to homeownership. In contrast, Figures 1c and 1d show virtually no gender differences in downward trend prior to a home purchase relative to male mortgaged homeowners.[5] That is, men and women both decrease delinquencies prior to a home purchase and follow a similar pattern in doing so.

3.2 Disparate Financial Distress Across Race and Gender

Figure 1 presents event-study estimates of 30+ day and 90+ day delinquency rates before and after home purchase, separately by race (Panels a and b) and gender (Panels c and d). Each panel plots estimated coefficients from Equation (1), with event time ranging from five years prior to ten years after the home purchase.

Panel (a) displays estimates for 30+ day delinquency by race. In the pre-purchase period, delinquency rates decline gradually and similarly for Black and White mortgaged homeowners. Following the mortgaged home purchase, delinquency rates remain flat for White homeowners but increase for Black homeowners. Panel (b) shows similar patterns for 90+ day delinquency, with post-purchase increases concentrated among Black mortgaged homeowners.

[5] In Figure A4, we exclude Black and female non-mortgaged homeowners from the sample, and show our estimates remain virtually unchanged.

Panels (c) and (d) present corresponding results by gender. As with race, female and male mortgaged homeowners show parallel declines in delinquency prior to purchase. After the mortgaged home purchase, female homeowners experience an increase in both 30+ day and 90+ day delinquency, while rates remain largely unchanged for male homeowners.

Panels A and B of Table 1 uses alternative specifications to present estimates of group differences in 30+ day delinquency rates after mortgaged homeownership. Across multiple specifications, Panel A confirms our previous finding that Black mortgaged homeowners experience significantly higher post-purchase delinquency relative to their White counterparts. Across all model specifications, the interaction term $Post \times Black$ is positive and statistically significant, with coefficients ranging from 2.8 to 4.7 percentage points. We find directionally similar effects of smaller magnitude for female mortgaged homeowners.

These effects are robust to controls for credit score, age, and fixed-effects at the individual and neighborhood-time levels. They are also not explained by time-varying selection into property type, or by time-varying lending standards ($LTV \times Time$ and $CreditScore \times Time$ fixed-effects). Importantly, the coefficient on $Post$ is indistinguishable from zero, indicating that the increase in delinquency is specific to Black mortgaged homeowners and not a general consequence of homeownership.

Panels C and D of Table 1 more carefully examines whether Black/female mortgaged homeowners experience different 90+ day delinquency rates following home purchase compared to White/male mortgaged homeowners. Across all specifications, the $Post \times Black$ interaction term is positive and statistically significant, with coefficients ranging from 1.5 to 2.4 percentage points. These effects are substantial when compared to the average 90+ day delinquency rate of 6% across the entire sample. Our estimates indicate that Black mortgaged homeowners experience higher rates of serious delinquency after a purchase relative to White mortgaged homeowners. The baseline $Post$ coefficient is close to zero and not statistically significant, suggesting that White mortgaged homeowners do not experience an increase in post-purchase delinquency compared to non-mortgaged homeowners. Once again, the results are robust to employment of a battery of

fixed-effects, similar to those in Panels A and B of Table 1. When considering gender, there are no economically meaningful differences between male and female mortgaged borrowers following home purchase. These 90+ days delinquencies are not innocuous, may impair credit records for longer periods (up to 7 years), and generally indicate financial distress that lasts for an extended period, even if it does not end in a foreclosure.

Why take on financial distress by purchasing a suboptimal housing bundle when renting or buying elsewhere is possible? Standard spatial equilibrium models (Rosen 1979; Roback 1982) predict that migration arbitrages regional advantages, allowing home prices to adjust and equalizing welfare across households. In practice, frictions prevent "first best" homeownership. Supply constraints limit available bundles (Han and Strange 2015). Persistent disparities in opportunity (Chetty and Hendren 2018; Bilal and Rossi-Hansberg 2021), combined with financial constraints, create spatial misallocation (Gupta, Hansman, and Mabille 2024). Households may still buy despite the additional financial distress—for children's outcomes (Green and White 1997) or wealth accumulation (Sodini et al. 2023). Yet financial distress can erode homeownership's benefits, reduce homeownership itself, and deepen misallocation.

3.3 Disparate Non-Mortgage Borrowing Patterns

Figure 2 presents event-study estimates of non-mortgage debt balances around the time of home purchase, disaggregated by both race and gender.[6]

Panel (a) shows trends in student debt balances for Black and White mortgaged homeowners. For both these groups, there is a modest increase in balances during the pre-purchase period. After the purchase event, student debt balances decline for White mortgaged homeowners. For Black mortgaged homeowners, baseline declines are are completely offset, creating a gap in student loan debt between groups that widens over time. Panel (b) reports patterns for bankcard balances. Here, in contrast, post-purchase increases are evident for both groups, but again Black mortgaged

[6] In Figure A5, we exclude Black and female non-mortgaged homeowners from the sample, and show our estimates remain virtually unchanged.

homeowners exhibit an increase in bankcard debt that extends beyond White mortgaged homeowners. Confidence intervals indicate that these differences are statistically meaningful in most years following the home purchase.

Panels (c) and (d) present analogous results by gender instead of race. Panel (c) shows that student debt balances for female mortgaged homeowners decrease more gradually after home purchase compared to male mortgaged homeowners, whose balances consistently decline. This indicates that, for women, homeownership delays successful payment of their student loans. In contrast, Panel (d) reveals that bankcard balances do not increase more for female mortgaged homeowners than for males in the years following a home purchase, although both men and women see a significant increase in their bankcard balance.

Black Borrowers and Accumulating Student Loans. Table 2 reports group-specific differences in log student debt balances for Black mortgaged homeowners compared to White mortgaged homeowners. Across all specifications, the $Post \times Black$ interaction term is positive and statistically significant, with coefficients ranging from 0.30 to 0.46. These estimates are robust to the inclusion of individual, neighborhood, and time fixed effects, as well as controls for borrower credit characteristics and loan attributes. In contrast, the baseline $Post$ coefficient is either negative or statistically indistinguishable from zero, indicating that White mortgaged homeowners do not accumulate student loan debt at a faster rate than non-mortgaged homeowners.

Among non-mortgage liabilities, student debt plays a particularly important role in shaping household financial vulnerability. As the second largest category of household debt after mortgages (Federal Reserve Bank of New York 2025), student loans represent a critical margin through which financial distress may manifest following homeownership. Our results show that Black borrowers experience increases in student debt balances after purchase—consistent with either a slowdown in repayment or the accumulation of negative amortization through forbearance or deferral. This pattern contrasts with White borrowers, who continue to pay down student debt after acquiring a home.

