The effects of a macroprudential loosening: the importance of borrowers' choices

Elena Durante & Fergal McCann

Central Bank of Ireland

June 16, 2022

Motivation

- Macroprudential policy tightenings are more common than loosenings - especially in the case of household or mortgage measures.
- A large literature has built up on the effects of such tightenings.
- Episodies of loosening are much rarer but ... discussion of loosening is becoming even more important:
  - [illegible]
  - [illegible]: capital measures loosened. Some jurisdictions loosened mortgage restrictions as a stabilization tool.
  - [illegible] has increased in the era of quantitative easing and macroprudential policy.

This Paper - in a picture

Figure: Pre-reform policy environment - LTV maximum

This Paper - in some words

2016 policy review

- First, the property value threshold of e 220,000, above which a lower LTV limit applies for FTBs, was re-considered. The e 220,000 threshold level was originally calibrated with reference to median house prices in Dublin.
- The existence of a xed nominal threshold value as part of the LTV limits for FTBs means that the Regulations would have to be updated every year.
- Taking into account the medium-term orientation of the measures and considering the evidence arising from the review, the property value threshold for FTBs will be removed and a 90 per cent LTV limit will apply for FTBs at all house prices from 1 January 2017

Why is this a useful setting?

- Classic challenge for causal identi cation after policy change: Policy responds endogenously to conditions ! search for “announcement' shocks' Romer and Romer (2004).
- Recent innovations in macroprudential policy: similar approach to identify LTV tightening shocks Richter et al. (2019).
- Alternate approach: granular data, time-varing shock, shift-share Bartik-like exposure (Acharya et al., 2020).
- Our case: much cleaner “classic” applied micro research design due to policy motivation: “simpli ciation” of regime, only applying to one group. No response to economic conditions.
- ! skip traditional concern of endogenity of policy response, by creating treat-control groups.

Data and Empirical Strategy

Data

- “Monitoring Template” (MT) data, proprietary, Central Bank of Ireland.
- Obligatory loan-level return for all lenders originating more than e 50m per year since 2015.
- Comprehensive information on loan features, household income, LTI, LTV, location, valuation etc..
- 5 major retail lenders.
- The focus of the paper is on FTBs loans for property purchase only.

Empirical Strategy

- Simple DiD set up:

$$Y_i = \quad _0 + \quad _1\text{Post} + \quad _2\text{Treat} + \quad _3\text{Post} \quad \text{Treat} + \quad _4X_i \quad _i \qquad (1)$$

- Y: origination LTV on a new mortgage; Post = 1 from start of 2017; Treat = 1 if property valued above e 220k.
- Note: t a panel dataset! Mortgages only drawn down once per household.
- Assumptions:
  - LTV choices of FTBs are being in uenced causally by the policy change at start-2017 in the Treat group
  - Any changes in LTV are not attributable to changing composition of borrowers across Pre/Post, Treat/ControlborDu0(a)20nt278(to)&78(t

Identi cation worry (1): FTBs composition

Table: Summary Statistics: Pre and Post period for Treated and Control group

Property size	1423.77	1253.20
Marital status	0.84	0.56
Total income	95170.72	53431.53
Property size	1394.64	1322.21
Marital status	0.85	0.56
Total income	96235.42	55561.66

Note: MT data (2015-2020). Pre=2015-2016; Post=2017-2020.

Identi cation worry (2): non-parallel house price trends

Intuition : our Treat and Control may not be good groups to use for causal identi cation because the housing market is evolving differently across the two.

