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Did the Dunne Judgment Lead to More Mortgage Defaults?

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Abstract

Does reducing repossession risk lead more borrowers to default on their mortgages? In this letter, I present recent research examining this question. In Ireland in 2011, a high court ruling effectively removed a bank's ability to lawfully repossess homes. Analysing mortgage arrears patterns before and after the Dunne judgment in Ireland, I show that borrowers defaulted after the judgment at a higher rate than they otherwise would have. Borrowers who responded by defaulting were more likely to be in negative equity but were also more likely to have missed payments before the judgment, have lower incomes and face higher interest rates.

1 Introduction

The lack of credible repercussions for mortgage default is often cited as a contributing factor for the high levels of mortgage arrears seen during the recent mortgage arrears crisis (Mac Coille et al., 2013; Mac Coille, 2015; Honohan, 2013). In this letter, I present research aiming to answer the question of whether the lack of home repossession, resulted in a higher level of mortgage default (O'Malley, 2018). I examine default patterns during the recent "Dunne judgment" period, throughout which banks were effectively banned from repossessing mortgaged properties in the event of default. At the time, it was possible that borrowers - having no incentive to repay their mortgages if their homes could not be repossessed - would choose to default on rather than continue to pay their loans.

I find that borrowers did in fact default more than they otherwise would have, if the repossession regime at the time had been legally upheld. The findings offer empirical support to the economic theory of mortgage default and to moral-hazard costs of impediments to repossession. Clearly, not every borrower defaulted after the Dunne judgment in July 2011. Economic theory predicts that only borrowers who have the most to lose from con-

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tinuing to pay - and therefore the most to gain from defaulting - will stop paying. Largely in line with theory, I find that borrowers most likely to default when repossession risk is removed were more likely to be in negative equity. On average, they had lower incomes at loan origination, paid higher interest rates and were more likely to have variable-rate mortgages.

To arrive at this conclusion, I analyse a natural experiment contained in the Dunne judgment itself. The specific ruling created a situation where some borrowers had their repossession risk removed by chance, whereas otherwise similar borrowers did not. This allows me to conduct a quasi-experimental evaluation of the judgment, similar in method to a randomised control trial in the medical sciences.

Impediments to home repossession by banks reduce a borrower's incentive to fulfill the terms of their mortgage. While a policy aiming to reduce repossession risk may benefit some borrowers, it would also likely increase the mortgage default rate, particularly when there is widespread negative equity and high unemployment. When considering changes to repossession law, policymakers must trade off the benefits from lower home repossessions with the moral hazard cost.

2 The Dunne Judgment and Economics of Repossession Risk

On 25th July 2011, in the case of Start Mortgages v Gunn, Justice Dunne ruled that the 2009 Land and Conveyancing Reform Act ("Land Act") had failed to preserve the terms of older legislation regarding the transfer of property rights. In most cases, the judgment effectively removed a bank's ability to repossess a house in the event of mortgage default. The ruling was covered extensively in the national press at the time (Gartland, 2011d,c,a,b; McDonald, 2011). Figure 1 shows some Irish Times headlines in the weeks after the judgment.

Economic theory predicts that such an event would lead to more borrowers defaulting on their mortgages. Home repossession is a large cost associated with mortgage default, rendering it an unattractive prospect for borrowers. Substantially reducing repossession risk therefore decreases the costs associated with default. In economics, reducing the cost of something usually increases the associated demand for it. This situation is no different: theoretically, reducing the costs of mortgage default leads to an increase in the number of households not paying.

During the recent mortgage arrears crisis, this line of reasoning was often cited to explain the high levels of mortgage default in Ireland. According to former Central Bank of Ireland Governor Patrick Honohan:

> The scale to which the unresolved arrears situation has grown in Ireland reflects the absence of immediate consequences for non-payment. This lack of consequences has created a degree of moral hazard.
> -Honohan (2013)

Moral hazard is a term usually associated with insurance markets. This principle tells us that an agent's incentives are changed when they enter into an insurance contract: drivers might be more willing to take risks on the road when they know their car is insured against damage. In this letter, moral hazard refers to the prospect that by assuring borrowers that their homes cannot be repossessed, their incentives to pay are changed. Any associated increase in mortgage default is then referred to as a moral hazard cost of the intervention which changed the incentives.