Recent work shows that student debt reduces housing debt capacity (Mezza, Ringo, Sherlund, and Sommer, 2020) and reshapes demand and access to other forms of credit (Mezza, Ringo, and Sommer, 2024). Our results suggest the trade-off between housing and non-housing debt capacity extends beyond the point of purchase: homeownership can intensify the burden of student debt repayment, heightening financial fragility in subsequent years.

Credit Card Borrowing Across All Mortgaged Homeowners. Table 3 reports analogous estimates for log bankcard balances. The $Post \times Black$ interaction term is consistently positive and statistically significant across specifications, with coefficients between 0.12 and 0.16. The $Post$ coefficient is also positive and significant in all models, reflecting a general increase in bankcard balances following homeownership. As with Table 2, these results hold after accounting for individual fixed effects, time-varying selection into property types, time-varying lending standards, and neighborhood-level controls.

Some of this increase in credit card balances is consistent with households financing increased expenditure on durable goods and home improvement—as documented by Benmelech et al. (2023)—using these lines of credit. Post home purchase, households may also use credit cards to cover unexpected costs now that part of their income is committed to the mortgage payment. As Figure 2 and Table 3 make clear, Black mortgaged homeowners increase their balances over and above the White mortgaged homeowners. This increases the difficulty of accessing credit markets in the event of future cash flow shocks. The implications of these findings are important given the fact that these groups tend to have tighter financial constraints to begin with (Derenoncourt et al. 2021; Gupta et al. 2024).

4 Discussion

Multiple channels that operate simultaneously and non-exclusively can drive these differences we document in the difficulty of transitioning into homeownership. We discuss four potential channels: (i) differences across groups in the cost of debt, (ii) borrower decisions regarding the

prioritization of debt repayment, (iii) variation in ownership cost exposure related to broader patterns of economic inequality, and (iv) differences in post-purchase income availability.

Cross-Group Differences in Cost of Debt. We do not observe interest rates or detailed mortgage contract terms in our data. Instead, we observe only the aggregate mortgage balance. This limits our ability to directly measure differences in the cost of borrowing across demographic groups. Some existing research on racial differences in borrowing costs—particularly for Black and Hispanic borrowers—finds that minority borrowers do not face significant differences in total borrowing fees (Bhutta and Hizmo 2020). In contrast, Ambrose et al. (2020) find that, for a large subprime lender during the period leading to the Great Recession minorities paid between 3% and 5% more than their White counterparts in fees. To partially account for this in our analysis, our most saturated specifications include fixed effects for LTV quartile × race or credit score quartile × race (columns 7–8 of Tables 1–3). These controls allow for group-specific differences in pricing that are stable over time within given LTV and credit score bins. All results remain virtually unchanged. While this approach cannot capture time-varying disparities or heterogeneity within these bins, it provides a way to test whether our results are driven by persistent group differences in borrowing costs.

Strategic Repayment Decisions. Another potential mechanism relates to differences in the perceived or realized returns to homeownership (Kermani and Wong 2024; Goldsmith-Pinkham and Shue 2023). If property values or housing appreciation differ systematically across groups, the financial incentives to remain current on mortgage payments may also differ. Borrowers expecting limited equity accumulation may have weaker incentives to prioritize mortgage repayment relative to other debts. In this case, differences in delinquency patterns could reflect underlying variation in the expected value of maintaining homeownership rather than uniform repayment behavior across borrowers. However, such a mechanism may be difficult to reconcile with existing evidence (e.g., Ganong and Noel 2023) that most residential mortgage default is not driven by strategic

motives, but rather by negative life events, or the interaction of such events and negative equity (which corresponds to lower house price returns). Moreover, Figures 1a and 1b show that these effects appear immediately following origination—in housing markets, asset prices are sticky and slow to decline (Case and Quigley 2010), making this inconsistent with strategic default that is driven by declining asset values.

Differential Ownership Cost Burdens. A third channel involves variation in the costs associated with ownership. Even conditional on observable characteristics, borrowers may face different expenses related to property maintenance, transaction costs, insurance, or neighborhood services (e.g., Avenancio-León and Howard 2022). To the extent that these costs vary systematically across groups, they may contribute to the post-purchase financial patterns documented above. Persistent group differences in multiple financial outcomes, including student debt and credit card balances, may be consistent with this possibility. However, all these cost burdens have a strong neighborhood-specific component, and our results (which already contain individual fixed effects) remain robust to the inclusion of tract-by-time and property-characteristics-by-time fixed effects, as shown in Tables 1–3.

Post-Purchase Income Constraints. One possibility is that borrowers differ in their income trajectories following home purchase. Although credit profiles improve similarly across groups prior to purchase, post-purchase patterns diverge. These patterns may reflect differential exposure to income volatility, differences in employment security, or variation in the ability to adjust to the recurring costs of ownership. The increase in credit card borrowing—particularly among Black borrowers—may be consistent with a greater need for liquidity after purchase. Table A1 shows that both Black homeowners' income relative to White's and female homeowners' income relative to male's is 76% is at the time of a mortgaged home purchase. While Figure A3 shows that income at the time of purchase does not explain our findings. However, it is well documented that gender and racial pay gaps increase over the life cycle (Canon, Golan, and Smith 2021; Rauh

and Valladares-Esteban 2023); thus, accounting for income at the time of purchase does not rule out the role of post-purchase income constraints due to unequal exposure to income volatility or income growth in explaining these findings.

5 Conclusion

This paper documents that the financial challenges of transitioning into homeownership are not evenly distributed across demographic groups. While homeownership is often associated with wealth accumulation and financial stability, we find that Black and female borrowers face a disproportionately higher burden following the purchase of a home with a mortgage. These borrowers exhibit significantly greater increases in delinquency rates and non-mortgage debt balances—particularly student and credit card debt—relative to similarly situated White and male borrowers. These findings suggest that the transition into homeownership, far from being a uniform economic step, can amplify financial fragility for historically marginalized groups.

The unequal cost of transitioning into homeownership raises important questions for policy. Efforts to expand access to homeownership may fall short if they fail to address the post-purchase vulnerabilities that affect borrowers' ability to maintain their financial health. While homeownership is promoted as a pathway to economic stability, its benefits are contingent on borrowers' capacity to navigate the long-term financial obligations it enters. For historically marginalized groups, in particular, the transition into homeownership may entail an important trade-off between participating in wealth-building investments and amplifying financial fragility. Recognizing and mitigating these vulnerabilities is essential if the goal is not merely to expand homeownership, but to ensure it is sustainable and equitable.

