Choices of dominated mortgages by UK households

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Overview

There is a lot of heterogeneity in borrowers and product characteristics in the UK mortgage market. These factors, combined with multi-dimensional product pricing, make traditional measures of price dispersion unsuitable for assessing the quality of borrowers' search and product choices. To overcome this common problem for household finance markets, I develop a new methodology for measuring consumer outcomes in the mortgage market or other circumstances with multidimensional product prices and features. The methodology focuses on choices of unambiguously 'dominated' products by assessing, for each observed borrower, whether they were eligible for another product with the same features as their chosen mortgage but at a strictly lower price (i.e. having rates or fees that are lower with none that are higher). This way one can detect consumers who are likely to not be searching the market effectively without making trade-offs between different price components or additional assumptions about consumer preferences beyond non-satiation in consumption.

I apply the dominance approach to a uniquely granular combination of lending transaction reports, detailed product information and credit files for the majority of UK mortgage borrowers over 18 months. I find that 30% of the borrowers chose mortgages that were strictly dominated by other mortgage options apparently available to them, with the average additional cost of £550 (or c.$750) per year.

Data

The sample covers 700,000 UK households that took out a mortgage between January 2015 and July 2016. For each borrower, I observe and combine:

- **Regulatory transaction reports for each UK mortgage** (loan characteristics and borrower demographic information)
- **Commercial data on products available on the market** around the point of mortgage application (details on eligibility criteria, detailed price structure and non-price characteristics for each product)
- **Credit files from one of the leading UK credit bureaus** (credit score, previous borrowing behaviour and links with different providers)

Brief institutional context

The main differences between the USA and the UK contexts are:

- Large fixed menus of products posted by lenders, comprising price structure (initial/reset rate), eligibility criteria and product features (eg fixed)
- No bilateral price negotiation between borrowers and intermediaries/lender.
- No fixed rate contracts for mortgage term. The fixed period, if any, is typically 2-5 years.
- Fairly prompt refinancing after the initial rate deal period expires

Methodology

Borrowing can costs vary considerably between households due to heterogeneous preferences for mortgage types, features, and the timing of payments. Higher risk borrowers may also not qualify for cheaper loans available on the market. Further, even comparing products for one borrower, common cost metrics like APR implicitly impose assumptions about their discount rate and intertemporal liquidity constraints. To deal with this, I develop a non-parametric 'dominance-based' approach to identify cases where households incur avoidable extra borrowing costs that cannot be explained by confounders above without making assumptions about households preferences or circumstances.

The this approach goes through the following steps for every borrower i:

1. **Availability**: Identify the available choice set (C_i), ie all mortgages offered on the market at the time the choice was made for which i satisfied all eligibility criteria (loan amount, loan-to-value ratio, credit score; >10 lending criteria used in total)
2. **Comparability**: Identify the *comparable* choice set of available alternatives (C_i) all mortgages in C_i that have exactly the same non-price features (fixed rate duration, repayment flexibility, etc) as *is* chosen mortgage product (j).
3. **Dominance**: Detect whether the chosen product j is *strictly dominated* for borrower i, that is there is some product $k \in C_i$ for which all elements of its price (initial rate, reversion rate, upfront and exit fees) are individually no higher than in j, and at least one is strictly lower.
4. **Excess cost**: Calculate the difference between *is* borrowing cost on chosen product j and the average of *is* potential borrowing costs under available products that dominate j. (Additional parametric assumptions – eg time horizon to remortgaging – required to calculate costs).

Key results

Table 1 summarizes the average frequencies of dominated choices and the associated additional costs.

	Mean
% households with dominated products	29.9
% households with strongly dominated products: with cost *geq* £250 and 5%	17.5
Excess cost in £per year	549.70
Excess cost in % of annual mortgage payment	12.73

Table 1:Headline averages

Figure 1 shows the wide distribution of annual excess costs over the introductory rate deal period and over 5 years (assuming no refinancing before that).

