Mandatory Mediation Laws and the Renegotiation of Mortgage Contracts

J. Michael Collins*

Carly Urban†

May 25, 2012‡

Abstract

Scholars have studied mediation—that is a third-party to facilitate the settlement of a dispute—in a variety of settings. The theoretical literature asserts that mediated negotiation weakly dominates unmediated negotiation, increasing the flow of information between the principal and the agent. This paper tests these predictions using mandatory mediation policies for mortgage foreclosures, and examines third party mediation as a mechanism to overcome borrower and lender information asymmetry problems. Based on a difference-in-differences analysis of loans in four metropolitan statistical areas before and after at least one sub-jurisdiction imposed mandatory mediation and one did not, mediation policies appear to increase the rate of mortgage loan modifications. This is suggestive that information problems exist and that mediation partially addresses these problems.

Keywords: Mortgage Foreclosure; Mediation

*Contact: J. Michael Collins, Assistant Professor, Department of Consumer Science, University of Wisconsin-Madison, 1305 Linden Drive Madison, WI 53706. Email: jmcollins@wisc.edu. Office: 608-616-0369

†Department of Economics, University of Wisconsin-Madison, Email: curban@wisc.edu

‡We would like to thank Alon Cohen and Chris Bailey for helpful information on the institutional aspects of the programs, as well as Karl Scholz, Chris Taber, and Morris Davis for helpful comments on the paper.

1 Introduction

In the aftermath of the housing boom of the 2000s, the subsequent housing and labor market recession has resulted in millions of households in the US entering into bankruptcy and foreclosure (Brown et al. 2010; Foote et al. 2008). A residential mortgage that enters into foreclosure can prove costly for lenders (Gerardi and Li 2010; White 2009). Maintaining and re-selling a property can be time consuming and costly, as legal fees and administrative costs mount. It would seem likely lenders would be willing to negotiate with borrowers for new repayment terms to avoid foreclosure. Yet the rate at which lenders are modifying loans is low (Adelino et al. 2009; Agarwal et al. 2011b, 2010). Consumers frequently fail to take any action to seek alternatives to the repossession of their home when faced with an imminent foreclosure (Cutts and Merrill 2008). Those borrowers who do make contact with lenders have incentives to overstate their ability to repay the loan with new (cheaper) terms. Lenders may be unable to assess a borrower's financial condition, or willingness to pay in the future. This information asymmetry could be a partial explanation for the low rate of formal loan mortgage modifications.

One potential mechanism to address this information failure is the policy of an automatically scheduled third-party out-of-court mediation session. Mediation sessions could provide the lender with clearer information on the borrowers ability to pay, which could result in higher rates of mortgage contract modifications. With more detailed information on the borrowers current financial status, the lender can more accurately compute the expected payoff from a future stream of payments from a modified mortgage contract. This should result in an increase in the number of modifications compared to the case of no mediation (where less, no, or inaccurate information is conveyed).

We draw upon and test conclusions from the theoretical literature studying mediation, where mediated negotiation weakly dominates unmediated negotiation; this applies in cases where the principal (lender) has decision-making power and is uninformed, and the informed agent (borrower) has no power in the decision, in our example for a modification in contract terms (Mitusch and Strausz 2005; Goltsman et al. 2009). The benefits of mediation depend on the ex-ante probability of conflict between the borrower and the lender, and we find that on the margin, mediation increases the probability of a formal change in the terms of the mortgage contract.

To test these predictions, this paper exploits a natural experiment where judicial courts administering foreclosures implemented mandatory mediation legislation, while other courts in the same MSA did not. This provides a unique environment to study the ability of mediation to reduce the information asymmetry between borrowers and lenders, potentially resulting in more loan modifications. Three courts in Florida, as well as one in Pennsylvania, implemented a mandatory mediation policy where mediation sessions were automatically scheduled with the initial mailing of the foreclosure decision. In Florida, borrowers received up to 3 out-of-court mediation sessions. In Philadelphia, pro-bono lawyers served as mediators to discuss options with the lender and borrower outside of the courts. This provides us with an ample setup to, for the first time in the economics literature, empirically test the benefits of mediation in a market with asymmetric information.[1]

This analysis is unique to the mortgage literature in that there is an exogenous change in the local procedures of the courts, allowing us to observe loans before and after being subject to mediation, as well as similar loans not subject to mediation in the same housing market.[2] To empirically test the possibility that asymmetric information limits the amount of renegotiated loans, we use a difference-in-differences strategy, comparing loans within court districts that implemented mandatory mediation to loans in the same MSA for which courts did not implement mandatory mediation legislation both pre and post the initiation of the policy.

Using monthly loan performance data, we show that mandatory mediation increased the probability of lenders modifying mortgages in areas of Florida and Pennsylvania. These results are robust to a variety of tests, including reducing the sample period and removing all loans that may have been affected by federal mortgage modification policies. In fact, mediation leads to more modifications, a finding that supports the prospect that information asymmetry between borrowers and lenders is at least partially responsible for low rates of formal loan modifications and the persistence of foreclosure repossessions.

This remainder of the paper is organized into four sections. The following section describes information barriers and discusses the potential role of mortgage mediation, where we review the

[1] See Kydd (2006), Wall et al. (2001), Wall and Lynn (1993), Carnevale and Pruitt (1992), Bercovitch and Jackson (2001), Umbreit (1993), Smith (1995) for examples of applied work in other fields that have studied mediated negotiations in other contexts. Brown and Ayres (1994) also study the role of mediators in controlling the flow of information in alternative dispute resolutions.

[2] Voluntary mediation policies have a selection problem where borrowers who choose to work with a mediator are different in unobservable ways.

theoretical implications of mediation in other contexts. This section also explains how we exploit variation in mediation legislation to test the theoretical implications found in previous literature, as well as discuss the institutional setup of the program of study. Section 3 offers an overview of the data, and Section 4 discusses the empirical methods used to study the relationship of the legislation, along with the findings and robustness checks. Section 5 provides concluding remarks, implications and a brief discussion of future research.

2 Background

The theoretical literature shows that mediation, in certain contexts, improves information transmission. We suggest an application of this literature to the mortgage market, where we examine the probability of a renegotiation of mortgage contracts. The imposition of mediation policies by courts in Florida and Pennsylvania presents natural experiments we exploit for our analysis.

2.1 The Role of Mediation

In a legal review Levitin (2009) describes mediation as a form of 'procedural requirement to encourage consensual workouts.[3] Mediation, or conciliation, involves each party in a case meeting with a neutral third party appointed by the court in an attempt to resolve a dispute.[4] The goal of the mediator is to find a mutually agreeable solution for the parties.