Worry : house price growth from 2016 into 2017 is higher among more expensive properties

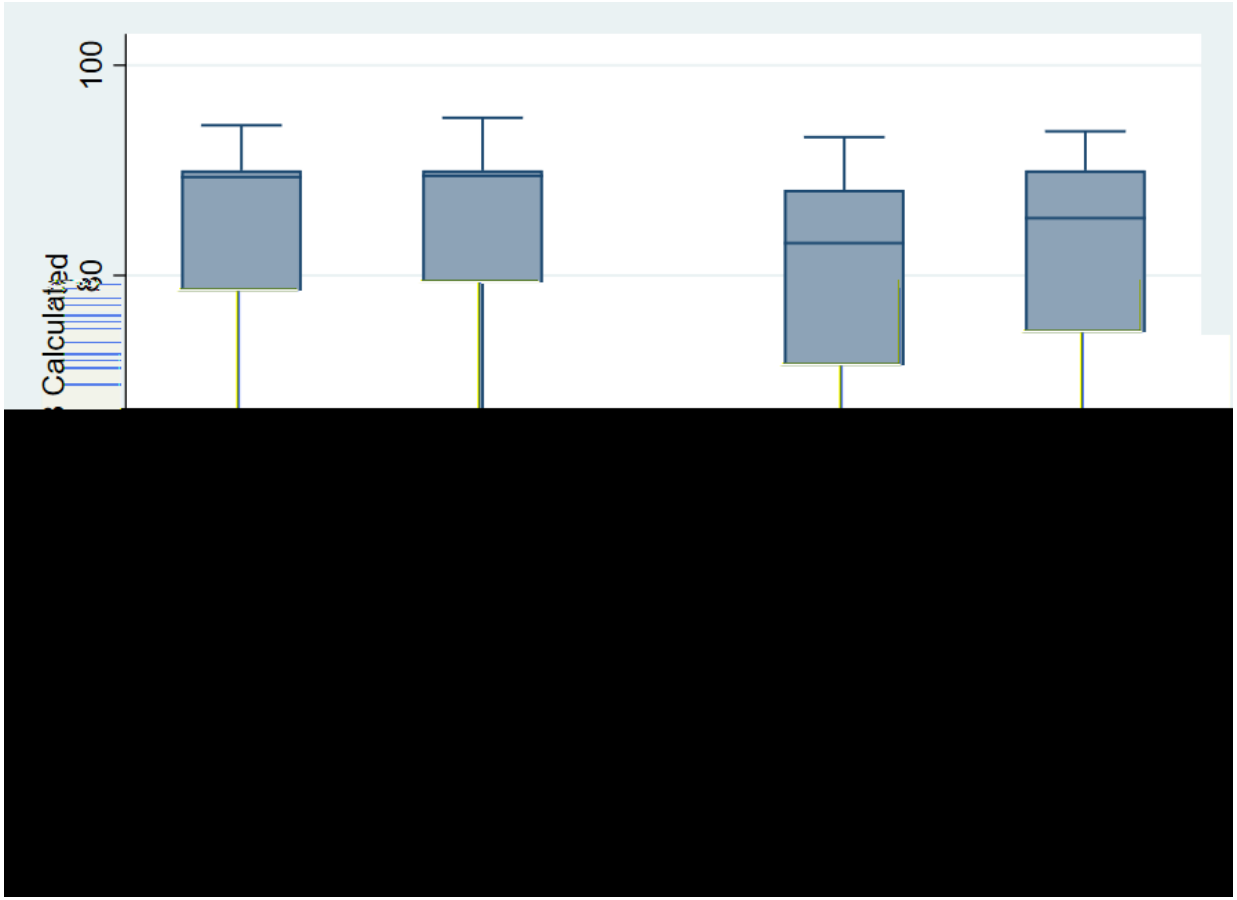
! house price growth could explain higher LTVs among Treat loans, rather than the policy change.

Empirical evidence : price growth was actually weaker among higher-priced properties, suggesting identi cation is not polluted through this channel

