MORTGAGE DEFAULT; ARE FIRST TIME BUYERS DIFFERENT?

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MOTIVATION

Why might first time buyers be of policy interest?

· Evident differences in default risk. (Hallissey et al., 2014)
· Difficulties entering housing market.
· Demographic considerations (household size/structure).
· Marginal borrower with greater sensitivity to
  down-payment/financing constraints. (Duca et al., 2009)

RESEARCH QUESTION

Are first time buyers a different credit risk?

· Use loan level data across three institutions.
· Build on existing literature and explore borrower heterogeneity
 and credit risk.

DATA

Data Description

Loan level data first collected under PCAR 2011 used in analysis

· Three institutions included: AIB (incl. EBS), BOI, PTSB.
· Cross-section of loans from December 2013.
· Total loans is approx 650,000. We restrict sample to PDH, primary loan, 1% trim of outliers. 348,000 loans remain.
· Data includes first time buyer (FTB) flag, originating information and current loan performance.

Following slides provide an overview of the sample.
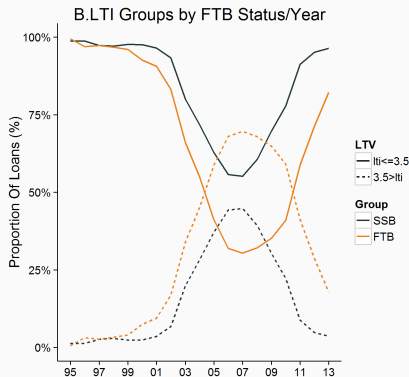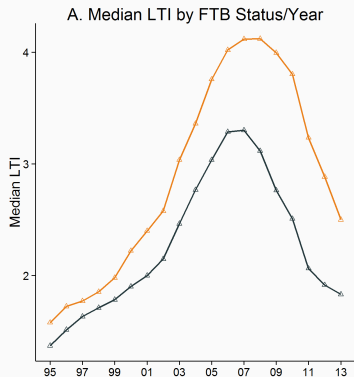
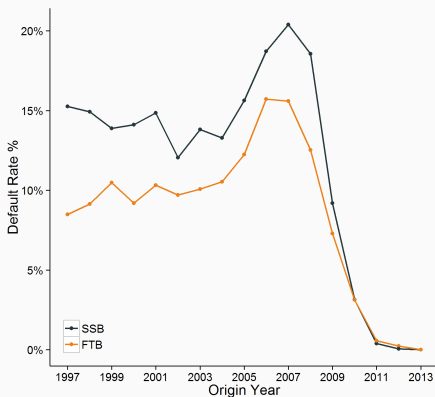A. Median LTV by FTB Status/Year

B. LTV Groups by FTB Status/Year
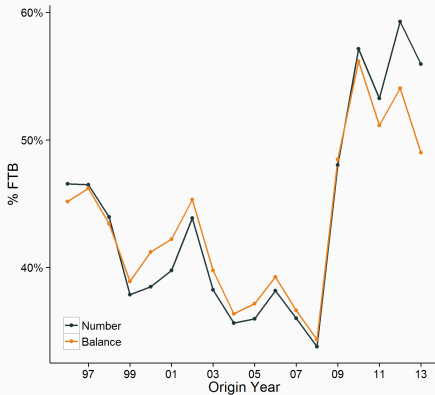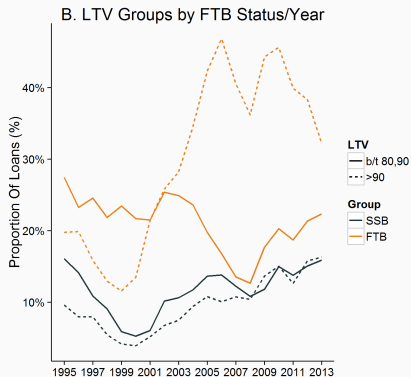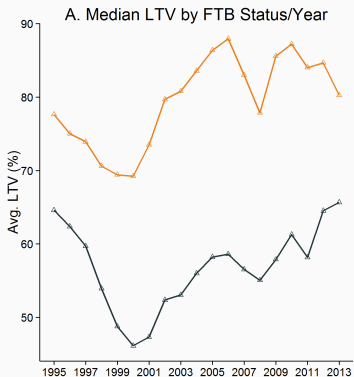
A. Median LTI by FTB Status/Year