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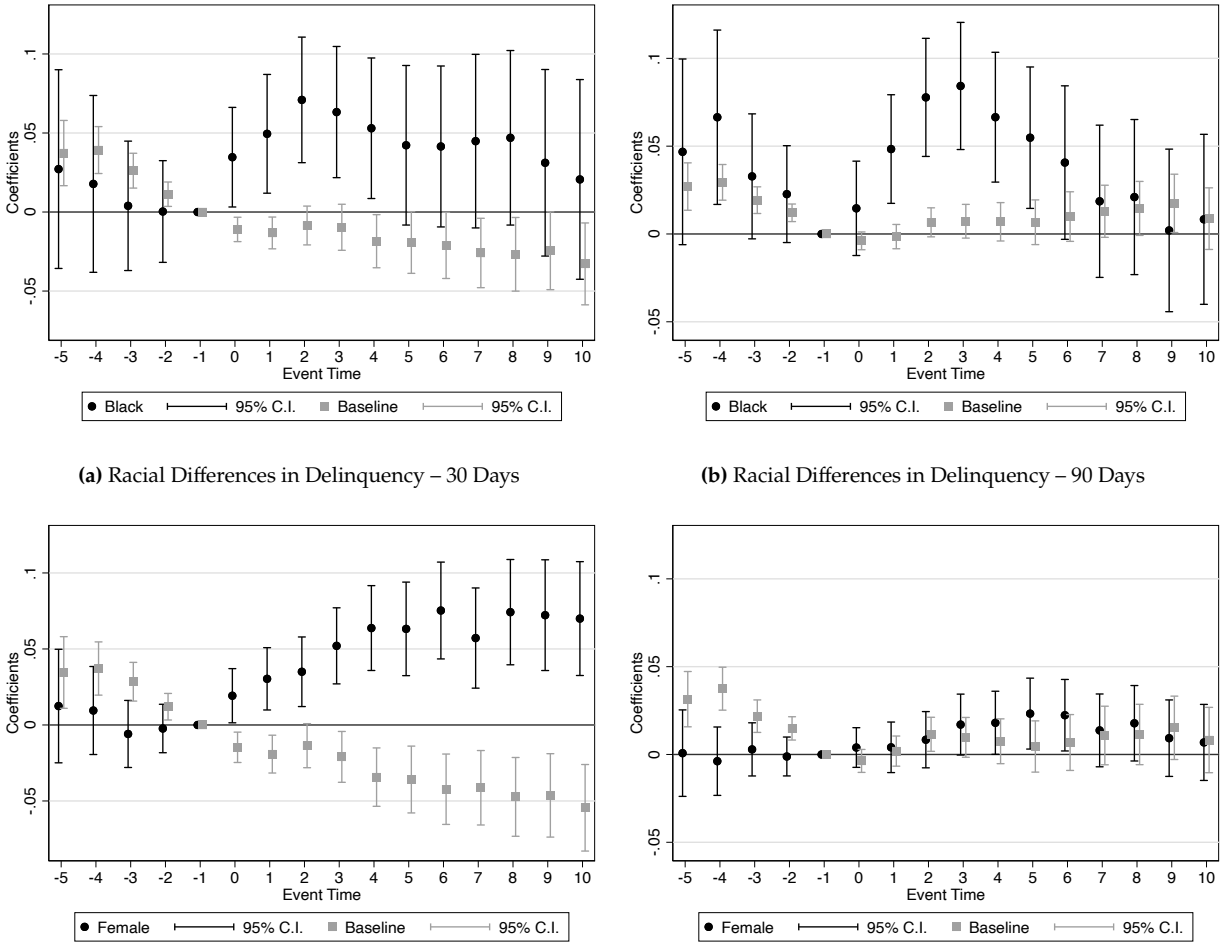
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Figure 1. Group Differences in Delinquency



(a) Racial Differences in Delinquency – 30 Days

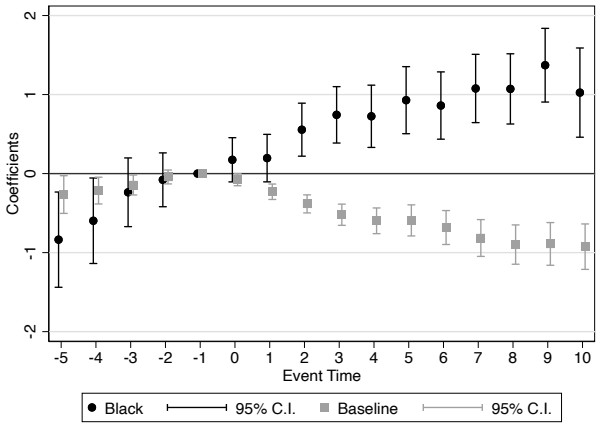
(b) Racial Differences in Delinquency – 90 Days

(c) Gender Differences in Delinquency – 30 Days

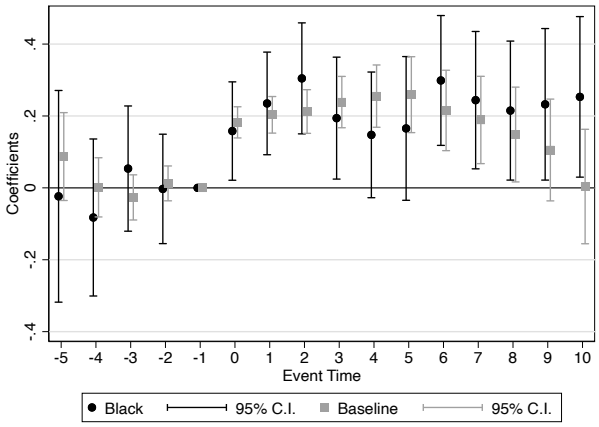
(d) Gender Differences in Delinquency – 90 Days

This figure illustrates the heterogeneity across gender and race of event study estimates of the response of delinquency rates following a leveraged home purchase. Estimates follow the stacking difference-in-difference method proposed by Cengiz et al. (2019). The baseline estimates are illustrated with gray labels while the race- or gender-specific estimates are illustrated by the black labels. Panel (a) and (b) report racial differences in the response of 30+ and 90+ day delinquencies, respectively. Panel (c) and (d) report gender differences in 30+ and 90+ day delinquency rates, respectively. 95% confidence intervals are clustered by tract.

