Mortgage Shoppers: Beware of High-Cost Options

There is surprisingly little empirical evidence on how households choose among complex financial products such as mortgages. A key reason is the difficulty in determining the choice sets that borrowers face when selecting among potential loans. Usually, researchers see only the mortgage that the borrower ultimately chooses.

In Price Discrimination and Mortgage Choice (NBER Working Paper 31652), Jamie Coen, Anil K Kashyap, and May Rostom assemble a unique dataset that contains information on the mortgage options on offer at the bank where a loan was taken and at other banks offering similar products. They establish a number of facts about mortgage selection and document the price dispersion on mortgage menus both within and across banks.

The choice sets show three recurrent patterns. First, all banks offer many mortgages with slightly different options. Second, most mortgages have nearly equivalent total costs to borrowers. Third, mixed into some menus are some very expensive choices which, if selected, would generate windfall profits for the banks. These patterns suggest that banks attempt to discriminate by price because they recognize that consumers are heterogeneous. Because they cannot legally tailor menus to individual characteristics, nor tell which customers are shopping at other lenders, they offer menus with options that cater to a wide range of borrower preferences.

Though a bank may know that some customers are unable to identify the cheapest mortgage, it can only imperfectly target them. It must therefore post a menu that will not deter more sophisticated borrowers while potentially generating high profits from customers less able to identify cheaper loans. Even though customers rarely pick the cheapest products offered, in most cases the cost consequences are only modest.

While many mortgage offerings have nearly equivalent total costs to borrowers, some mortgage menus contain expensive choices that net windfall profits for lenders.

![Probability Mortgage Borrower Selects a High Cost Option](chart.png)

**Monthly payments on a high cost mortgage are at least 2.5% of household take home pay higher than on the reference mortgage. Single bank choice set consists only of mortgages on offer at the bank that gave the borrower their mortgage and multi bank includes offers across all banks. Source: Researchers' calculations using data from Product Sales and Moneyfacts.**
large price dispersion, the researchers find. Menus with many pricey options are more commonly offered to borrowers with higher loan-to-value and loan-to-income ratios, who are typically younger, more likely to be first-time buyers, and have lower incomes. Lenders thus try to price discriminate by making it easy for customers who might be prone to select badly to do so without scaring away other borrowers. Competition between lenders seems to explain why most borrowers can find a reasonable mortgage even if they do not pick particularly well, but about 7 percent of borrowers select a mortgage that is much more expensive than others in their choice set.

The researchers suggest that lenders may think of their clientele as consisting of two types of borrowers: sophisticated customers and randomizers. Randomizers walk into a bank and pick a random choice from the menu. They don’t shop at other banks, are unaware of alternatives, or don’t qualify for mortgages with other lenders. Sophisticated customers go to other banks, consider all options, and pick the cheapest available.

In this environment, lenders must balance two considerations: providing cheap options to entice sophisticated customers and offering expensive options to profit from randomizers. The menu will feature price dispersion, with good options for sophisticated customers and bad options for randomizers. The higher the percentage of randomizers, the more banks will want to fill the mortgage menu with bad options.

— Lauri Scherer

Economic Impact of Hospital Acquisitions

The share of US hospital bed capacity owned by multi-unit hospital systems increased from 58 to 81 percent between 2000 and 2020. In The Corporatization of Independent Hospitals (NBER Working Paper 31776), Elena Andreyeva, Atul Gupta, Catherine E. Ishitani, Malgorzata Sylwestrzak, and Benjamin Ukert study changes in hospital costs and pricing at 101 independent hospitals that were acquired by hospital systems in the 20 states in which Elevance Health provides employer-sponsored and individual plans and Medicare Advantage coverage. They analyze transaction prices paid for individual inpatient stays, Medicare fee-for-service claims, and all payor New York state hospital discharges. They find that after an acquisition, hospital operating profit rose by about $60,000 per bed per year. Much of this increase — about $48,000 — was from reductions in personnel expenses and capital and financing costs. Inpatient revenues also rose about 6 percent within three years of acquisition.

The average acquired hospital had 230 beds and about 10,000 admissions per year. By comparison, the average acquiring system had 3,900 beds, 17 hospitals, and about 177,000 annual admissions. Acquired hospitals with lower-than-median prices and bed size had larger increases in prices across all service lines. Price increases were larger when the acquired hospital and at least one hospital owned by the acquiring system were in the same Dartmouth Atlas hospital referral region. The researchers find that prices for inpatient treatment of commercially insured patients also increased by about 6 percent when one system sold a hospital to another system, leading them to suggest that the price increase following system acquisitions may be related to increases in market power.