B. LTI Groups by FTB Status/Year

· Default rate 30% higher for second and subsequent borrowers (SSB's) (14.9% vs 10.3%)
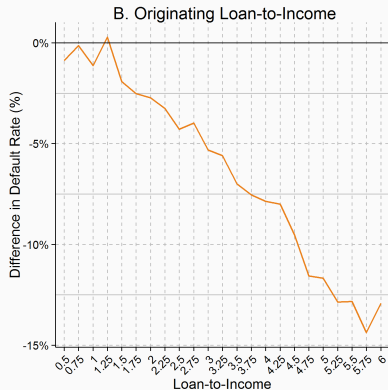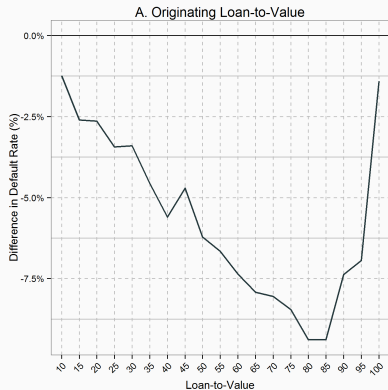
Summary Statistics by FTB Status

	FTB	2nd +	Diff
Loan Size (euro)	182,514	182,199	316
Purchase Price (euro)	254,814	339,163	-84,349
Borrower Characterictics			
Income (euro)	56280	68995	-12714
Age (yrs)	31.8	39.3	-7.6
Employed (%)	77.1	68.4	
Self-Employed (%)	11.9	15.6	
Single (%)	69.7	25.2	
Married (%)	27.4	66.2	
Divorced (%)	2.1	7.5	
Loan Characteristics			
OLTV	74.23	55.86	18.37
OLTI	3.44	2.83	0.61
Term (months)	348	286	62
Vintage (months)	91	95	-4
Dublin (%)	25.8	25.7	
Fixed (%)	11.5	6.9	
SVR (%)	53.8	48.4	
Tracker (%)	34.7	44.7	

METHODOLOGICAL APPROACH

METHODOLOGY

- Builds on previous work by CBI on probability of mortgage default;
  - Kelly & O'Malley (2014); Ireland loan loss forecasting model
  - McCann (2014); UK loan loss forecasting model
  - McCarthy (2014); sample of loans with updated income information

- Use standard logit framework of default probability including borrower, loan, and labour market factors.

- To test application to credit decisions, only information available at loan origination is used to assess credit risk.

Model Specification

Variable	Description
Baseline Model	
Borrower Characteristics	
Borrower Age	Borrower Age at origination (in months)
Marital Status	Groups (Single, Married, Separated/Divorced, Other)
Region	Groups (Dublin, Non-Dublin)
Loan Characteristics	
Bank	Groups (AIB, BOI, PTSB)
Vintage	Number of months since loan origination.
Term	Loan term at origination (in months)
Interest Rate Type	Type of interest rate at origination. Groups (Fixed, SVR, Tracker)
DBO	Drawn Balance at Origination (in natural logs)
Marco Prudential Variables	
LTV	Loan to value at origination.
LTI	Loan to income at origination.
Additional Specifications	
Employment Status	Type of employment at origination. Groups (Employed, Self-Employed, Other)
Equity Release Dummy	Dummy variable for additional loans on same property.
ADBO	Total Drawn Balance of Equity Release (in natural logs)
Additional Property	Dummy capturing borrowers with Buy to Let/Holiday Homes

RESULTS

Empirical Results (Baseline)

	(1)	(2)	(3)	(4)	(5)
ln(DB)	0.0461***	0.0435***	0.0279***	0.0365***	0.0220***
	(34.02)	(33.01)	(16.45)	(24.96)	(12.24)
term	0.000538***	0.000561***	0.000537***	0.000534***	0.000512***
	(46.81)	(49.17)	(46.05)	(45.85)	(43.09)
Int Type, SVR	0.101***	0.0977***	0.0997***	0.0976***	0.0996***
	(30.62)	(30.26)	(30.40)	(30.39)	(30.51)
Int Type, Tracker	0.0621***	0.0581***	0.0618***	0.0584***	0.0619***
	(18.37)	(17.57)	(18.36)	(17.75)	(18.50)
Loan Age	0.00106***	0.00105***	0.000996***	0.00105***	0.00100***
	(53.15)	(53.05)	(49.81)	(53.29)	(50.21)
Single Assess	-0.00749***	-0.00212	-0.00361*	-0.00719***	-0.00828***
	(-4.59)	(-1.31)	(-2.19)	(-4.20)	(-4.77)
Dublin, Yes	-0.0409***	-0.0405***	-0.0367***	-0.0403***	-0.0367***
	(-27.47)	(-27.88)	(-24.53)	(-27.85)	(-24.64)
Marital Status, Single	-0.00694***	-0.00128	-0.00389*	-0.00121	-0.00372*
	(-4.11)	(-0.76)	(-2.28)	(-0.72)	(-2.18)
Marital Status, S/D	0.0420***	0.0377***	0.0361***	0.0376***	0.0361***
	(15.03)	(13.71)	(12.95)	(13.72)	(13.00)
Marital Status, Other	0.0245***	0.0232***	0.0227***	0.0225***	0.0221***
	(3.77)	(3.65)	(3.52)	(3.56)	(3.44)
Borr Age	0.00412***	0.00352***	0.00370***	0.00354***	0.00372***
	(32.55)	(27.69)	(28.57)	(28.04)	(28.86)
FTB		-0.0335***	-0.0402***	-0.0348***	-0.0412***
		(-21.23)	(-24.47)	(-22.08)	(-25.10)
OLTV			0.000629***		0.000604***
			(16.14)		(15.53)
OLTI				0.00673***	0.00630***
				(11.55)	(10.56)