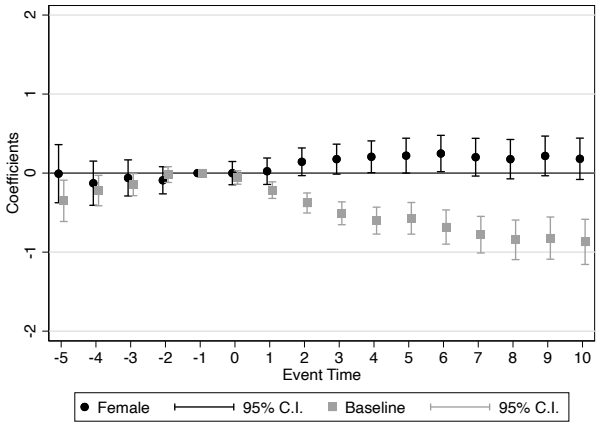
Figure 2. Group Differences in Handling Non-Mortgage Debt



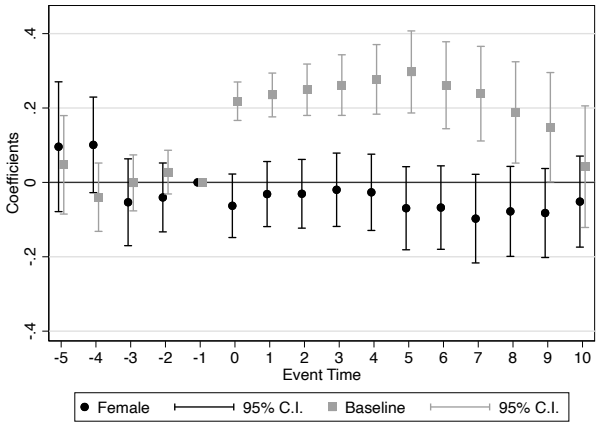
(a) Racial Differences in Student Debt Balance



(b) Racial Differences in Bankcard Balance



(c) Gender Differences in Student Debt Balance



(d) Gender Differences in Bankcard Balance

This figure illustrates the heterogeneity across gender and race of event study estimates of the response of non-mortgage debt following a leveraged home purchase. Estimates follow the stacking difference-in-difference method proposed by Cengiz et al. (2019). The baseline estimates are illustrated with gray labels while the race- or gender-specific estimates are illustrated by the black labels. Panel (a) and (b) report racial differences in the response of student and bankcard debt, respectively. Panel (c) and (d) report gender differences in student and bankcard debt, respectively. 95% confidence intervals are clustered by tract.

Table 1. Group Differences in Delinquency

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: 30+ Day Delinquency Differences by Race								
Post x Black	0.031	0.047	0.038	0.037	0.037	0.028	0.037	0.036
	(0.015)	(0.014)	(0.014)	(0.014)	(0.014)	(0.015)	(0.014)	(0.015)
Post	-0.003	-0.004	-0.001	-0.001	-0.000	0.008	-0.001	0.000
	(0.005)	(0.005)	(0.005)	(0.005)	(0.004)	(0.005)	(0.005)	(0.005)
Vantage Score	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Panel B: 30+ Day Delinquency Differences by Gender								
Post x Female	0.014	0.018	0.016	0.015	0.014	0.013	0.015	0.015
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
Post	-0.006	-0.006	-0.003	-0.003	-0.002	0.006	-0.003	-0.002
	(0.006)	(0.006)	(0.006)	(0.006)	(0.005)	(0.006)	(0.006)	(0.006)
Vantage Score	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Married × Time FE	-	Y	Y	Y	Y	Y	Y	Y
Panel C: 90+ Day Delinquency Differences by Race								
Post x Black	0.021	0.029	0.018	0.018	0.019	0.016	0.018	0.015
	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)
Post	0.003	0.004	0.005	0.006	0.005	0.009	0.006	0.007
	(0.003)	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Vantage Score	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Panel D: 90+ Day Delinquency Differences by Gender								
Post x Female	0.001	0.001	-0.002	-0.003	-0.001	-0.004	-0.003	-0.005
	(0.005)	(0.006)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Post	0.005	0.006	0.007	0.008	0.006	0.011	0.008	0.010
	(0.004)	(0.004)	(0.004)	(0.004)	(0.003)	(0.004)	(0.004)	(0.004)
Vantage Score	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Married × Time FE	-	Y	Y	Y	Y	Y	Y	Y
Observations	397,861	397,861	396,294	396,294	396,294	362,461	396,294	362,461
Individual FE	Y	Y	Y	Y	Y	Y	Y	Y
Time FE	Y	Y	Y	Y	Y	Y	Y	Y
Age FE	-	Y	Y	Y	Y	Y	Y	Y
Tract by Time FE	-	-	Y	Y	Y	Y	Y	Y
Structure Chars by Time FE	-	-	-	Y	Y	Y	Y	Y
LTV Q by Time FE	-	-	-	-	Y	-	-	-
Cr. Score Q by Time FE	-	-	-	-	-	Y	-	-
Race/Gender by LTV Q	-	-	-	-	-	-	Y	-
Race/Gender by CS Q	-	-	-	-	-	-	-	Y

This table reports estimates of group differences in experiencing delinquencies following a financed home purchase. We use the stacking procedure proposed by Cengiz et al. (2019). Panel A and B reports estimates for 30+ days delinquency, while panel C and D reports estimates for 90+ day delinquency. Column (1) reports the baseline with individual and time fixed effects. Column (2)–(4) add sequentially age fixed effects, tract × time, and structure characteristics × time fixed effects. Columns (5)–(8) add LTV quintiles × time, credit score × time, LTV quintiles × group, and credit score LTV quintiles × group fixed effects, respectively. Standard errors clustered at the tract level.

Table 2. Group Differences in Student Debt Balances

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Differences by Race								
Post x Black	0.340	0.455	0.340	0.361	0.303	0.319	0.361	0.358
	(0.110)	(0.109)	(0.109)	(0.110)	(0.113)	(0.109)	(0.110)	(0.109)
Post	-0.076	-0.075	-0.058	-0.052	0.016	-0.030	-0.052	-0.054
	(0.036)	(0.038)	(0.034)	(0.034)	(0.028)	(0.036)	(0.034)	(0.036)
Vantage Score	0.001	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Panel B: Differences by Gender								
Post x Female	0.024	0.032	0.016	0.017	-0.019	0.022	0.017	0.034
	(0.056)	(0.057)	(0.055)	(0.056)	(0.055)	(0.058)	(0.056)	(0.057)
Post	-0.056	-0.047	-0.035	-0.028	0.043	-0.011	-0.028	-0.038
	(0.039)	(0.041)	(0.037)	(0.037)	(0.032)	(0.039)	(0.037)	(0.039)
Vantage Score	0.001	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Married × Time FE	-	Y	Y	Y	Y	Y	Y	Y
Observations	397,861	397,861	396,294	396,294	396,294	362,461	396,294	362,461
R-squared	0.612	0.628	0.669	0.671	0.672	0.678	0.671	0.677
Individual FE	Y	Y	Y	Y	Y	Y	Y	Y
Time FE	Y	Y	Y	Y	Y	Y	Y	Y
Age FE	-	Y	Y	Y	Y	Y	Y	Y
Tract by Time FE	-	-	Y	Y	Y	Y	Y	Y
Structure Chars by Time FE	-	-	-	Y	Y	Y	Y	Y
LTV Q by Time FE	-	-	-	-	Y	-	-	-
Cr. Score Q by Time FE	-	-	-	-	-	Y	-	-
Race/Gender by LTV Q	-	-	-	-	-	-	Y	-
Race/Gender by CS Q	-	-	-	-	-	-	-	Y