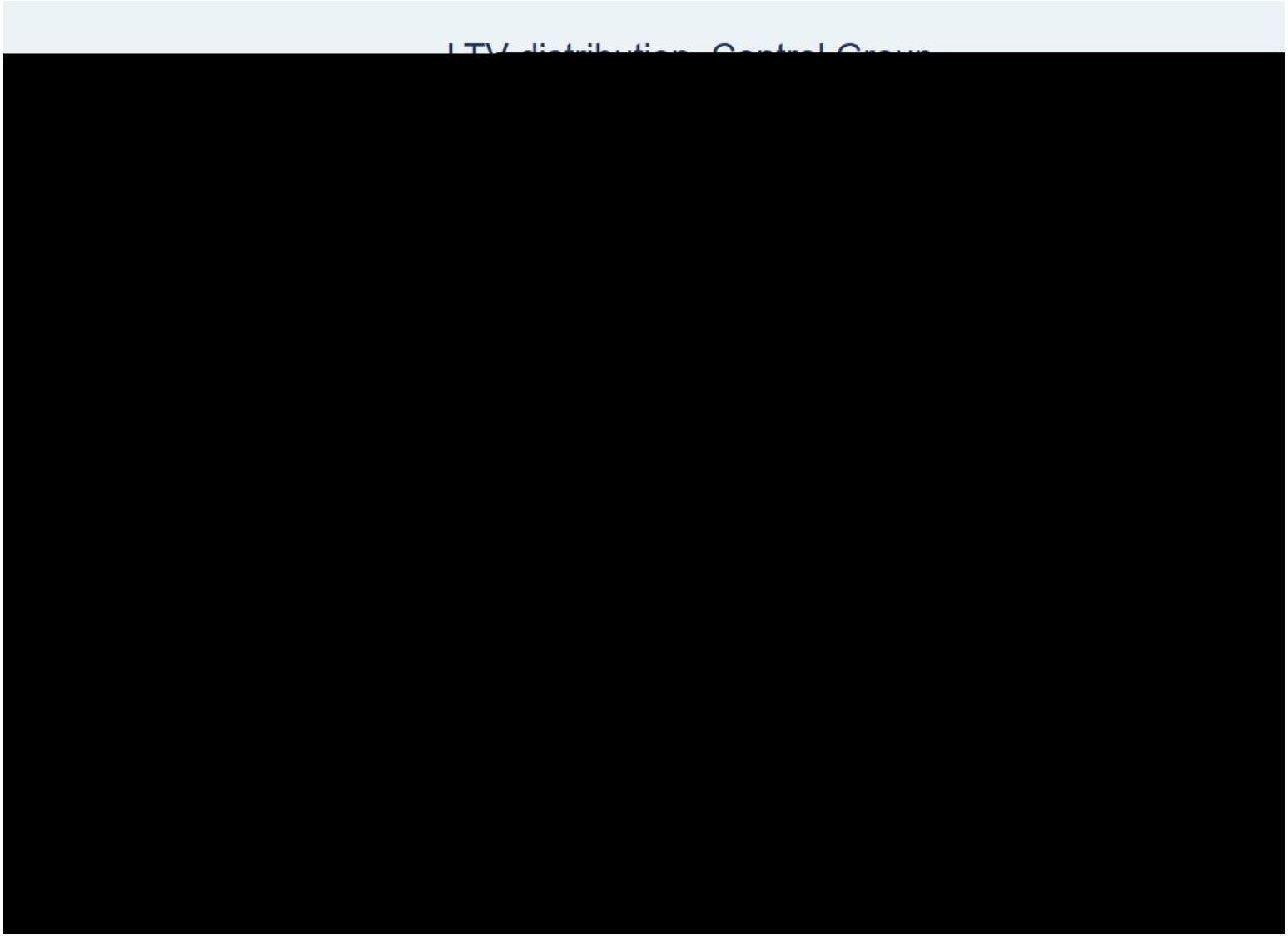
How to deal with it empirically? We control for county-time varying house price indices in some speci cations.

Empirical Results 1 - LTV effects

LTV distribution across the four groups



Detailed LTV Bunching - Control



Baseline model of LTVs

Table: Baseline DiD results for LTV ratios

	(1)	(2)	(3)	(4)	(5)	(6)
Post	0.389**	0.354*	-0.295	-0.416**	-0.613***	-0.053
	(0.196)	(0.197)	(0.181)	(0.197)	(0.190)	(0.199)
Treatment	-4.825***	-4.864***	-14.415***	-14.641***	-15.390***	-14.027***
	(0.198)	(0.199)	(0.209)	(0.228)	(0.220)	(0.227)
DiD	1.700***	1.631***	1.341***	1.034***	1.088***	1.279***
	(0.264)	(0.264)	(0.242)	(0.262)	(0.252)	(0.258)
Observations	47634	47634	47634	40783	40731	38573