Average operating expenses in the acquired hospitals were about $1 million per bed per year. Payroll expenses accounted for just over half of the total, while depreciation and interest expenses accounted for about 7 percent. Acquired hospitals reduced...
Gender gaps in labor market outcomes vary greatly around the world. In The Child Penalty Atlas (NBER Working Paper 31649), Henrik Kleven, Camille Landais, and Gabriel Leite-Mariante examine if the large differences in gender gaps can be explained by differences in the impact of family formation — marriage and childbirth — on women relative to men. The researchers focus on gender gaps in employment, defining the “child penalty” as the impact of the birth of a first child on the gap in employment rates between women and men.

The study includes data from 134 countries representing more than 95 percent of the world’s population. It primarily draws on cross-sectional survey data. The researchers find that child penalties are present in most countries of the world, but that their magnitude varies widely, even among neighboring countries and among regions within the same country. In undeveloped, primarily agricultural economies, the birth of a child has little effect on gender inequality in employment rates. But as incomes rise and employment moves from subsistence farming toward more structured industry and service sectors, childbirth is increasingly associated with women’s absence from the labor force.

Having a child in Denmark reduces a woman’s likelihood of holding a job by 14 percent, and the effects are also small in other Scandinavian countries. The impact is much larger in most central European countries; it is 50 percent, for example, in the Czech Republic. The impact is sizable in southern Europe but with sharp divides. It is twice as large in Spain — where gender gaps are large regardless of parental status — as in Portugal. The persistence of child penalties after the first childbirth also varies among European countries. In the Czech Republic, for example, the penalty drops from nearly 100 percent just after birth to only 20 percent after 10 years, while in Denmark the penalty stays at 14 percent following parenthood.

In contrast to the cross-country variation in Europe, the impact of childbirth on Latin American women is broadly similar across the region, with a 35 to 50 percent gap that persists long after giving birth. Only a few countries in the Caribbean,

Global Evidence on Childbearing and Women’s Employment

As incomes rise and economies transition from subsistence farming toward salaried work in industry and services, childbirth has a larger negative effect on women’s employment.

![Effect of First Childbirth on Gender Gap in Employment](image-url)

Countries have been grouped into 15 equal-sized bins of GDP per capita and y-axis values show averages across all countries in each bin. Blue shaded area represents 95% confidence intervals. Source: Researchers’ estimates using microdata from 134 countries and GDP data from the World Bank.
including Cuba and Haiti, display smaller and less persistent gaps.

The data from African nations highlight the impact of economic development. New mothers in Central Africa, where subsistence economies dominate, experience little change in work patterns compared with men. By contrast, in Morocco the gap is 41 percent and in South Africa, 28 percent.

Asian nations exemplify the rural/urban divide. The child penalty in Beijing is 12 percent, compared with 4 percent in China as a whole; the penalty in Ho Chi Minh City is 25 percent compared with just 1 percent in Vietnam as a whole. Rural jobs are more likely to be flexible and family friendly than more structured, salaried positions in cities. There are also very large differences in the impact of childbirth across the Asian continent: child penalties are very large in the Middle East, South Asia, and Japan, while they are modest in South East Asia and China.

The arrival of children explains most of the gender gap in employment in North America, Europe, and Australia. It also explains a large share of the gender gap in Latin America. Elsewhere, factors that predate the arrival of children—including marriage, education, and cultural norms—appear to play a greater role.

— Steve Maas

Monetary Policy, Interest Rates, and Innovation Spending

Analyzing monetary policy shifts over the 1969 to 2007 period, Yueran Ma and Kaspar Zimmermann find that a 1 percent increase in interest rates was associated with a 3 percent decline in R&D spending by US companies over the following three years. In Monetary Policy and Innovation (NBER Working Paper 31698), they also find that venture capital (VC) investment decreased by 25 percent in the one to three years following the rate hike. Finally, patent filings in key technologies and a widely-used innovation index from previous work declined by 9 percent.

The researchers study several datasets to document these patterns. They look at aggregate investment in intellectual property products and R&D spending using data from the National Income and Product Accounts along with firm-level data from Compustat on R&D spending by US public companies. They track spending decisions by VC firms using the VentureXpert database and examined patents filed with the US Patent and Trademark Office for around 300 important technologies that have been frequently discussed in earnings calls over the past 20 years. When measuring monetary policy shocks, the researchers focus on interest rate changes that are not explained by current or forecasted economic conditions.

Interest rate increases are followed by protracted reductions in business spending on research and development, venture capital investment, and patenting activities.

The researchers focus on the reduction in aggregate demand and the tightening of financial conditions, which reduce the profits and the funding for investing in innovation. They find a larger decline in R&D spending at companies in cyclical industries, where demand is more sensitive to economic conditions. They also find that the decline of VC funding is present among early-stage startups, suggesting that tighter monetary policy leads investors to make fewer risky bets.

The researchers note that recent changes in interest rates and VC commitments are consistent with the pattern they observe over a much longer period. Since interest rates began to rise in 2022, VC investment has fallen by around 30 percent annually across most sectors.

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Impulse Response of Innovation Index to Monetary Policy Shock

Figure shows response to a 100 basis point interest rate increase from a monetary policy shock. Shaded area represents 90% confidence intervals.