This table reports estimates of group differences in student loan debt following a financed home purchase. We use the stacking procedure proposed by Cengiz et al. (2019). Panel A reports estimates for group differences by race while panel B reports estimates for group differences by gender. Column (1) presents the baseline estimate, which accounts for individual and time fixed effects. To control for life-cycle differences, column (2) additionally accounts for age fixed effects. Column (3) adds tract × time fixed effects to account for neighborhood differences across time, while column (4) adds the structure characteristics × time fixed effects. Columns (5) and (6) absorb the effect of credit performance by LTV quintiles × time and credit score quintiles × time. Columns (7) and (8) absorb the effect of credit performance by LTV quintiles × group and credit score quintiles × group. Columns (2)–(8) of Panel B all account for marital status × time. Standard errors clustered at the tract level.

Table 3. Effects on Bankcard Debt

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Differences by Race								
Post x Black	0.122	0.153	0.160	0.157	0.137	0.153	0.157	0.164
	(0.048)	(0.048)	(0.049)	(0.050)	(0.050)	(0.052)	(0.050)	(0.051)
Post	0.290	0.253	0.248	0.246	0.222	0.240	0.246	0.241
	(0.017)	(0.017)	(0.016)	(0.016)	(0.015)	(0.016)	(0.016)	(0.016)
Vantage Score	-0.005	-0.005	-0.005	-0.005	-0.005	-0.005	-0.005	-0.005
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Panel B: Differences by Gender								
Post x Female	-0.021	-0.009	-0.005	0.000	-0.011	-0.002	0.000	-0.002
	(0.025)	(0.026)	(0.025)	(0.025)	(0.025)	(0.026)	(0.025)	(0.026)
Post	0.306	0.265	0.259	0.255	0.233	0.251	0.255	0.252
	(0.019)	(0.019)	(0.018)	(0.018)	(0.017)	(0.018)	(0.018)	(0.018)
Vantage Score	-0.005	-0.005	-0.005	-0.005	-0.005	-0.005	-0.005	-0.005
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Married × Time FE	-	Y	Y	Y	Y	Y	Y	Y
Observations	286,873	286,873	284,696	284,696	284,696	261,822	284,696	261,822
R-squared	0.547	0.556	0.600	0.603	0.605	0.605	0.603	0.604
Individual FE	Y	Y	Y	Y	Y	Y	Y	Y
Time FE	Y	Y	Y	Y	Y	Y	Y	Y
Age FE	-	Y	Y	Y	Y	Y	Y	Y
Tract by Time FE	-	-	Y	Y	Y	Y	Y	Y
Structure Chars by Time FE	-	-	-	Y	Y	Y	Y	Y
LTV Q by Time FE	-	-	-	-	Y	-	-	-
Cr. Score Q by Time FE	-	-	-	-	-	Y	-	-
Race/Gender by LTV Q	-	-	-	-	-	-	Y	-
Race/Gender by CS Q	-	-	-	-	-	-	-	Y

This table reports estimates of group differences in student loan debt following a financed home purchase. We use the stacking procedure proposed by Cengiz et al. (2019). Panel A reports estimates for group differences by race while panel B reports estimates for group differences by gender. Column (1) presents the baseline estimate, which accounts for individual and time fixed effects. To control for life-cycle differences, column (2) additionally accounts for age fixed effects. Column (3) adds tract × time fixed effects to account for neighborhood differences across time, while column (4) adds the structure characteristics × time fixed effects. Columns (5) and (6) absorb the effect of credit performance by LTV quintiles × time and credit score quintiles × time. Columns (7) and (8) absorb the effect of credit performance by LTV quintiles × group and credit score quintiles × group. Columns (2)–(8) of Panel B all account for marital status × time. Standard errors clustered at the tract level.

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Figure A5: Debt balance event-study excluding non-mortgaged Black/Female homeowners.

Table A1. Summary Statistics

	Full Sample		Not Black		Black		Not Female		Female	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	N	mean	N	mean	N	mean	N	mean	N	mean
Panel A: Credit Characteristics										
Vantage Score	16,473	737.98	14,998	745.44	1,475	662.07	10,982	743.35	5,491	727.23
% Has Auto Loan	18,199	0.80	16,576	0.80	1,623	0.81	12,118	0.82	6,081	0.77
Avg. Auto Balance	12,890	12,336.70	11,716	12,353.29	1,174	12,171.13	8,784	13,452.64	4,106	9,949.36
% Has Student Debt	18,199	0.28	16,576	0.27	1,623	0.40	12,118	0.27	6,081	0.29
Avg. Student Balance	3,324	32,946.26	2,816	32,940.62	508	32,977.52	2,127	33,935.53	1,197	31,188.38
% Has Bankcard	18,199	0.85	16,576	0.86	1,623	0.72	12,118	0.85	6,081	0.84
Avg Bankcard Balance	13,731	4,640.68	12,710	4,694	1,021	3,976.97	9,207	4,863.25	4,524	4,187.72
% Has 30 Days Delinquent Acct	18,199	0.28	16,576	0.26	1,623	0.44	12,118	0.26	6,081	0.32
% Has 60 Days Delinquent Acct	18,199	0.13	16,576	0.11	1,623	0.28	12,118	0.11	6,081	0.15
% Has 90 Days Delinquent Acct	18,199	0.06	16,576	0.05	1,623	0.15	12,118	0.05	6,081	0.08
% Has Accts in Bankruptcy	18,199	0.02	16,576	0.02	1,623	0.03	12,118	0.02	6,081	0.02
Panel B: Property Transaction Characteristics										
Loan to Price Ratio	10,191	0.79	9,243	0.77	948	0.94	6,973	0.74	3,218	0.88
Property Age	16,026	22.42	14,588	23.29	1,438	13.60	10,751	21.99	5,275	23.30
No. of Bedrooms	12,876	3.22	11,702	3.21	1,174	3.29	8,636	3.33	4,240	2.99
Square Feet	15,960	2,102.66	14,536	2,109.81	1,424	2,029.62	10,709	2,243.65	5,251	1,815.11
Price Per Sq. Ft.	15,960	114.37	14,536	116.72	1,424	90.34	10,709	115.36	5,251	112.35
Income at Purchase ($1000)	14,168	115.17	13,304	116.85	864	89.34	9,572	124.63	4,556	95.42