Baseline model of $\frac{\text{debt}}{\text{equity}}$

Table: Baseline DiD results for leverage ratios

	(1)	(2)	(3)	(4)	(5)	(6)
Post	-0.009	-0.019	-0.113***	-0.157***	-0.199***	-0.107**
	(0.042)	(0.042)	(0.041)	(0.045)	(0.043)	(0.045)
Treatment	-1.488***	-1.476***	-2.916***	-2.973***	-3.129***	-2.882***
	(0.043)	(0.043)	(0.047)	(0.052)	(0.050)	(0.052)
DiD	0.634***	0.630***	0.585***	0.560***	0.573***	0.612***
	(0.057)	(0.057)	(0.055)	(0.059)	(0.057)	(0.059)
Observations	47622	47622	47622	40776	40724	38567
r2	0.036	0.039	0.111	0.115	0.169	0.181
Bank FE	No	Yes	Yes	Yes	Yes	Yes
Loan Controls	No	No	Yes	Yes	Yes	Yes
Property Size	No	No	No	Yes	Yes	Yes
Borrower Chars	No	No	No	No	Yes	Yes
County HPs	No	No	No	No	No	Yes

Note: Standard errors in parentheses, *** p< 0.01, ** p< 0.05, * p< 0.1. Post indicates all loans originated after Jan 1st 2017. Treatment Group is all loans against properties valued above e 220k. Borrower characteristics: marital and employment status. Loan characteristics: loan size, LTI and property size. MT data (2015-2018)

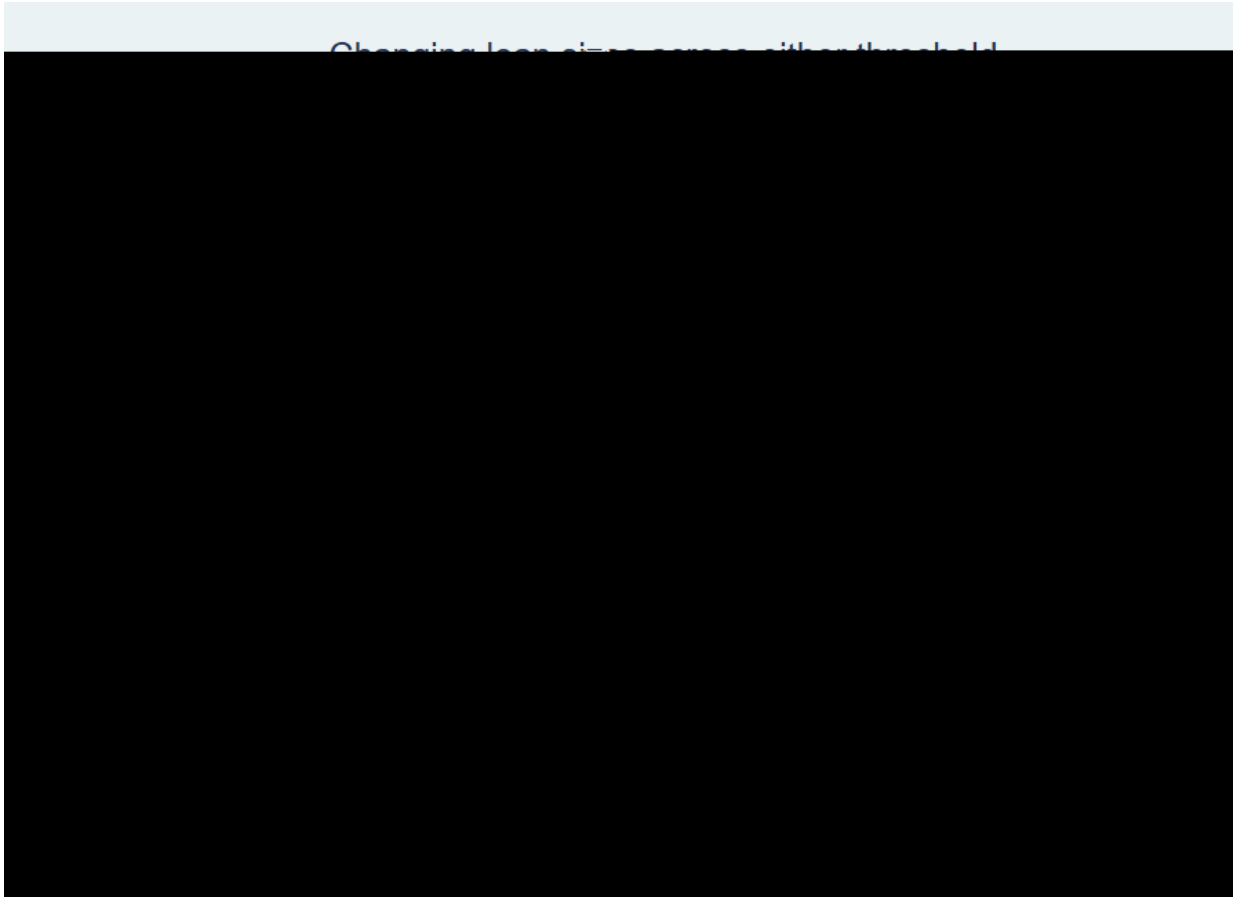
Empirical Results 2 - Underlying Mechanisms