Two recent theoretical papers (Mitusch and Strausz 2005; Goltsman et al. 2009) provide insight on the role of mediation. These papers describe a setting which is directly comparable to the setting exposited in the mortgage market. Both Goltsman et al. (2009) and Mitusch and Strausz (2005) study an asymmetric information framework, where the principal (lender) ultimately has the power in the final decision, but he also has limited information; in our setting, this information is the borrower's ability to pay–or why the borrower missed payments. The agent (borrower) has this information, but ultimately has no power in the final decision. We consider the final decision in the mortgage market to be the potential for a formal loan modifi-

[3]Mediation is common as a form of alternative dispute resolution, but not commonly used for home mortgages. The concept of mediation for mortgages dates back at least to the 1980s, where courts in Iowa and Minnesota required debtors and lenders to conduct an out-of-court settlement meeting before formal foreclosure proceedings could enter the court.

[4]Mediation differs from arbitration in that the solution proposed by the mediator is non-binding.

cation.[5] The mediator helps the agent (borrower) to reveal the proper amount of information in order to reach an agreement (Mitusch and Strausz 2005). These papers find that mediators help parties disseminate information that would not be revealed in their absence, but the ex ante probability of conflict must be within a certain range in order for mediation to be beneficial. More specifically:

1. If the level of conflict between the principal and agent are low, information dissemination increases with a mediator (Mitusch and Strausz 2005), but the outcomes from mediation and unmediated negotiation are similar (Goltsman et al. 2009).

2. If there is a moderate level of conflict between the principal and agent, without a mediator, the principal cannot get the agent to reveal pertinent information. However, with a mediator, revelation is feasible and mutually desirable (Mitusch and Strausz 2005).

3. If the conflict between the two parties is high, the mediator has no value and provides no additional information as compared to unmediated negotiation (Mitusch and Strausz 2005).

If we again apply these principles to the mortgage market, we expect that cases 1 and 3 above will provide no difference in outcomes pre and post mandatory mediation legislation. That is, if the borrower is unable to pay in the future and there is a high level of conflict between the incentives of the borrower and those of the lender, there is likely to be no agreement in terms of a contract modification regardless of whether or not mediation sessions exist. Similarly, if the borrower and the lender have a low level of conflict, they may come to the table anyway, and a modification will be reached regardless of the mediation session. Nonetheless, when there are moderate degrees of conflict, lenders may be more likely to approve loan modifications due to a reduction in information asymmetry. Borrowers seeking a modification have incentives to mislead lenders or engage in 'cheap' talk regarding their willingness and ability to pay (Herzenstein et al. 2011; Farrell and Rabin 1996). The borrower's goal is to convince the lender to reduce his/her payments as low as possible, but still signal they will follow through on payments. For example, while lenders can observe past tax returns and paystubs, a borrower's future income is largely based on knowledge only the borrower has and the lender cannot easily verify. Lenders always

[5]We recognize a decision to foreclose is a terminal outcome of interest, but conditional on delinquency, modifications are often a vehicle through which to cure a behind loan.

rely on soft information beyond loan documents (Agarwal et al. 2011a). The imposition of mediation in a jurisdiction is likely to change the quality and quantity of soft information not readily downloaded from a credit bureau file. While we do not observe the ex-ante level of conflict between the borrower and lender, if a non-negative number of loans fall within this "moderate conflict" range, we expect there to be an increase (although not very large in magnitude) in the probability of a formal modification of contract terms in areas after mandatory mediation legislation is implemented relative to nearby areas not subject to mediation.

In this paper, we test the implications of the theoretical literature, where we expect to see an increase in modifications on the margin once mandatory mediation laws are implemented. The following section describes the specifics of the foreclosure process and the mediation legislation implemented within two states.

2.2 Modification Efforts and Information Barriers

The renegotiation of distressed loans is not uncommon in commercial and other forms of lending. Indeed, there is some history of lenders negotiating with mortgage borrowers dating at least to the Great Depression (Ghent 2011). The issue of mortgage renegotiation had been of little policy or industry concern until the precipitous drop in home values in the 2000s and rapid increase in mortgage defaults. But even in a context of record levels of foreclosures, Agarwal and colleagues (2010) find that only 15 percent of seriously troubled mortgages enter into any formal modification or informal loss mitigation program within six months of becoming delinquent. Cordell and colleagues (2009) also present evidence that modifications are not occurring at rates which might be predicted given the extent of defaults and the potential losses to lenders and borrowers from foreclosures.

There is a high degree of heterogeneity in mortgage default by geographic location, initial purchase price and timing, loan terms and home equity, and unemployment trends (Foote et al. 2008). It is difficult for lenders to gauge which borrowers are likely to self-cure versus those requiring more intensive interventions (Adelino et al. 2009); this uncertainty discourages lenders from pursing loan modifications. There also appears to be wide variation in the rate of mortgage modifications across loan servicers, even controlling for observable differences in risk factors (Agarwal et al. 2011b; Eggert 2007). This suggests institutions may use different

calculations for the net value of foreclosures versus modifications, perhaps even implying some firms leave potential economic gains on the table.

Benmelech and Bergman (2008) describe the airline industry and suggest that re-negotiation by firms under distress is common and economically efficient. The threat of default is sufficient such that lenders perceive the expected value of a workout to be preferable to the greater losses of default. The pattern for corporate debt may not be an ideal model for mortgage debt held by consumers, however. Information is more transparent for firms, especially publicly traded firms releasing regular reports. Mortgage debtors have private information on their ability to pay and future prospects that lenders cannot observe.

2.3 Implementation

This study is based on mandatory mediation programs in Florida and Pennsylvania, two judicial foreclosure states.[6] In each area, one court has implemented a policy whereby an administrator schedules a third-party mediation upon the initiation of foreclosure—and the lender cannot proceed with the foreclosure suit unless the borrower fails to accept the offer to participate in the out-of-court mediated session. As of 2011, 11 states and the District of Columbia have some form of statewide foreclosure mediation, and at least 6 local court-districts had some form of mediation program. We found only four programs that required mediation by 2010, with the vast majority offering a mediation option only upon borrower request (Rao et al. 2010, 3d ed., 2011 Supplement).[7] According to a report from the Center for American Progress (2010), areas with automatic programs have participation rates of about 75% of eligible homeowners. In other areas with opt-in programs, where courts only inform homeowners that mediation is available but do not require it, participation is only about 21%.[8]

[6] A judicial foreclosure is a foreclosure supervised by the court. The lender commences foreclosure by a lawsuit against a borrower who defaults on their mortgage contract (Black and Garner 1999). Just like any other lawsuit, the lender must file a complaint and give notice to the borrower. After the borrower receives notice that a lawsuit has been commenced against them, they must file an answer detailing why the foreclosure should not be ordered. The court sets a hearing date, and ideally, both parties appear before the court to argue their position. If the court rules in favor of the lender, then the court issues an order that allows the lender to sell the mortgaged property.