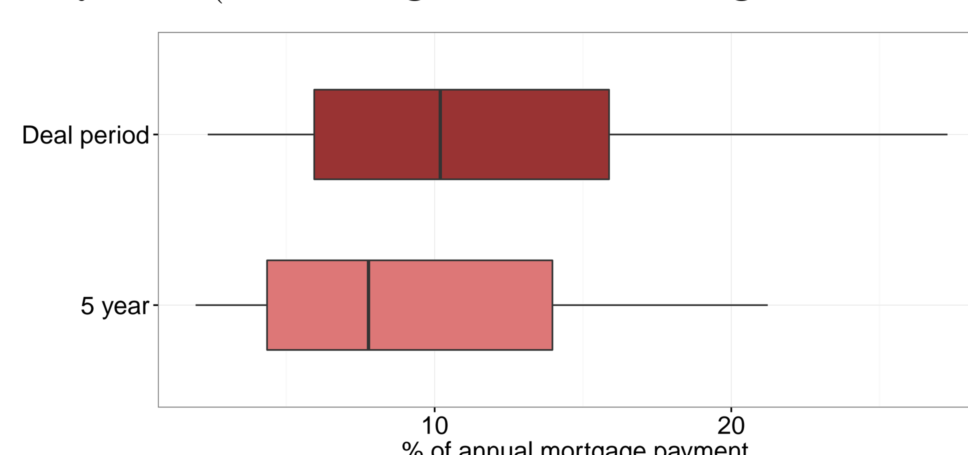

Figure 1:Distribution of excess costs

Demographic variation

I investigate how the dominated choice probabilities and costs vary with borrower a large demographics and financial circumstances using a logistic regression. Table 2 shows selected average marginal effects (all significant at 1% after clustering on year and region). Marginal effects are often non-linear, eg ME(income) rapidly diminishing as income increases.

	ME (in pp)
Income (£1000)	−0.19
Age	0.14
Credit score	−0.28
=1 if first-time buyer	3.25
=1 if house mover (base:refinancer)	6.88

Table 2:Selected marginal effects on Prob(dominated choice)

Overall, the likelihood of worse choices appears higher for less sophisticated borrowers and those facing more complex choices/greater time constraints.

Familiarity

Borrowers, especially those choosing for themselves, gravitate towards lenders with which they have already hold a product (checking account, credit cards, etc). Figure 2 suggests that use of familiar alternatives is associated with higher rate of dominated choices. This association persists even after extensive controls for demographics and borrower's financial position.

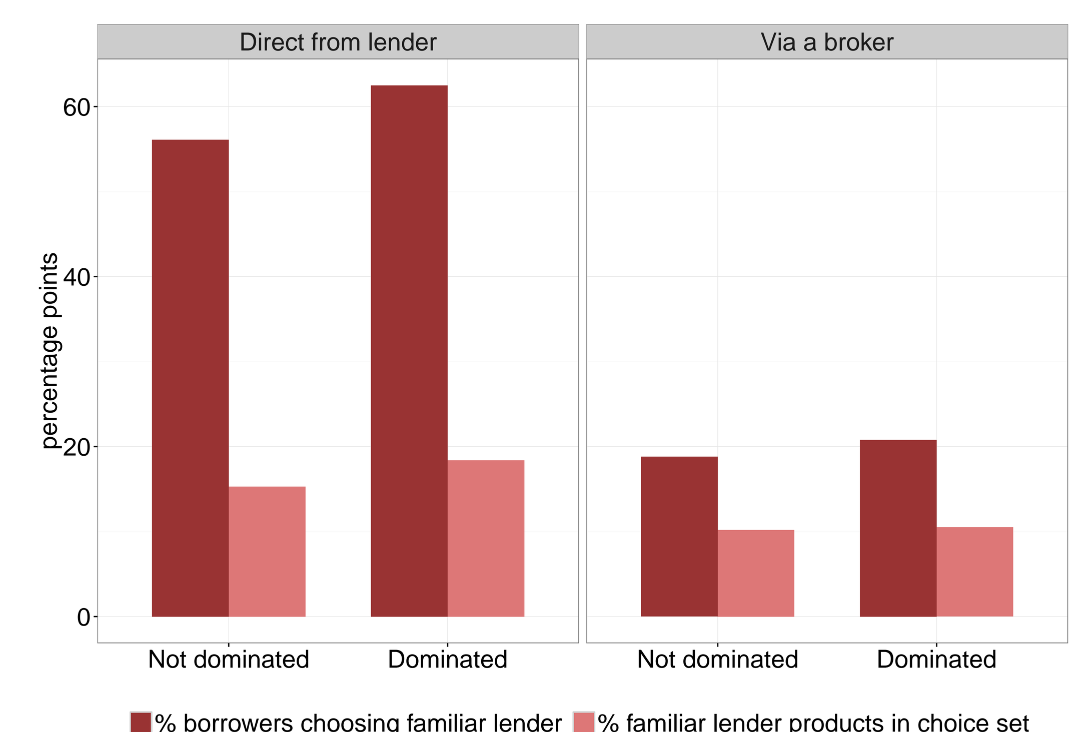

Figure 2:Lender familiarity to borrower

Brokers, on the other hand appear to favour lenders *they* are more familiar with. See full paper.

Robustness

The methodology could overstate dominance rates if important eligibility criteria are not in the data. This is unlikely as already control for >10 eligibility criteria, and given information about business models the remaining are likely to be niche. The results are also robust to only looking at 60k most prime customers. Other successful robustness checks include alternative definitions of excess costs and thresholds for strong dominance.

Contact details

Full paper available as Iscenko, Z. (2018), "Choices of dominated mortgages by UK households." Financial Conduct Authority Occasional Paper 33.

Questions and comments are welcome on:
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