... A policy loosening leads to higher FTB leverage

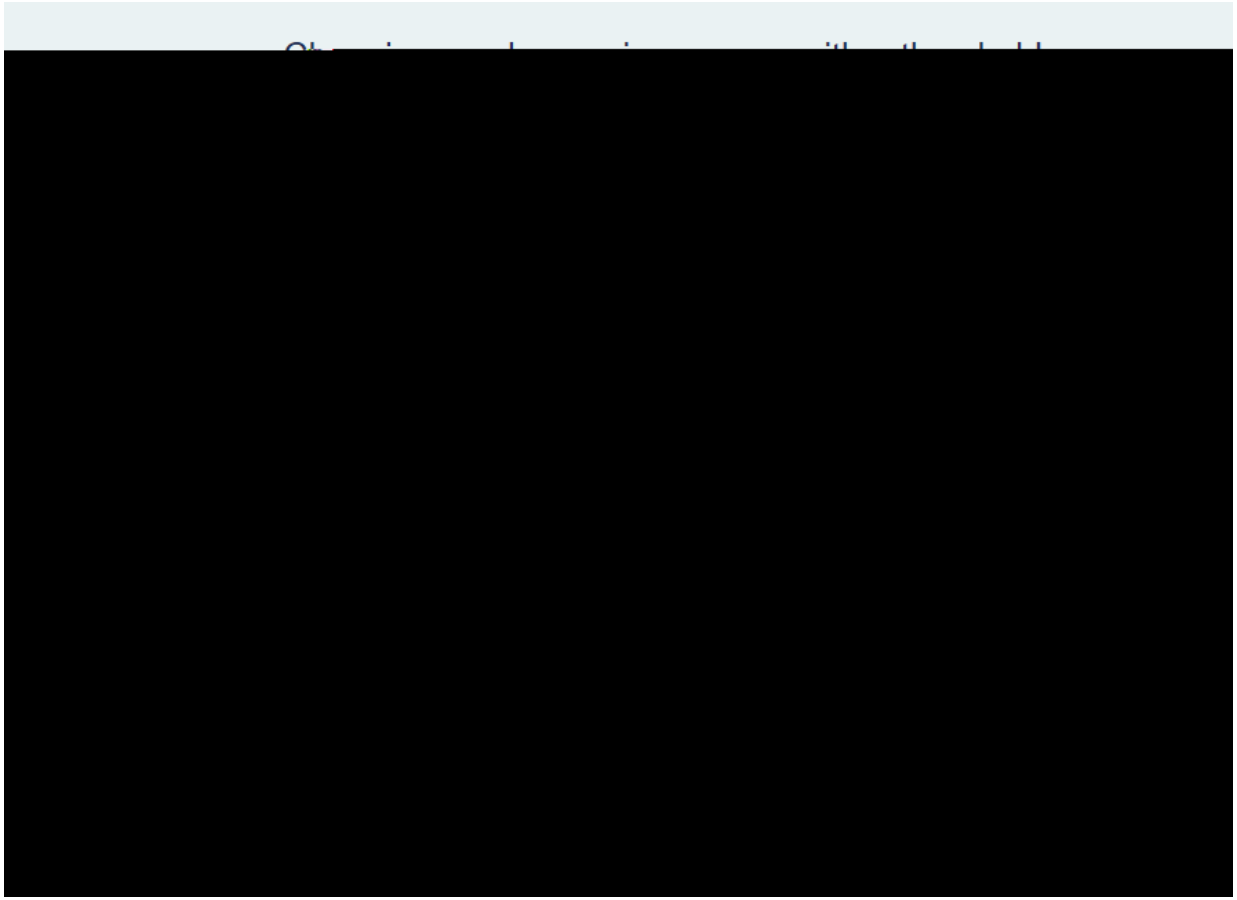
- [illegible]
- Classic intuition on housing-credit: Leverage " ! House Prices "
- [illegible] : we have a rich granular data to look at mechanisms.
- Mechanisms available may muddy the above intuition: if the MaP authority loosens LTV requirements, I can:
  1. "Classic accelerator": Post similar downpayment, buy more expensive house.
  2. "Liquidity preference": Buy similar house, post smaller downpayment, retain more liquidity
- Here we test reactions on downpayments, loan sizes, and property values (in EUR and relative to income)
- [illegible] : during a period of economic stability, a macroprudential loosening may not necessarily lead to increased housing cyclicality, if (2) is in operation