[7] We explored other states with mandatory mediation, including New York, Connecticut and Providence, RI. The New York program began on September 1, 2008, but only for 'high cost' loans, and expanded to all loans January 1, 2010. However, it is hard to identify effects given the late time frame of the expanded mediation. Connecticut has mandatory mediation statewide, but there are no obvious MSA boundaries to define a useful comparison area. Finally, the city of Providence mandated mediation, but the program was challenged in court and only recently implemented. Thus, all three of these potential areas are omitted from our study.

[8] See Cohen and Jakabovics (2010) for more on the state specific policies.

Florida started a mandatory mediation program in only three areas: the 1st Judicial Circuit (Okaloosa), the 11th Judicial Circuit (Miami-Dade),[9] and the 19th Judicial Circuit (Okechobee) in response to a recommendation from a foreclosure task force. With the help of the Collins Center for Public Policy, a nonprofit organization, this pilot program began in May 2009. One hundred mediators were trained by the Collins Center in standard mediation procedures. The court automatically set mediation dates and informed the borrower when the foreclosure was filed by the lender. The court allows the mediator to charge the lender a mediation fee of (up to) $750 (the fee can be recouped as a financial judgment on the borrower if the process fails, however).

Three of Florida's courts had mandatory mediation programs in May 2009.[10] Courts are generally designed to serve a county; thus any metropolitan statistical area (MSA) with more than one county will have multiple courts represented. Each of the courts in Florida implementing mediation were located in MSAs with counties not subject to mandatory mediation, which gives us a natural experiment setting. For example, though Miami-Dade county had mandatory mediation starting May 2009, the remainder of the Miami MSA (Broward and Palm Beach Counties) is outside of the 11th Circuit Court and not subject to mediation. A map depicting the location of mediation and comparison areas can be found in Figure 1. The three Florida county comparisons by MSA are described below:

1. Pensacola-Ferry Pass-Brent, FL MSA:

   Treatment 1st Legislature: Escambia, Okaloosa, Santa Rosa, Walton Counties
   Control Holmes, Washington, Bay, Calhoun, Gulf Counties

2. Miami-Fort Lauderdale-Miami Beach, FL MSA:

   Treatment 11th Legislature: Miami-Dade County
   Control Broward, Palm Beach Counties

3. Deltona-Daytona Beach-Ormond Beach, FL MSA:

   Treatment 19th Legislature: Indian River, Martin, Okeechobee, St. Lucie Counties
   Control Seminole, Volusia, Brevard Counties

[9]The 11th Circuit Court (part of the Miami MSA) put its program into action on May 1, 2009 ("Establishment of 11th Circuit Homestead Access to Mediation Program 'Champ' For Case Management of Residential Foreclosure Cases in the Eleventh Judicial Circuit Court of Florida," Case. No. 09-1, Administrative Order No. 09-08, Fla. 11th Jud. Cir. Apr. 9, 2009).

[10]These areas were chosen based on the location of the Collins Center, not by demand of the service.

To verify that our findings are not specific to Florida, we examine an additional program with a similar natural experiment in Pennsylvania. The Philadelphia Metropolitan Division of the Philadelphia-Camden-Wilmington MSA includes six counties in the state of Pennsylvania (Philadelphia, Berks, Bucks, Delaware, Chester and Montgomery), two of which implemented foreclosure mediation. On April 16, 2008, The 1st District Court of Philadelphia County issued a mediation order ("Residential Mortgage Foreclosure Diversion Pilot Program," No. 2008-01, 2008). Mediation is mandatory, scheduled automatically once the foreclosure is initiated.[11]

In contrast to mandated mediation, Bucks County, also located in the Philadelphia MSA, implemented a voluntary foreclosure mediation program on August 1, 2009 ("In Re: Mortgage Foreclosure Diversion Program;" Admin. Order No. 55, 39 Pa. B. 3321, 2009). When the notice of foreclosure is sent to the borrower it also includes a notice that the borrower is entitled to mediation. To initiate mediation the borrower must call a phone number designated by the court for assistance. If mediation is scheduled, then a borrower is required to meet with a housing counselor before the conference to ensure he or she has the required documents and paperwork.[12] If the borrower does not opt in, the foreclosure moves forward as usual. A map depicting mediation and comparison areas can be found in Figure 2. The list below describes the treatment and control areas:[13]

- Philadelphia

  Treatment Philadelphia County
  Control Berks, Delaware, Chester and Montgomery Counties

3 Data

The data for this study were drawn from a nationwide database on home mortgage loans administered by Corporate Trust Services (CTS), a subsidiary of Wells Fargo Bank. The data is comprised of individual monthly loan payments for mortgages initially made by more than 100 different lenders. These lenders sold each mortgage contract to investors as part of mortgage

[11]However, in Philadelphia, the city had a moratorium on foreclosure filings in April-March of 2008, just before mandatory mediation came into action. In the pre-policy period, there are more filings than in the post mandatory mediation period, since the moratorium caused a slight backlog of foreclosure filings, though it only lasted for 6 months.

[12]The cost of mediation is capped at $400 in Philadelphia, split between the borrower and lender.

[13]Since Bucks County had an optional mediation program, we omit this from our analysis.

backed securities. The CTS is a report to investors on the payments of principal and interest on each loan underlying these securities. The CTS only captures loans that are privately securitized, meaning they were not backed by government sponsored agencies such as Freddie Mac and Fannie Mae (or Ginnie Mae). A majority of the loans in the CTS have characteristics consistent with industry standards for subprime mortgages such as lower relative credit scores and a higher proportion of Adjustable Rate Mortgages (ARMs). The data are made up of monthly remittance reports from more than 80 different loan servicers, including the loan number, payment history, zip code, original and current loan balance, and information on whether the loan contract has been permanently modified.[14]

White (2009) offers some analysis of the quality of these data, showing that these data include loans from seven of the top ten subprime mortgage lenders at the peak of that market in 2006. Quercia et al. (2009) also assess the CTS data quality, suggesting that the lenders/servicers of loans in the CTS data may have different incentives than lenders who did not sell loans into the secondary market–namely that these firms have 'no skin in the game.' This might result in less aggressive efforts to modify loans. These data do not observe all loans each borrower or property may have. Thus, borrowers may have gotten modifications designated for a loan outside the CTS dataset.