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Extending the number of weeks during which unemployed workers are eligible for unemployment insurance (UI) benefits has a more pronounced effect on the overall jobless rate when benefit durations are short than when they are already long. This is a key finding of Macroeconomic Effects of UI Extensions at Short and Long Durations (NBER Working Paper 31784) by Miguel Acosta, Andreas I. Mueller, Emi Nakamura, and Jón Steinsson.

The researchers explore the effect of UI benefit duration extensions by exploiting the fact that states can adopt different UI trigger rule “options” that affect the difficulty of qualifying for UI extensions. Typically, states offer 26 weeks of regular UI benefits. In 1970, the federal government instituted the Extended Benefits program, which triggers additional weeks of benefits when certain economic conditions are met. Some parts of this program are optional and not all states have chosen to adopt them. The UI trigger rule options that states adopt likely depend on different views on the costs and benefits of UI. In practice, adoption of more lenient trigger rules has been correlated with political preferences:10 of the 12 states that did not adopt the fully funded federal program of Extended Benefits in 2012 voted Republican in the 2008 presidential election. The researchers develop a novel empirical strategy to leverage variation in UI benefit durations associated with a state’s choice of trigger rule “options” while controlling for local economic conditions.

The researchers estimate the impact of UI benefit extensions by analyzing weekly state-level data for the last four decades. They compare the effect of a typical 13-week UI extension for cases with initial benefit durations of less than 60 weeks versus more than 60 weeks. For the short initial benefit duration case, a 13-week UI extension leads to a 0.28 percentage point increase in the unemployment rate and to a 0.6 percentage point increase in the fraction of the labor force collecting UI. For the long initial benefit duration case, however, there is virtually no change in the overall unemployment rate. The fraction of the labor force receiving UI increases by about 0.23 percentage points.

The researchers argue that the unemployment rate reacts less to UI extensions when benefit durations are already long because many fewer workers are affected by these extensions. Between 1994 and 2021, the median duration of an unemployment spell was only 11 weeks. This implies that relatively few workers were affected by UI benefit extensions that only kicked in when the UI benefit duration was already 60 weeks or more.

The researchers find larger effects on the unemployment rate when including data from the period of the COVID-19 pandemic. In this sample, unemployment rate rises by 0.44 percentage points in response to a standard 13-week extension when benefit durations are short. The fraction of the labor force on UI rises by 0.9 percentage points. The impact of extensions when benefit durations are already longer than 60 weeks remains negligible.

The researchers suggest that the larger unemployment effects of COVID UI extensions may have arisen for several reasons. First, as a result of the federal top-up of UI benefits, the median percentage of lost earnings replaced by UI benefits was 145 percent in mid-2020 compared with 50 percent in more typical periods. Moreover, benefit eligibility was extended to nontraditional workers, such as contractors and gig workers. Second, unemployment benefits during COVID were widely publicized and likely particularly salient. Third, the COVID recession saw many temporary layoffs, because the downturn was expected to be short, which earlier research suggests may lead to larger effects of UI extensions on unemployment.

—Steve Maas
Public Health Consequences of Mass Shootings

Indiscriminate mass shootings in public spaces cause direct harm through loss of life and severe injuries, but they also inflict psychological harm in affected communities. Relatively little is known, however, about the impacts on those who are not direct victims.

In The Hidden Cost of Firearm Violence on Pregnant Women and Their Infants (NBER Working Paper 31774), Janet Currie, Bahadir Dursun, Michael Hatch, and Erdal Tekin investigate the consequences of these attacks for some of society’s most vulnerable members, pregnant women and their infants.

The researchers consider the “Beltway sniper” attacks, a series of random shootings that terrorized the Washington, DC, metropolitan area and disrupted daily life over a three-week period in 2002. The data come from restricted administrative birth records with maternal residential addresses in Virginia. The authors compare birth outcomes of children who were in utero during the attack and whose mothers lived near a shooting location, with birth outcomes of children who were not exposed. They find that exposure to the Beltway sniper attacks during pregnancy increased the likelihood of very low birth weights and very premature births by 25 percent. The increase in the risk of very low birth weight was most pronounced, 40 percent and 35 percent respectively, for those exposed during the first and second trimesters. No effect was observed for those exposed during the third trimester. Effects on extreme prematurity were also concentrated among those exposed during the first two trimesters. The researchers estimate that the total cost of the harms to children in utero during the Beltway sniper attacks was $15.5 billion in 2023 dollars.

The findings illustrate the importance of considering the impact of firearm violence on vulnerable populations. The researchers study in utero exposure to mass shootings more broadly using restricted-access US Vital Statistics Natality records from the period 2006 to 2019. They exploit variation in the timing of mass shootings in counties where at least one shooting occurred. They conclude that the effects of these shootings on in utero children average more than $7 billion annually. They point out that pregnant women and their infants may need additional support in the form of counseling and access to health care following incidents of mass gun violence.

— Lauri Scherer