Downpayment distribution across the four groups

Loan size distribution across the four groups



Property value distribution across the four groups



Summarising the pictures

- Downpayments visibly shrink in the Treat group, both in

Three modes of adjustment: more liquidity, more debt, no asset price effect

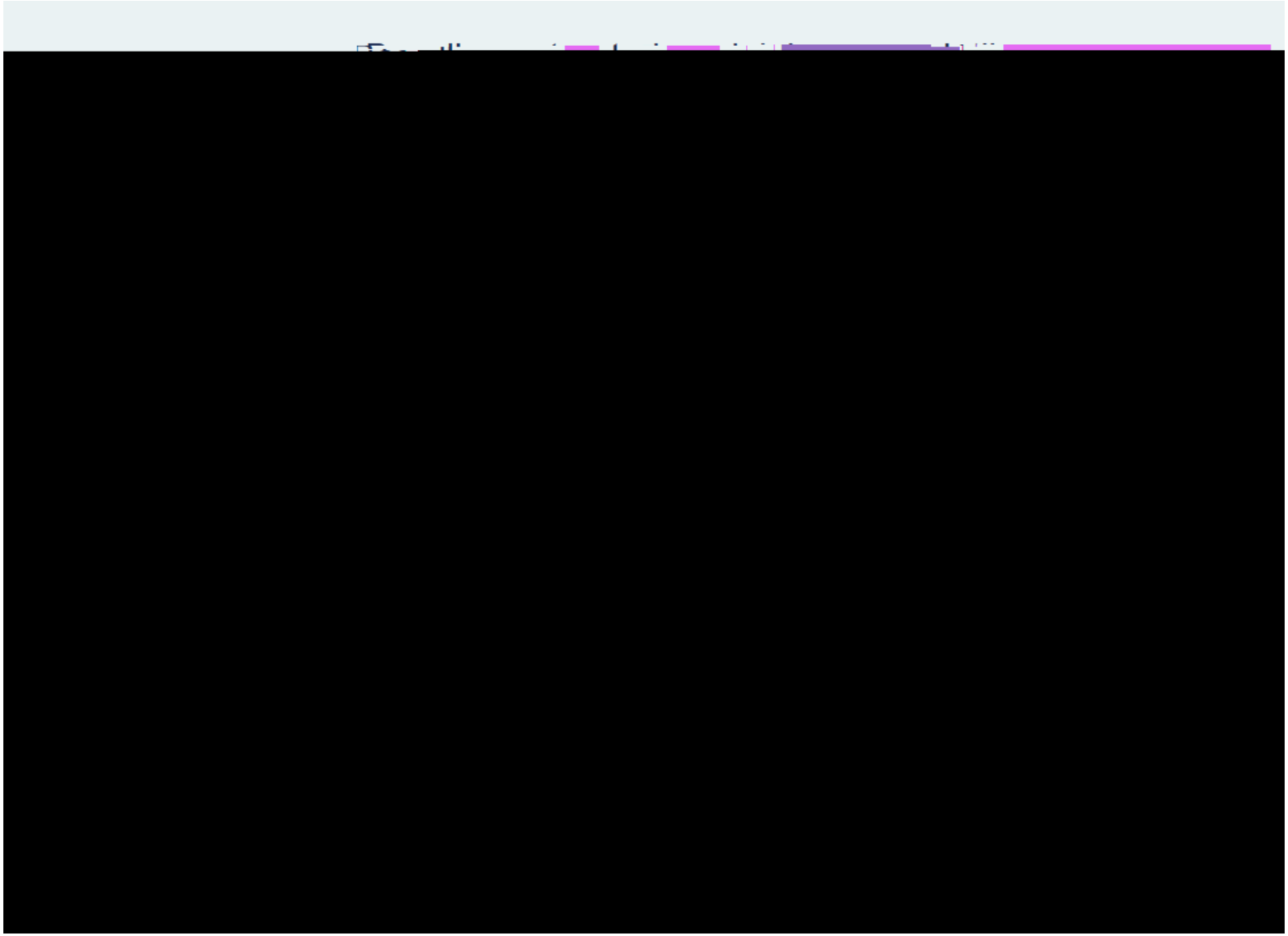
Table: Saturdated model; three adjustment mechanisms