Two states are used in this analysis: Pennsylvania and Florida. Within each state, the counties in the four relevant MSAs (Miami, Pensacola, Daytona, and Philadelphia) are selected. Only owner occupied, single family homes where the mortgage is the primary or first position lien are included.[15] Loans that are prepaid, modified or taken through foreclosure in the first period of observation (one year prior to the policy initiation) are also excluded. In order to account for demographic characteristics of borrowers in some specifications, we have matched these data to the Home Mortgage Disclosure Act (HMDA) to provide borrower income and race at origination. We are able to match approximately 52 percent of records, and thus we use this data only as a robustness check as it limits our sample size.

The data are organized as a monthly panel with 25 periods, including observations from one

[14]Servicers flag loans with a modification indicator signifying a formal permanent contract change, rather than a temporary or trial modification or some other form of forbearance. This is an advantage over other datasets on loan payments where modifications are only observed through changes in payments, term or interest rate.)

[15]Piskorski, Seru, and Vig (2010) find that securitized mortgages are less likely to be modified, as are second lien loans.

year before and one year after the policy change. We argue that limiting the sample allows us to better isolate the effect of the specific policy. Each observation is coded as being located in a county that offers mediation using a dichotomous indicator, and is also coded by date (monthly) beginning after mediation was implemented in that MSA. Our dependent variable focuses on alternatives to foreclosure through the use of a loan modification, meaning a formal change in the term, balance or rate. This indicator is zero for all periods until the modification and one for all periods after. We define modifications as formal, permanent legal changes to the mortgage contract. Modifications are recorded by the servicer only after any trial periods are completed and the terms are finalized. We only observe permanent modifications of the mortgage contract as reported by the servicer to the investor.

Table 1 presents summary statistics for the areas we study, where we first look at all of the areas in Florida we study, and then separately study Miami versus Pensacola and Daytona. Finally, Column (4) looks at the descriptives statistics in Philadelphia. First, we see that the baseline rate of modifications is between 6 and 8 percent in Florida, and even lower, about 2 percent in Philadelphia. Delinquency is quite common, especially in Florida, where between 30 and 40 percent of loans have been delinquent within the last six months, as are adjustable rate mortgages (over 65% in all areas). The raw data also shows us that when controlling for the current balance of the loan and income of the applicant, the distribution is skewed, where the median income (approximately $80,000 in each area) is much lower than the mean. Thus, we are careful to log both income and the current balance when we include these in our specifications. Most applicants (around 60%) are male, and Miami has the highest concentration of minorities of the three areas with about 70%.

4 Empirical Strategy

Mandatory mediation has the potential to offer lenders clearer information that increases the probability the lender will approve a formal modification of the mortgage contract. As explained above, we argue that foreclosure is not necessarily the best outcome for the lender, but the lender cannot easily distill the borrower's true intentions. Mandated mediation may reduce the uncertainty for the lender in terms of the borrower's willingness and ability to pay. Mediation allows borrowers to improve and filter the information they transfer to the lender. In

cases where there is a moderate amount of conflict between the borrower and the lender ex-ante, this improves the probability of coming to a resolution in terms of a formal modification of the interest rate, current balance, or term structure. As uncertainty is reduced in some courts by the prevalence of mediation, lenders will be more likely to approve modifications. We predict higher rates of modifications occurring in counties with mandatory mediation after the program began relative to neighboring counties in the same MSA.

The opportunities for lender or borrower strategic responses prior to the imposition of this policy seem to a minor issue. Lenders may have been knowledgeable about the start of automatic mediation, and had incentives to file and foreclose before mediation programs began. Empirically, however, we do not see a spike in filing notifications before mediation began for the treatment or control areas, as is demonstrated in Figure 3. Additionally, it seems unlikely borrowers were compelled to default in anticipation of this mediation program. A borrower eligible for mediation prior to his foreclosure filing had defaulted months earlier, before the announcement of the program. It also seems unlikely a borrower would miss payments simply for the opportunity to have a mediation session prior to a foreclosure hearing. Borrowers can always decide not to show up for mediation if the costs of mediation are perceived as excessive. The timing of a foreclosure filing is ultimately up to a lender in any case.

We employ a difference-in-differences model along the lines of Mayer and colleagues (2011) in their analysis of the Countrywide settlement. We use an OLS linear probability model with interactions. In the nonlinear difference-in-differences specification, the coefficient on the interaction is the treatment effect–that is loans in the binding area in the post-mediation period.[16] Equation 1 displays the specific empirical model we estimate. We compare the differences pre and post mediation for counties in MSAs with mediation programs to counties without mediation programs within the same MSA, including county level fixed effects γ_c. Assuming that the unobserved changes in the housing market before ($\text{Post}_{i,t} = 0$) and after ($\text{Post}_{i,t} = 1$) the policy change follow the same pattern for loans in the treatment and control areas, and the coefficient of interest for the diff-in-diff will be β_2, which captures the increase in modifications from being in a mandatory mediation county post mediation, compared to the average modifications in the absence of the program. This specification also includes month fixed effects to control for time

[16] As Puhani (2008) describes, this treatment effect is the conditional expectation of the observed outcome minus the cross difference of the conditional expectation of the potential outcome without treatment.

variant unobservables, or a rise in the trend towards modifications over time. We also include MSA-level fixed effects in our primary specification, though we look separately at Miami and the remainder of Florida to ensure that there are no peculiarities to those areas. In alternate specifications, we include controls for demographics and specifics of the loan in $\boldsymbol{Z}_{i,t}$, though we do this only in a few specifications since it limits our sample to those loans that could be matched to data from the Home Mortgage Disclosure Act (HMDA). In this, we control for applicant characteristics such as sex, minority status, income at the time of application, FICO score at origination as well as loan characteristics such as the current balance of the loan, dummies for delinquency in the last 3 and 6 months, the loan-to-value ratio at origination and an adjustable rate mortgage indicator (ARM).

$$Y_{i,t} = \beta_0 + \beta_1 Post_{i,t} + +\beta_2 Treatment_{i,t} + \gamma_c + \delta_t + \boldsymbol{\phi Z}_{i,t} + \eta_{i,t} \tag{1}$$

Table 2 displays the results from the initial diff-in-diff, where we find that in all areas, the rate of modifications increases after the imposition of mandatory mediation laws, when compared to the modification rate in the same MSA that was not exposed to these laws. Consistent with the predictions from the theoretical literature, we find that on the margin, there is a small increase in the rate of formal loan modifications, as we expect that when the rate of conflict between the borrower and lender is moderate, there should be an increase in the rate of formal contract negotiation. Column (1) shows that throughout Florida, there is approximately a 0.5 percentage point increase in the rate of modifications, which is a modest effect size but relatively large when compared to the mean modification rate, 7%. To be sure that Miami is not driving this result, as it is the largest MSA of the three in the sample, we re-estimate this effect using only Miami in Column (2) and find a similar effect, a 0.4 percentage point increase off of a mean modification rate of 6.5%. In Column (3), we find that dropping Miami yields a slightly higher increase in the rate of modification of about 1 percentage point but from a slightly higher mean modification rate of 7.7%. Columns (4)-(6) show that when we control for individual variables at the time of application as well as loan characteristics, we obtain a similar effect. The sample is reduced in these specifications, as the controls rely on a merge with HMDA.