A conflicting theory is that the mortgage-default decision is not the outcome of an economic calculation (whereby the borrower

weighs up the costs and benefits), but rather a moral one. According to this point of view, people will go to great lengths to pay their mortgage due to social or moral obligations, or because they could not face the shame or stigma associated with defaulting on their debts (Kelly, 2010).

Depending on which holds more true in practice, the implication of the Dunne judgment is different. If the economic theory of mortgage default is more correct, then the flaw identified in the Land Act - while not being the ultimate cause - contributed to the mortgage arrears crisis.

3 Did the Judgment Cause Mortgage Defaults to Rise?

3.1 Causal questions

The economic theory outlined above is clear on the effect of the judgment. We should expect that the Dunne judgment, by changing incentives to pay, increased the rate of mortgage default. Though we may have strong theoretical reasons to believe this, to date there is no empirical evidence that the theory holds true in reality.[2]

Whether or not the Dunne judgment led to more mortgage defaults is an empirical question, but, importantly, also a causal one. Causal questions are usually framed in terms of counterfactual outcomes: what would have happened without the intervention? In this context, the intervention is the Dunne judgment and the counterfactual outcome is what default rate we would have observed in late 2011 without it.

Answering causal questions is not a straightforward task, however. To estimate what effect the judgment had, we require an estimate of the counterfactual outcome, as defined above. We cannot simply compare average default rates before and after the judgement, because we cannot assume that the trend in mortgage defaults would have carried on unchanged, absent the legal ruling. For instance, if we observe an increase in average default rates, how do we know unemployment changes did not cause this? Or perhaps falls in house prices led borrowers to default once in negative equity. Though we can theoretically measure and therefore rule out these two examples, any analysis would rest on the assumption that we have ruled out all possible alternative explanations for the observed change in the mortgage default rate. Confidently ruling out all other determinants of mortgage default is problematic, therefore we need an alternative method of estimating the counterfactual scenario.

3.2 Causal answers

In the natural sciences, researchers use experiments to discern between conflicting causal theories. The laboratory acts as a controlled environment, where the experimenter is able to manipulate the hypothesised cause, holding all others constant. Similarly, the randomised control trial (RCT) is the "gold standard" in assessing the efficacy of a new drug in the medical sciences. Neither option is open to the economist most of the time.[3] Instead, economists often look to "natural experiments" to settle causal questions. A natural experiment is a situation where the terms of a policy change or intervention mimic that of a laboratory experiment or RCT. In a natu-

[2] International evidence is mixed but generally favours the moral hazard view. Ghent and Kudlyak (2011) find that US states where banks have recourse to the assets of defaulted borrowers have lower default rates. Mayer et al. (2014) present evidence that US borrowers strategically defaulted in order to benefit from mortgage modification programmes. Collins and Urban (2015) argue that a recent short ban of mortgage foreclosure in the US resulted in no extra defaults.

[3] The RCT is rapidly becoming a mainstay in the economist's toolkit, however. See Duflo (2017) on the importance of the RCT to economists.

ral experiment, subjects are assigned to treatment and control groups based on chance, rather than by the experimenter in the lab or the statistician in a clinical trial. Assigning individuals to treatment and control groups by chance alone dictates that observed differences in outcomes must logically be due to the intervention and not due to other factors.[4] Unlike in an RCT, chance in a natural experiment is not due to the force of physical randomisation but rather to a quirk of the policy change itself.

In a valid natural experiment, examining how the outcomes of subjects differed according to treatment- and control-group status results in an unbiased estimate of the policy or intervention itself (Angrist and Pischke, 2008, 2014; Imbens and Rubin, 2015). As long as the policy intervention was truly assigned to each subject based on chance, then we can rule out all other possible explanations for the change in the outcome. These other competing explanations apply equally to both treatment and control groups and therefore cannot be the cause of the change in the average outcome between them.