	(1) Downpayment	(2) Loan Size	(3) Property Value
Post	-770.232	-750.802	-1521.035
	(1173.427)	(494.209)	(1272.483)
Treatment	51985.768***	3222.265***	55208.033***
	(1336.228)	(562.776)	(1449.026)
DiD	-3309.173**	5470.000***	2160.826
	(1521.081)	(640.630)	(1649.485)
Observations	38573	38573	38573
r2	0.148	0.916	0.699
Bank FE	Yes	Yes	Yes
Loan Controls	Yes	Yes	Yes
Property Size	Yes	Yes	Yes
Borrower Chars	Yes	Yes	Yes
County HPs	Yes	Yes	Yes

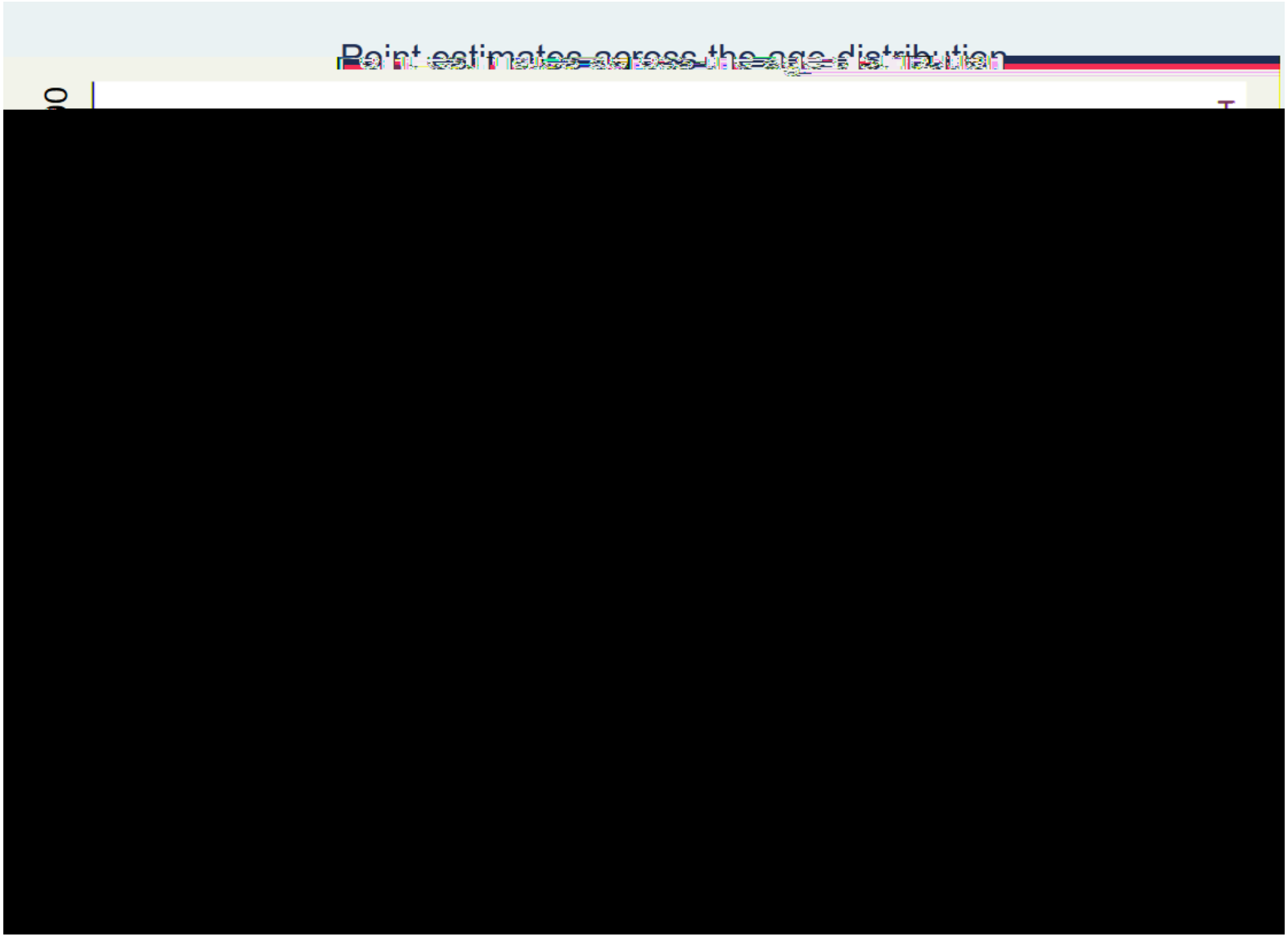
Note: Standard errors in parentheses, ***in

Heterogeneity - age

Heterogeneity by age



Adjustment mechanisms by age quintile



Discussion on heterogeneity results

Older borrowers dominate the response.

They increase leverage in response to a policy loosening, through the deposit-reduction channel.

Why do older borrowers drive this response? Variation in liquidity preferences due to higher non-mortgage expenses?

Conclusions and Extensions

- 2017 policy reform introduced a looser LTV requirement for a cohort of Irish borrowers.
- Treated borrowers increase leverage by 1.1 pp in response to the loosening (an increase of 0.5 in $\frac{\text{debt}}{\text{equity}}$).
- Choice: retain liquidity rather than purchase more expensive properties.
- Indebtedness does rise, as the trade-off to retain liquidity. Common across the age distribution.
- Both LTV increases and liquidity retention appear driven by older FTBs.
- Policy implications: liquidity reduction is a cost of macroprudential policy. Leverage loosening need not lead to most-intuitive cyclical ampli cation, if borrowers choose to retain liquidity instead.
- Multi-country evidence base will help policymakers in forming a comprehensive view of the risks associated with policy loosening.

Thank you!
Go raibh mile maith agaibh!
Grazie!

, “The Anatomy of the Transmission of Macroprudential Policies,” NBER Working Papers 27292, National Bureau of Economic Research, Inc 2020.

, “The costs of macroprudential policy,” Journal of International Economics, 2019, 118 (C), 263–282.

, “A New Measure of Monetary Shocks: Derivation and Implications,” American Economic Review, September 2004, 94 (4), 1055–1084.