Bertrand, Duflo and Mullainathan (2004) warn that using diff-in-diff over long panels to

measure serially correlated outcomes will result in a false reduction in variance and result in increased statistical power. This increased statistical power will bias towards statistically significant findings even in the absence of true effects. Our analysis avoids this issue to some extent by using simple pre-post mediation periods as an identification strategy rather than multiple event dates in the same model. In addition, we truncate our period to one year before and after the policy was implemented and include robustness checks limiting the pre and post periods to 6 months.[17]

When we reduce the sample to 6 months pre and post policy implementation (Table 3), our results remain similar, though the point estimates are slightly smaller in magnitude, and the standard errors are larger. This is especially true in Columns (4)-(6) in Table 3, where we include additional controls, which further reduces the sample to loans that merge with the HMDA data. Since the baseline modification rates are low to start with and the sample reduction reduces the power of our estimates, we expect the larger confidence intervals. However, the similar magnitude of point estimates shows that the effect is robust to using smaller samples.

It is important to point out that Florida had over 369,000 foreclosures starts in December of 2008, the third highest mortgage delinquency rate in the nation, and most foreclosure starts. The state's borrowers potentially have high demand for mediation services. Thus, the effects found in Florida may be an upper bound for what we could expect in other judicial states in the remainder of the country.

4.1 HAMP

In March 2009, the federal Making Home Affordable Program (HAMP) was launched. The goal of the program was to stimulate servicers and lenders to offer more loan modifications (Mayer et al. 2009). Servicers who modify eligible mortgages for borrowers in default or that are at-risk of default can receive financial payments from the government.[18] Under the program the servicer reduces monthly payments to 38 percent of income, and then receives subsidies from the HAMP to reduce payments to 31 percent. The servicer analyses the net present value of the expected costs of loan modification versus a foreclosure. The timing of HAMP and the

[17] Cameron et al. (2008) pose the same concern for short panels, and thus we check that our results are robust to calculating standard errors with the bootstrapping method they propose. We do not present the bootstrap results but the results are nearly identical to the tables presented.

[18] HAMP loans are first-lien loans on owner-occupied properties only

mediation policies might be problematic in that both were launched around the same time. HAMP required lenders to use more standardized procedures for loan modifications and may have reduced uncertainty around 'hard' information lenders use in evaluating modifications. We think it is unlikely HAMP changed the incentives for borrowers to engage in 'cheap talk' or changed the level of conflict between lenders and servicers enough to shift from the context of mediated settlements under moderate conflict. Also, HAMP was national in scope and would impact counties with mandatory mediation and comparison counties in similar ways.

There is no direct identification that a modification resulted from the HAMP program in our data. Note that we do not observe so called trial modifications common under HAMP. Therefore, we restrict an additional sample to exclude loans with balances $<$ \$729,750, the maximum loan amount under HAMP. Table 4 shows the results for these specifications, where we drop all loans that could have potentially received a HAMP modification. In all 6 Columns, our results remain robust to those found in Table 2. Finally, we reduce the sample by removing potential HAMP loans to investigate only the 6 months pre and post policy implementation in Table 5 to verify that our result is robust to this shorter time frame. Indeed, we find a similar effect as that in Table 3, where the magnitudes are similar, as are the standard errors. With this larger reduction in sample size, we lose additional power, though the results remain compelling that on the margin, mediated negotiation weakly dominates unmediated negotiation in its ability to provide more information and formal contract negotiations in cases where there is a moderate level of conflict between the borrower and the lender.

4.2 Heterogeneity in Results by Zip Code Demographics

Next, we consider potential heterogeneity in mediation, where we look precisely at areas where we expect to find the greatest and smallest effects due to mediation. In particular, we test if areas with a larger population of minorities have greater benefits from mediation in terms of loan modifications. Prior studies show minority borrowers are less aware of mortgage terms and conditions (Bucks and Pence 2008). We also examine differential effects by area income level to test if areas with more relatively higher educated borrowers are more or less likely to benefit from mediation than those with mean lower education attainment.

Table 6 shows these differential results based on zip-code level characteristics by race and

income. We first display the baseline effects, using the full sample including all MSAs in the previous analysis. The left and right panel replicate the previous results with and without loan-level controls respectively, where in each case the first category is the complement of the second. Areas with fewer minorities ($< 25\%$) tend to exhibit a smaller (and statistically different) effect of mediation, though this does not hold up when we control for individual level demographics. Turning to area education level, areas with a higher relative concentration of educated residents ($>25\%$ of population with a college degree) show larger effects of mediation that are statistically different than those areas with fewer college graduates. Once we add individual-level controls, the magnitude of the effect is almost double the size of the baseline effect. Regarding area income level, we find that loans in low income (the bottom quartile, or $<$ \$35,000 median household income) zip codes have no response to mediation, while those in higher income areas have a statistically different and larger response.

These findings corroborate the predictions from the prior literature, where only marginal loans amongst people who can pay and show up should and do see a response to mediated negotiation. These high-educated, higher income areas contain loans where the information provided in mediation allows lenders to comfortably modify the formal terms of loan contracts, when in the absence of mediated negotiation, this would not be the case.