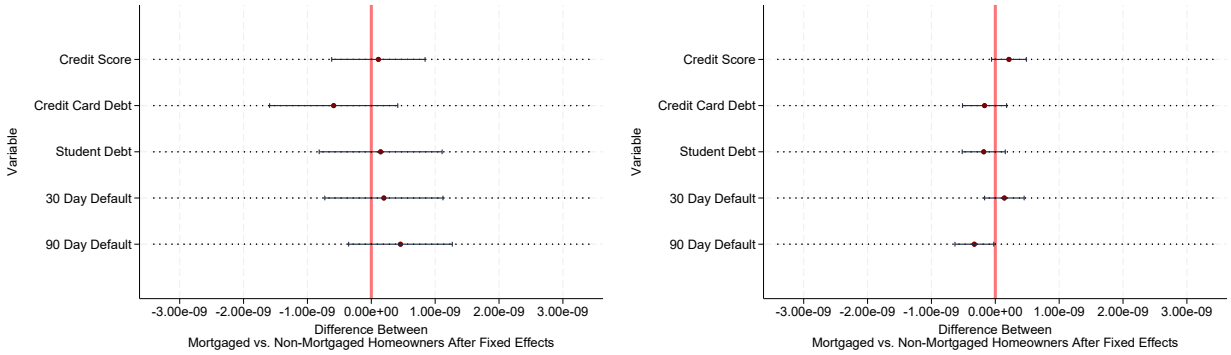
This table reports the summary statistics of our analysis sample, broken down into racial groups and gender groups. Panel A reports the summary statistics of the individuals' credit characteristics, including credit score, fraction of agents with auto loan, student debt, bank card and the corresponding balances of these loans. 30+ day, 60+ day and 90+ day delinquencies are also reported. Panel B reports the property characteristics, including the loan to price ratio, price per square feet, property age, property size and the number of rooms.

Table A2. Sorting into Property and Loan Characteristics

	(1) Prop. Age	(2) Sq. Ft.	(3) No. of Beds	(4) Log Price	(5) Log Mortgage	(6) Log LTV
Panel A: Differences by Race						
Black	-4.638	21.872	0.060	-0.047	0.124	0.171
	(0.628)	(28.178)	(0.032)	(0.016)	(0.022)	(0.026)
Observations	13,232	13,130	10,559	13,454	13,454	13,454
R-squared	0.524	0.436	0.378	0.497	0.251	0.236
Panel B: Differences by Gender						
Female	0.277	-330.786	-0.281	-0.151	-0.015	0.135
	(0.369)	(16.492)	(0.019)	(0.009)	(0.013)	(0.015)
Observations	13,232	13,130	10,559	13,454	13,454	13,454
R-squared	0.522	0.458	0.396	0.509	0.250	0.239
Age FE	Y	Y	Y	Y	Y	Y
Time FE	Y	Y	Y	Y	Y	Y
Tract FE	Y	Y	Y	Y	Y	Y
Cluster	Tract	Tract	Tract	Tract	Tract	Tract

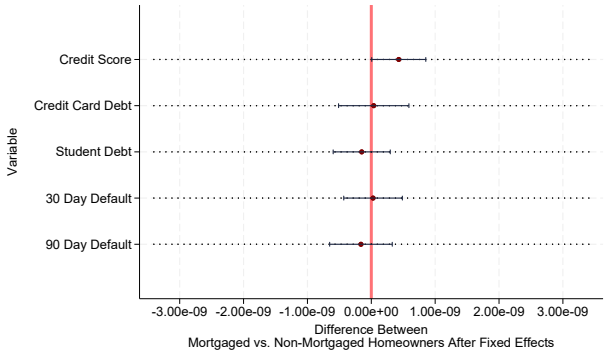
This table reports estimates of group differences in property and loan characteristics. We use the stacking procedure proposed by Cengiz et al. (2019). Panel A reports estimates for group differences by race while panel B reports estimates for group differences by gender. Columns (1)–(6) reports the balance check for the tenure of properties, square feet, number of beds, logarithm of price, mortgage, and LTV scores, respectively. For all characteristics, fixed effects for age, time, and tract are absorbed. Standard errors clustered at the tract level.

Figure A1. Pre-Ownership Balance in Outcomes Between Mortgaged and Non-Mortgaged Homeowners