3.3 Quasi-Experimental Design

The terms of the Dunne judgment offer a natural experiment to study the effect of removing repossession risk of default. The specific ruling of Justice Dunne was that repossession law still applied to any mortgage originated after 1st December 2009, the date of implementation of the Land Act. Therefore, for mortgages originated around December 2009, in the 2011 judgment removed repossession risk based almost on chance alone. If a borrower's mortgage was originated before the cut-off date, then they had their repossession risk removed. Other borrowers experienced no change in the possibility that their mortgage could be repossessed. The assumption of my research paper (O'Malley, 2018) is that the change in repossession regime these borrowers experienced from late 2011 was quasi-experimental: factors that dictated that they got their mortgage between June to November 2009 rather than December 2009 to May 2010 are unrelated to the judgment. Therefore their change in repossession risk from the Dunne judgment in July 2011 was determined *as if by chance*. For example, my research assumes that a borrower who got a mortgage in September 2009 is no more likely to have a different change in the risk they lose their job in 2012, on average, than a borrower who got their mortgage a few months later in January 2010[5].

To limit the chance that borrowers either side of the cut-off are systematically different, I perform a matching technique where each borrower on the treatment side of the cut-off is algorithmically matched to a "similar" borrower on the control side. Therefore, the treatment and control samples are observationally equivalent by construction, in the quarters leading up to the Dunne judgment.[6]

The data I use in this research come from the Central Bank of Ireland's loan-level database. Collected as part of the Prudential Capital Assessment Review, the data contain detailed records of mortgages held by Allied Irish Banks, Bank of Ireland, EBS Building Society and Permanent TSB from 2010 to today.

[4] The logic of randomisation (i.e. assignment to treatment/control based on chance) works because all factors, other than treatment, that may contribute to the outcome in treatment/control groups are the same *on average*. Therefore, average differences in outcomes must be due to the treatment under study.

[5] Note here that it is the *difference* and not the level of risk that must not change. This is a weaker assumption, as it allows treatment and control groups to have different levels of unemployment risk without invalidating the natural experiment. E.g. borrowers in the treatment group are permitted to have a higher risk of unemployment, so long as as this risk does not *change* at a different rate as the control group's risk.

[6] See the accompanying technical paper for details on the matching and regression adjustment procedures (O'Malley, 2018).

I limit the sample to those loans originated 180 days either side of 1st December 2009: loans originated before this cut-off date form the treatment group and loans originated after are the control group. I use a panel data set of these loans, following their default status through time from September 2010 to June 2012. The Dunne judgment occurs in the middle of the panel time-period, July 2011.

3.4 Results

By comparing the change in the default rate for the treated group to the change in the default rate for the control, I can estimate the causal effect of the Dunne judgment. If the Dunne judgment did not cause more borrowers to default on their mortgages, then intuitively the change in the default rates for both groups should be equal. Intuitively, since borrowers are matched on observable characteristics and got their mortgages in the same short time period, I argue that both groups are on average similarly likely to become unemployed and to experience the same falls in the value of their houses.[7] Therefore any difference in the change in default rates can be attributed to the Dunne judgment.

Figure 2 plots the default rates of both treatment and control groups over time. The default rate is defined here as the percentage of performing mortgages that enter 90 days delinquent status in each quarter between late 2010 and mid 2012. 90 days past due is the standard accounting measure of default. The vertical dashed line is the time point of the judgment. This graph shows a simple "difference-in-differences" estimate of the impact of the Judgment. Absent any true effect of the judgment, the difference in the two lines before July 2011 should equal the difference between the lines afterwards. The initial difference in December 2010 is added to the control group line to create the estimated counterfactual default rate in dashed gray. Clearly in Figure 2, the difference changes immediately after July 2011. The treatment group's default rate jumps immediately after the judgment and stays elevated in the periods after, when compared with the control group trend.