4.3 Philadelphia

Table 6 presents similar results for Philadelphia, where Column (1) shows that in Philadelphia county, when compared to the rest of the Philadelphia MSA, mediation legislation increased the rate of modifications by 1.9 percentage points from a 1.9% baseline. This suggests a doubling in formal loan modifications after mediation was initiated in the county relative to other counties in the MSA. The effect is similar when we control for individual level and loan level characteristics in Column (3) with a 1.4 percentage point estimated effect. In Columns (2) and (4) we again restrict the sample 6 months pre- and post- mediation policy. Here we find that the size of effects is cut in half, though they remain statistically significant in all specifications.[19] This is an assuring result due to the pre-HAMP timing of mediation and the fact that the housing market in Philadelphia was under less duress than experienced in Florida's severe housing

[19]HAMP is not binding in this sample, as it began in April 2009, one year after mediation began in Philadelphia.

recession. The Philadelphia program was designed quite differently than in Florida. Housing counseling was more broadly integrated before and after mediation. The overall process was more institutionally intensive than that in Florida. Pro-bono lawyers would hold sessions with the borrower before the mediation session with the lender, perhaps resulting in clearer information being transfered (arguably this could also increase the borrower's knowledge of the process and the incentive to engage in cheap talk). A priori it is not clear if we would predict larger or smaller effects in Philadelphia, but the direction and magnitude are consistent with the prior results.

5 Conclusion

A lender facing a borrower in default has a limited set of options. The demands of investors are to maximize the net present value of the loan. Foreclosing can be costly, but a modification might add to those costs if not well calibrated to the borrower. The borrower has incentives to offer the lender only information skewed towards obtaining the lowest possible monthly payment (and/or principal reduction) while also suggesting positive intentions to repay under new loan terms in the long run. This presents a situation where a negotiation can improve the welfare of both parties, but information asymmetry exists such that lenders cannot easily gauge the borrower's level of cheap talk. Mediation by a third-party might result in better and/or more information transfer. Given a mortgage default dispute likely represents a moderate level of conflict, mediation has the potential to result in more mortgage modifications. In none of the specifications presented did we find that mediation reduces the rate of formal loan modifications, and in most models mandated mediation appears to boost modifications, in some cases significantly.

One implication of this finding is that information asymmetry is at least one cause of friction in the mortgage market that could be dragging down loan modification rates. Given the revealed preference at the federal level and among the mortgage industry for loan modifications over other options (such as special bankruptcy provisions, loan forgiveness, public refinancing programs, direct borrower subsidies or income support), the fact that information problems are partially responsible might suggest a need for greater attention to third-party out-of-court mediators in judicial states and pre-foreclosure counseling in trustee foreclosure jurisdictions. Other

mechanisms might be explored to better reveal borrowers' willingness to pay and abide by new loan terms.

Within a year of the start of the Florida mediation programs described here, the Florida State Supreme Court issued an administrative order to implement a statewide mediation program (Order AOSC09-54, 2009).[20] The court stated its goals and reasons for implementing mediation included "open[ing] communication and facilitat[ing] problem-solving" between borrowers and lenders. To the extent mediation results in modifications that result in regular paying loans, mediation could conserve judicial resources by reducing the number for foreclosure hearings. The costs of the policy are relatively low—a fee for the mediator, delays in the foreclosure process and opportunity costs of time for all parties involved—and the potential benefits are significant. Borrowers potentially retain their homes, at the very least delaying the costs of default. Lenders avoid court proceedings and the costs of repossessing a home that will require maintenance until resale. Given losses ranging from 40 to 60 percent of the loan value, even a small number of performing modified loans would be valuable.

Clearly more research is needed on the performance of mediated modifications relative to unmediated modifications before such a conclusion can be asserted. Beyond the reduction in information asymmetry and increase in soft information to lenders, out-of-court mediation may induce reciprocity norms and increase payback (Wilkinson-Ryan 2011). There may be a basis to predict not only more contract negotiations on average in areas with mandated mediation—due to a reduction in lender uncertainty—there may be an improvement in repayment rates as well.

The application of mediation appears to be well positioned in the theoretical literature and based on this empirical test in terms of increasing loan modifications. To the extent renegotiation of loan terms is a policy goal, the imposition of mandatory out-of-court mediation may be a useful strategy.

[20]None enacted mandatory mediation until late 2010, and after the period of analysis in this study.

References

Adelino, Manuel, Kristopher Gerardi, and Paul S. Willen, "Why Don't Lenders Renegotiate More Home Mortgages? Redefaults, Self-Cures, and Securitization," *Federal Reserve Bank of Boston*, 2009, *No. 09-04.*

Agarwal, Sumit, Ambrose. Brent W., Souphala Chomsisengphet, and Chunlin Liu, "The Role of Soft Information in a Dynamic Contract Setting: Evidence from the Home Equity Credit Market," *Journal of Money, Credit and Banking*, 2011, *43* (4), 633–655.

_ , Gene Amromin, Itzhak Ben-David, Souphala Chomsisengphet, and Douglas D. Evanoff, "Market-based Loss Mitigation Practices for Troubled Mortgages Following the Financial Crisis," *Working Paper*, 2010.

_ , _ , _ , _ , and _ , "The Role of Securitization in Mortgage Renegotiation," *Journal of Financial Economics*, 2011, *Forthcoming.*

Benmelech, Efraim and Nittai K. Bergman, "Liquidation Values and the Credibility of Financial Contract Renegotiation: Evidence from U.S. Airlines," *Quarterly Journal of Economics*, 2008, *123(4)*, 1634–1677.

Bercovitch, Jacob and Richard Jackson, "Negotiation or Mediation?: An Exploration of Factors Affecting the Choice of Conflict Management in International Conflict," *Negotiation Journal*, 2001, *17*, 5977.

Bertrand, Marianne, Esther Duflo, and Sendhil Mullainathan, "How Much Should We Trust Differences-in-Differences Estimates?," *Quarterly Journal of Economics*, 2004, *119* (1), 249–275.

Black, Henry Campbell and Bryan A. Garner, *Black's law dictionary*, 7th ed., St. Paul, MN: West Group, 1999. Bryan A. Garner, editor in chief. 27 cm.

Brown, Jennifer G. and Ian Ayres, "Economic Rationales for Mediation," *Virginia Law Review*, 1994, *80*, 323–402.

Brown, Meta, Andrew F. Haughwout, Donghoon Lee, and H. Wilbert Van der Klaauw, "The Financial Crisis at the Kitchen Table: Trends in Household Debt and Credit," *SSRN eLibrary*, 2010.

Bucks, Brian K. and Karen Pence, "Do Borrowers Know their Mortgage Terms?," *Journal of Urban Economics*, 2008, *64*, 218–233.

Cameron, Colin A., Douglas Miller, and Jonah B. Gelbach, "Bootstrap-Based Improvements for Inference with Clustered Errors," *The Review of Economics and Statistics*, 2008, *90* (3), 414–427.

Carnevale, Peter .J. and Dean .G Pruitt, "Negotiation and mediation," *Annual Review of Psychology*, 1992, *43*, 531–582.