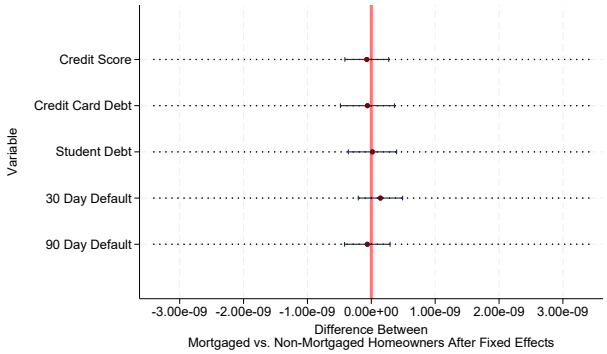


(a) Black Homeowners

(b) White Homeowners



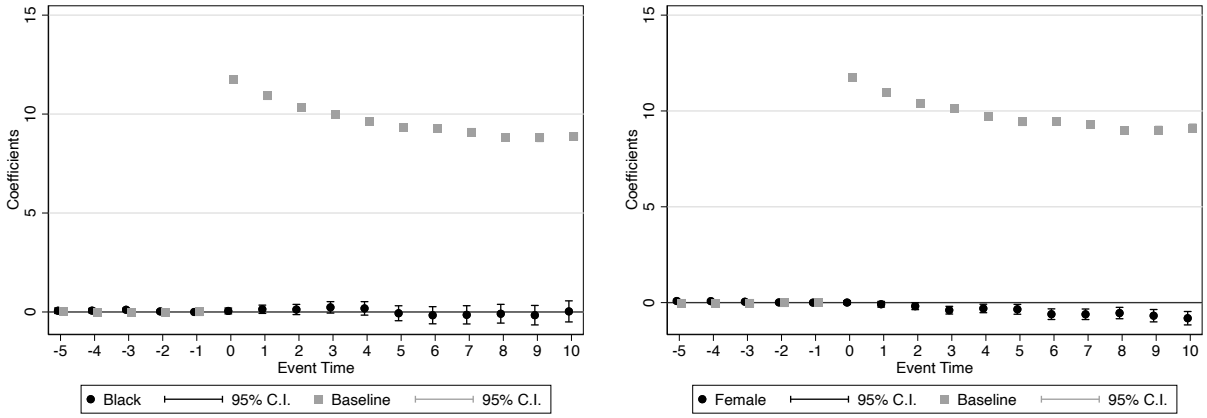
(c) Female Homeowners



(d) Male Homeowners

This figure reports differences between in outcomes between mortgaged and non-mortgaged homeowners *prior* to the home purchase conditional on individual and age fixed effects. To construct each figure, each outcome is residualized by taking out individual and age fixed effects and is then normalized into a z-score. Estimates are then retrieved from a regression of each outcome of interest on future mortgage status. Panels A, B, C, and D present estimates from a sample of Black homeowners, White homeowners, female homeowners, and male homeowners, respectively.

Figure A2. Changes in the Mortgage Balance

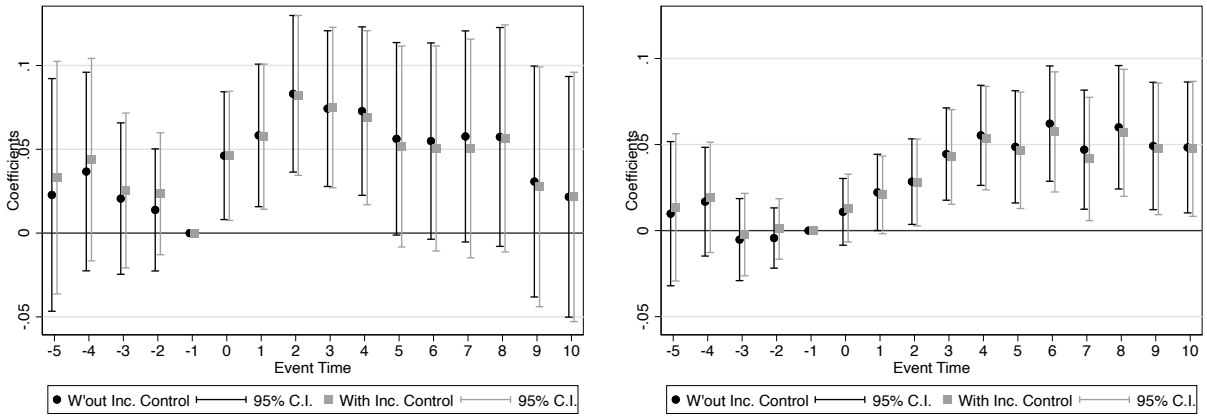


(a) Change in Mortgage Balance by Race

(b) Change in Mortgage Balance by Gender

This figure presents event study estimates of the response of mortgage balance following a leveraged home purchase. Estimates follow the stacking difference-in-difference method proposed by Cengiz et al. (2019). The baseline estimates are illustrated with gray labels while the race- or gender-specific estimates are illustrated by the black labels. Panel (a) reports (lack of) racial differences in mortgage balance after controlling for individual, age, and time fixed effects. Likewise, Panel (b) reports (lack of) gender differences mortgage balance after controlling for individual, age, and time fixed effects. 95% confidence intervals are clustered by tract.

Figure A3. Robustness to Controlling for Income-at-purchase × Event-time

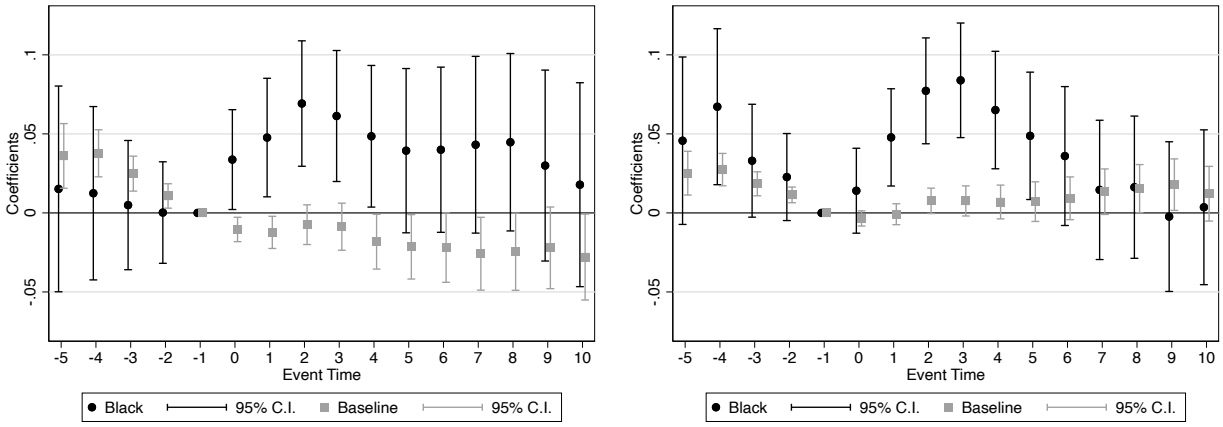


(a) Change in 30+ Days Delinquency by Race

(b) Change in 30+ Days Delinquency by Gender

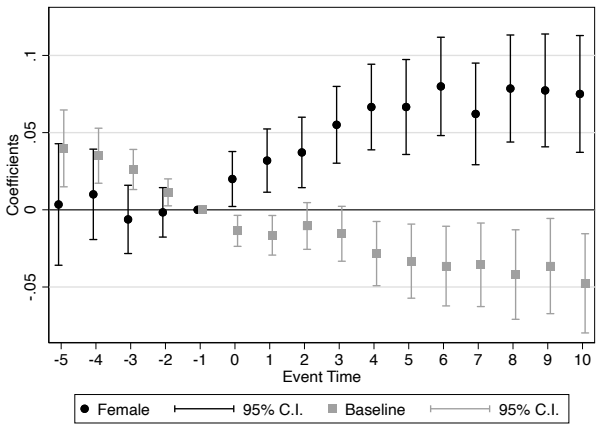
This figure presents event study estimates of the response of 30+ Days Delinquency following a leveraged home purchase. Estimates follow the stacking difference-in-difference method proposed by Cengiz et al. (2019). Each Panel documents the change in 30+ days delinquency under two specifications: one without controlling for the interaction between at purchase income and event time (black graph), and one with controls for this interaction (grey graph). Panel a documents the response for Black mortgaged homeowners, while Panel b documents the response for female mortgaged homeowners. 95% confidence intervals are clustered by tract.