The causal impact of the Dunne judgment on mortgage default for the loans in this sample is 0.3 percentage points on average in the four quarters afterward. It is the change in the default rate differential between groups, from before the judgment to after. The observed default rate for the treated group is 0.3 percentage points on average higher in each quarter after the judgment, than the rate that we would have expected to see, given the difference in the default rates before the judgment. In the accompanying technical paper, I confirm that this difference was unlikely to occur due to chance alone using several statistical tests[8]. By using techniques that offer better statistical precision, I find that the effect rises to 0.5 percentage points.

This 0.3 percentage points effect is an *absolute* effect size. When scaled by the estimated counterfactual, it translates to an average 50% *relative* increased quarterly mortgage default risk in subsequent quarters. The right panel of Figure 2 shows the relative increase in default risk in each quarter. This is computed by dividing the increase over the counterfactual by the level of the estimated counterfactual default rate. A large deviation from the estimated counterfactual outcome is evident in the first quarter after the judgment (roughly 80% relative increase in default rate). In the accompanying paper, I find that this relative

[7] See footnote 5, the required assumption is not as strong. Only the *change* in the unemployment and negative-equity propensity should not differ on average between the groups. Unemployment and house price falls are just two of many hypothetical causes of default. Due to the natural experiment, *all* potential confounding causes should be balanced on average between treatment and control groups.

[8] Statistically, the difference is confirmed using standard asymptotic inferential procedures as well as a permutation inference method.

increase falls to around 40% when calculated with more precise statistical methods.

4 Is This Evidence of Strategic Default?

Some readers will take the view that these findings constitute proof of strategic mortgage default during the Irish financial crisis. Strategic mortgage default usually refers to mortgage default in the event that the borrower can pay (Gerardi et al., 2017; Kelly, 2010).

The evidence presented here shows that some Irish borrowers defaulted on their mortgages when they likely would have continued to pay if their homes could be repossessed. By the above definition, this does indeed represent evidence of strategic default. However, in the accompanying technical paper, I also examine factors associated with this excess default: the conclusion being that "strategic" may not be an appropriate label. While borrowers who respond to the new repossession regime are more likely to be in negative equity, they are also more likely to score lower on affordability measures. Table 1 shows the average LTV, income, interest rate and variable-rate share for two groups of borrowers: those who demonstrated little difference in default propensity before and after the judgment to those who exhibited the highest estimated change in default propensity. Borrowers who defaulted at the highest rate on average over their control group counterparts are more likely to be in negative home equity; they have slightly lower incomes on average; have higher interest rates and a higher proportion of variable rate mortgages.[9] Data limitations exclude the possibility of examining differences in employment status and other consumer debts.

This evidence is again in line with economic theories of default. It is unlikely that borrowers who have equity in their homes and can comfortably afford to continue to pay will stop paying absent repossession risk. Borrowers in negative equity and struggling financially are the group with the highest "opportunity cost" to continuing payment. As discussed in the accompanying paper, this opportunity cost is represented by what a borrower who continues to pay could have done with that money. A borrower facing home repossession might rationally choose to default and prioritise living expenses once that repossession risk is lifted; even if only guaranteed to last for the next few years.

Indeed, Prof. Honohan argued a similar point, describing the notion of strategic default as a "...value-loaded term ... which obscures the diversity and complexity of arrears circumstances." (Honohan, 2013)

In the accompanying paper, I also find that the first borrowers to default after the Dunne judgment were those who had missed previous payments (but did not default by accounting standards).[10] If these borrowers were the most likely to be in financial difficulty before the judgment, then they also had the most to gain from defaulting. This is consistent with these borrowers having experienced financial hardship and defaulting once they receive a guarantee that their homes cannot be repossessed in the short run.

Though the effect size identified in this research is small in absolute terms, it is likely to have been higher in the overall mortgage market: the loans analysed in this natural experiment are on average of higher quality than the loans that preceded them in the height of the credit boom. As such, the absolute esti-

[9] These groups are calculated using predicted individual-level treatment effects from a causal forest algorithm (Wager and Athey, 2017). The "high" group is the top quintile of the treatment effect distribution and the "low" is the bottom quintile.

[10] Part of the reason is how the outcome is defined. Only borrowers who have missed one payment can enter 90-days default in September 2011. I find that conditional on missed payments, borrowers in the treatment group transition faster.

mates in this research are a lower bound on the effect in the mortgage market as a whole.