Cohen, Alon and Andrew Jakabovics, "Now We're Talking: A Look at Current State-Based Foreclosure Mediation Programs and How to Bring Them to Scale," *Center for American Progress*, 2010, *June.*

Cordell, Larry, Karen Dynan, Andreas Lehnert, Nellie Liang, and Eileen Mauskopf, "The Incentives of Mortgage Servicers: Myths and Realities," *Uniform Commercial Code Law Journal*, 2009, *41*, 347–374.

Cutts, Amy C. and William A. Merrill, *Interventions in mortgage defaults: Problems and practices to prevent home loss and lower costs*, Washington, DC: Brookings Institution Press.,

Eggert, Kurt, "Comment: What Prevents Loan Modifications?," *Housing Policy Debate*, 2007, *18(2).*

Farrell, Joseph and Matthew Rabin, "Cheap Talk," *The Journal of Economic Perspectives*, 1996, *10* (3), 103–118.

Foote, Christopher, Kristopher S. Gerardi, and Paul Willen, "Negative Equity and Foreclosure: Theory and Evidence," *Journal of Urban Economics*, 2008, *64*, 234–245.

Gerardi, Kristopher. and W. Li, "Mortgage foreclosure prevention efforts," *Federal Reserve Bank of Atlanta Economic Review*, 2010, *95*, 1–13.

Ghent, Andra C., "Securitization and Mortgage Renegotiation: Evidence from the Great Depression," *SSRN*, 2011.

Goltsman, Maria, Johannes Horner, Gregory Pavlov, and Francesco Squintani, "Mediation, Arbitration, and Negotiation," *Journal of Economic Theory*, 2009, *144*, 1397–1420.

Herzenstein, M., S. Sonenshein, and U.M. Dholakia, "Tell Me a Good Story and I May Lend You Money: The Role of Narratives in Peer-to-Peer Lending Decisions," *Journal of Marketing Research*, 2011, *48* (SPL), 138–149.

Kydd, Andrew H., "When Can Mediators Build Trust?," *American Political Science Review*, 2006, *100*, 449–462.

Levitin, Adam J., "Resolving The Foreclosure Crisis: Modification of Mortgages in Bankruptcy," *Wisconsin Law Review*, 2009, *565*, 565–655.

Mayer, Christopher, Edward Morrison, and Tomasz Piskorski, "A New Proposal for Loan Modifications," *Yale Journal on Regulation*, 2009, *26*, 417–429.

_ , _ , _ , and Arpit Gupta, "Mortgage Modifications and Strategic Behavior: Evidence from a Legal Settlement with Countrywide," *NBER Working Paper*, 2011, *No. 17065.*

Mitusch, Kay and Roland Strausz, "Mediation in Situations of Conflict and Limited Commitment," *Journal of Law, Economics, and Organization*, 2005, *21*, 467–500.

Puhani, Patrick A., "The Treatment Effect, the Cross Difference, and the Interaction Terms in Nonlinear Difference-in-Differences' Models," *IZA Discussion Paper no. 3478*, 2008, *SSRN: 1136279.*

Quercia, Roberto, Li Ding, and Janeke Ratcliffe, "Loan Modifications and Redefault Risk," *Center for Community Capital-UNC Chapel Hill*, 2009, *Working Paper.*

Rao, John, Odette Williamson, Tara Twomey, Geoff Walsh, Andrew Pizor, Diane Thompson, Margot Saunders, and John Val Alst, *Foreclosures*, National Consumer Law Center, 2010, 3d ed., 2011 Supplement.

Smith, R., "Alternative Dispute Resolution for Financial Institutions.," *Eagan, MN: West Group.*, 1995.

Tomasz, Amit Seru Piskorski and Vikrant Vig, "Securitization and Distressed Loan Renegotiation: Evidence from the Subprime Mortgage Crisis," *Journal of Financial Economics*, 2010, *97*, 369–397.

Umbreit, M.S., "Crime Victims and Offenders in Mediation: An Emerging Area of Social Work Practice," *Social Work*, 1993, *38*, 69–73.

Wall, James Jr. and A. Lynn, "Mediation: A current review," *Journal of Conflict Resolution*, 1993, *36*, 160–194.

_ , John B. Stark, and Rhetta L. Standifer, "Mediation: A Current Review and Theory Development," *The Journal of Conflict Resolution*, 2001, *45*, 370–391.

White, Michelle J, "Bankruptcy: Past Puzzles, Recent Reforms and the Mortgage Crisis," *American Law and Economics Review*, 2009, *11(1)*, 1–23.

Wilkinson-Ryan, Tess, "Breaching the Mortgage Contract: The Behavioral Economics of Strategic Default," *Vanderbilt Law Review, Vol. 64, No. 5, pp. 1547, 2011*, 2011.