t statistics in parentheses
* p < 0.05, ** p < 0.01, *** p < 0.001

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Empirical Results (Additional Variables)

|	(1) Emp Status	(2) Equity Rel	(3) BTL	(4) All
FTB	-0.0425***	-0.0402***	-0.0405***	-0.0407***
	(-24.24)	(-24.70)	(-24.60)	(-23.45)
OLTV	0.000802***	0.000792***	0.000620***	0.00101***
	(19.20)	(20.22)	(15.92)	(23.88)
OLTI	0.00764***	0.00849***	0.00684***	0.0104***
	(12.10)	(14.34)	(11.48)	(16.52)
Emp Status, Self-Employed	0.0846***			0.0847***
	(45.78)			(45.90)
Emp Status, Other	0.0642***			0.0644***
	(22.01)			(22.19)
Equity Release Dummy		-0.0369*		-0.0248
		(-2.52)		(-1.63)
ln(Additional DB)		0.00852***		0.00764***
		(6.33)		(5.46)
BTL Also			0.0303***	0.0201***
			(11.23)	(6.93)

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

- Using the All Model, interact FTB with 20-quantiles of OLTV and OLTI.
- Estimate difference in predicted probabilities at values of LTI and LTV.
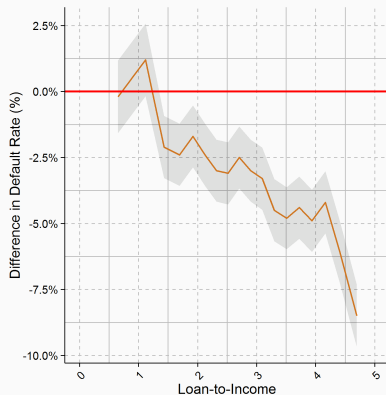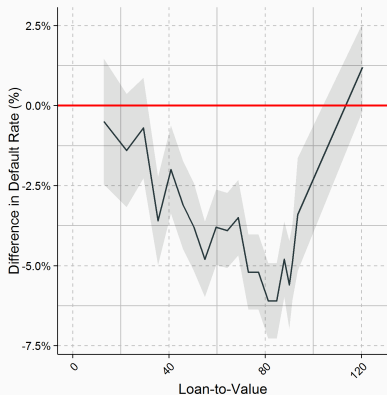
· Tests of the robustness of the FTB result.

	(1) Pre 2004	(2) Post 2004	(3) Delta LTV	(4) Counties	(5) NE
FTB	-0.0273*** (-8.75)	-0.0478*** (-20.06)	-0.0260*** (-22.67)	-0.0386*** (-22.45)	
FTB Not in NE					-0.0170*** (-10.56)
FTB in NE					-0.0701*** (-21.89)

t statistics in parentheses
* p < 0.05, ** p < 0.01, *** p < 0.001

CONCLUSION

Concluding Thoughts

- · FTB have 30% lower default rate. Default is non-linear in LTV and LTI, with the max differential occurring at LTV's between 80 and 85.
- · Finding is robust to controlling for borrower and loan characteristics.

Is the effect an Irish only phenomenon?

- · Jiang et al (2014) find support for US mortgages.

Some potential explanations include:

- · Risk appetite
- · Concerns by FTBs on future credit access
- · Tighter credit standards applied at origination on FTBs
- · Delayed entry
- · Taxation differences affecting affordability (mortgage interest relief)

QUESTIONS?