5 Conclusion

The purpose of this letter is to explain recent research on the implications for mortgage default of reduced repossession risk. The evidence from Ireland suggests that moral hazard costs of reduced repossession manifested in the form of higher rates of mortgage default. I presented results from a natural experiment in Ireland, arising from the terms of the Dunne judgment. Though tempting to label as strategic default, I also show that a standard economic model is consistent with Irish evidence, whereby only borrowers with the most to lose from continuing to pay default after repossession risk is removed.

Figure 1: Media coverage of Dunne judgment in 2011 (Gartland, 2011c,a,b). See also Gartland (2011d); McDonald (2011).

Loophole prompts surge in calls to mortgage group

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A VOLUNTARY group that

2009. It repealed older conveyancing legislation, but failed to save elements of the Registration

had been inundated with calls since the ruling.

He also acknowledged that it

Hundreds of home repossession cases may be struck out

High Court judge finds gap in 2009 land Act

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tion of the Registration of Title Act

He said there was an argument

Challenges delay repossession cases

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HOME REPOSSESSION proceed-

Ltd, EBS Building Society and GE Capital Woodchester Home Loans Ltd as well as Start Mortgages.

Figure 2: The "difference-in-differences" event study. Left panel shows default rates for treatment and control groups over time. Red vertical line indicates time of Dunne judgment. Also shown in the estimated counterfactual line in dashed grey. The difference between green and grey lines is the estimated effect (in percentage points) of the Dunne judgment, shown in the right panel. The right panel demonstrates that the Dunne judgment had no effect on the default rate in the quarters before the judgment itself. Had an effect been present before the actual date of the judgment, this would have provided evidence against the validity of the natural experiment.

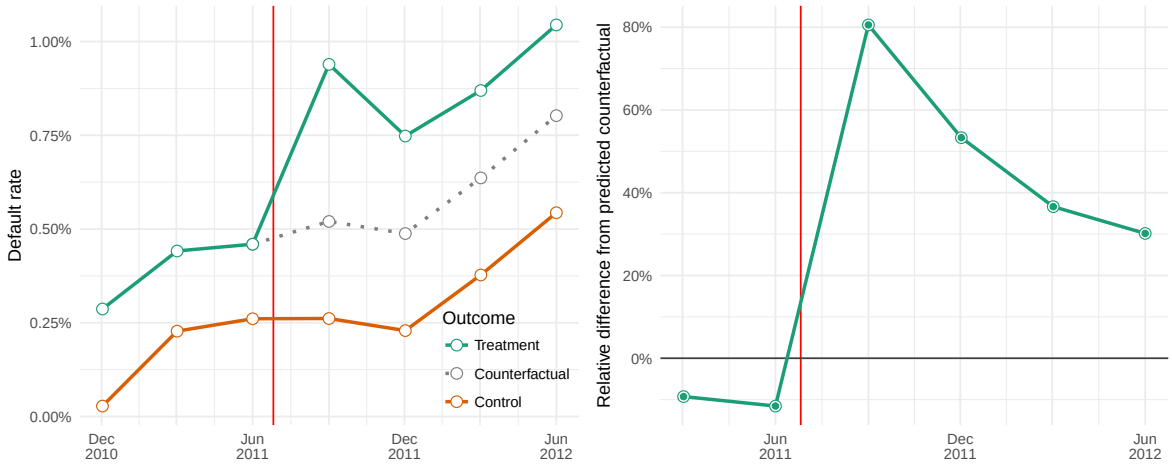

Table 1: Treatment effect predictions from causal forest algorithm. High denotes the highest quintile of predicted treatment effects from the model. These are borrowers who defaulted at the highest rate over their control group counterparts. Low denotes borrowers predicted to have defaulted at the same rate after the Dunne judgment.

	Prediction		
	Low	High	Difference
Income	63,905	58,103	- 5,803
LTV (%)	82.0	95.3	13.4
Interest rate (%)	4.11	4.15	0.04
SVR share (%)	62.0	73.9	11.9

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