Figure A4. Group Differences in Delinquency (Excluding Non-Mortgaged Black/Female Homeowners)

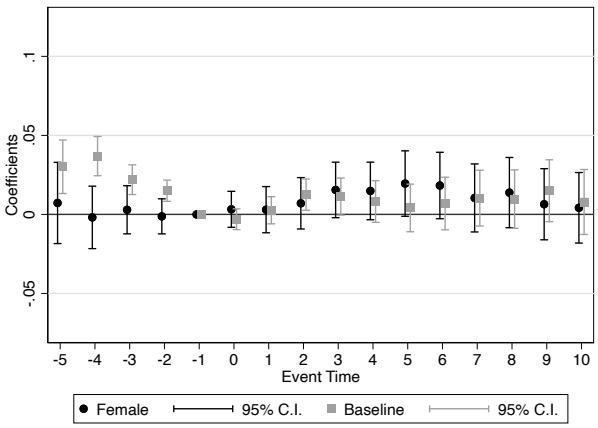


(a) Racial Differences in Delinquency – 30 Days

(b) Racial Differences in Delinquency – 90 Days



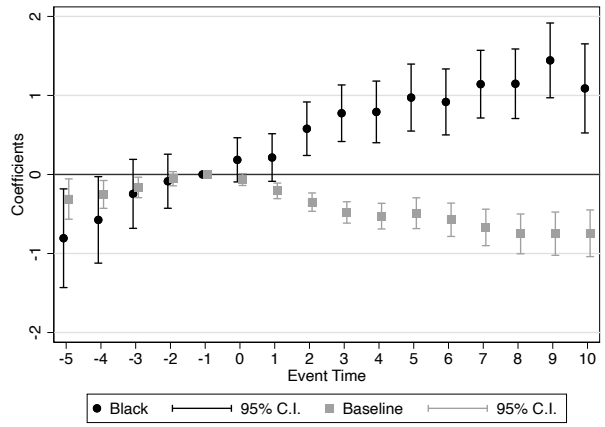
(c) Gender Differences in Delinquency – 30 Days



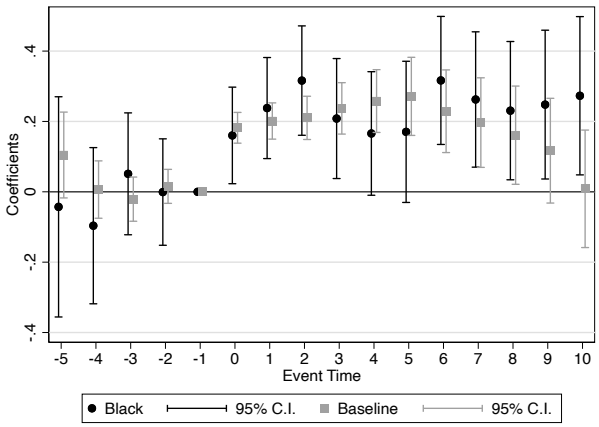
(d) Gender Differences in Delinquency – 90 Days

This figure illustrates the heterogeneity across gender and race of event study estimates of the response of delinquency rates following a leveraged home purchase. We exclude non-mortgaged Black/Female homeowners from the specification. Estimates follow the stacking difference-in-difference method proposed by Cengiz et al. (2019). The baseline estimates are illustrated with gray labels while the race- or gender-specific estimates are illustrated by the black labels. Panel (a) and (b) report racial differences in the response of 30+ and 90+ day delinquencies, respectively. Panel (c) and (d) report gender differences in 30+ and 90+ day delinquency rates, respectively. 95% confidence intervals are clustered by tract.

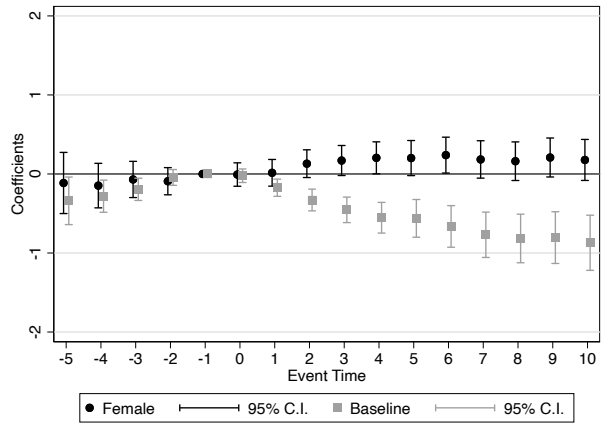
Figure A5. Group Differences in Handling Non-Mortgage Debt (Excluding Non-mortgaged Black/Female Homeowners)



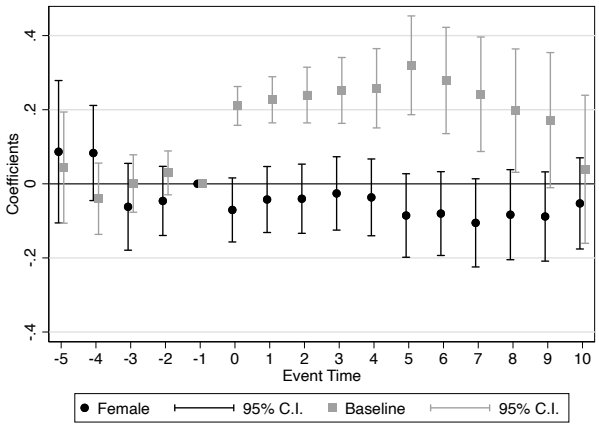
(a) Racial Differences in Student Debt Balance



(b) Racial Differences in Bankcard Balance



(c) Gender Differences in Student Debt Balance



(d) Gender Differences in Bankcard Balance

This figure illustrates the heterogeneity across gender and race of event study estimates of the response of non-mortgage debt following a leveraged home purchase. We exclude from the sample non-mortgaged Black/Female homebuyers. Estimates follow the stacking difference-in-difference method proposed by Cengiz et al. (2019). The baseline estimates are illustrated with gray labels while the race- or gender-specific estimates are illustrated by the black labels. Panel (a) and (b) report racial differences in the response of student and bankcard debt, respectively. Panel (c) and (d) report gender differences in student and bankcard debt, respectively. 95% confidence intervals are clustered by tract.