6 Tables and Figures

Figure 1: Florida, Locations of Mandatory Mediation

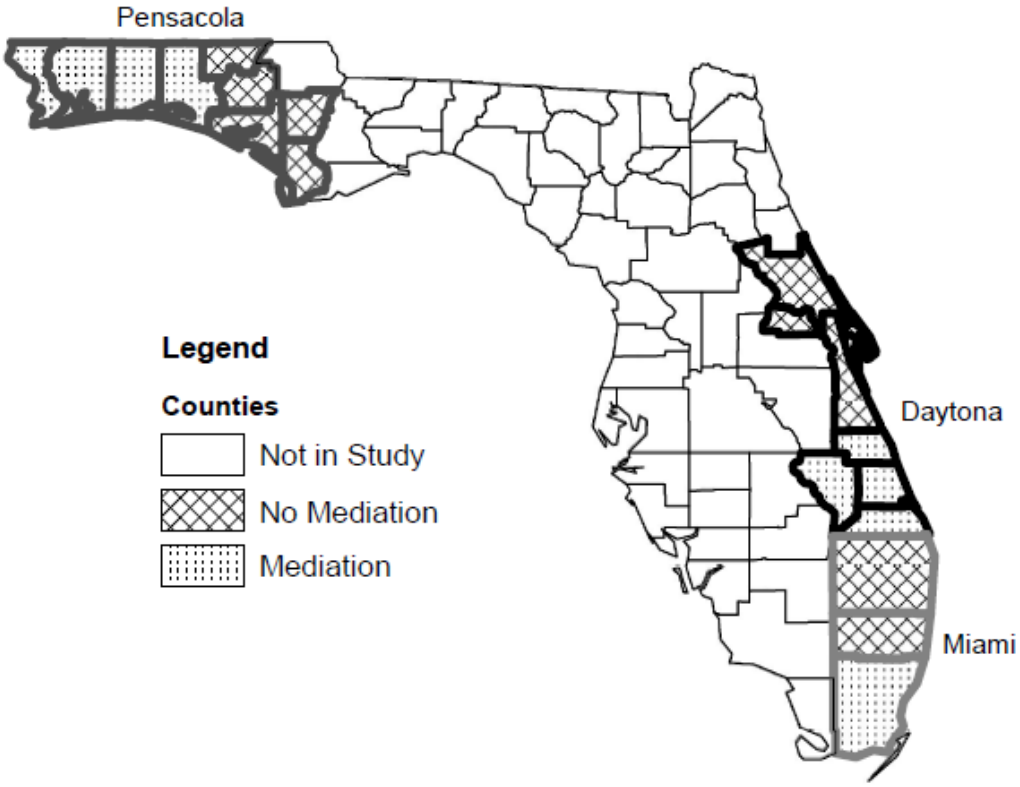

Figure 2: Philadelphia, Locations of Mandatory Mediation, 2008

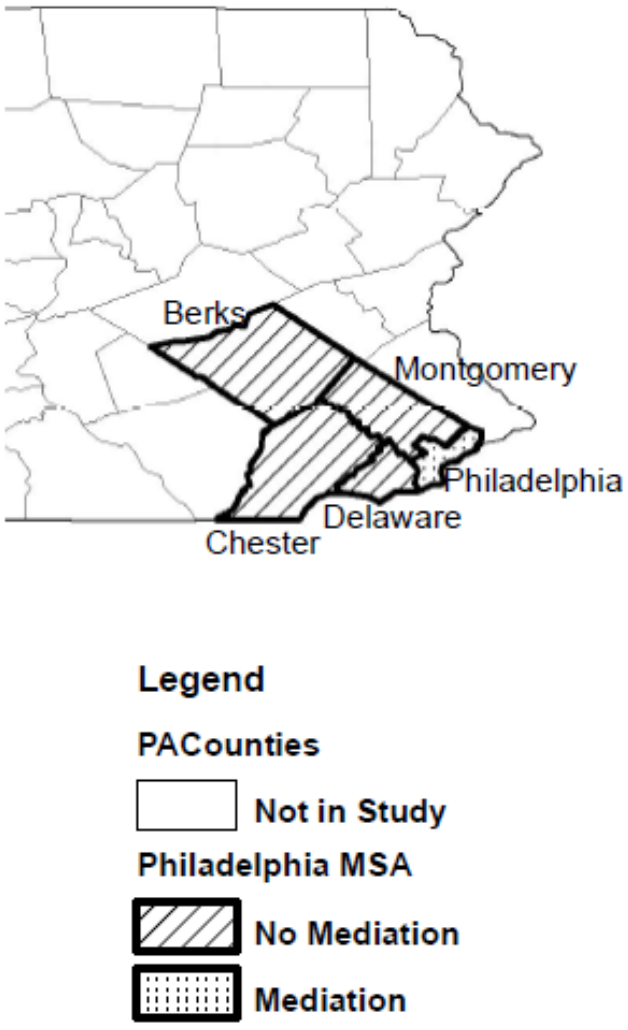

Figure 3: Florida: Change in Foreclosure Filings Do Not Differ Between Treatment and Control Before and After the Policy Change

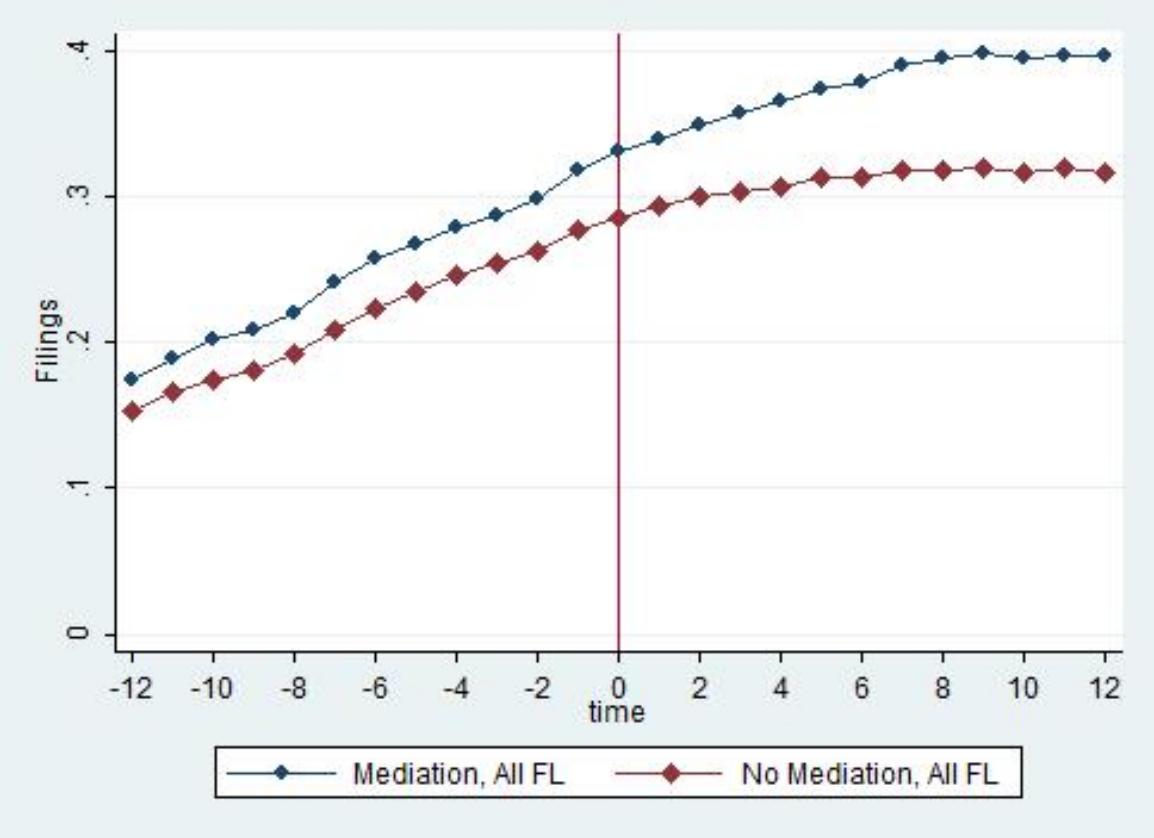

Table 1: Summary Statistics by Area

	All of FL	Miami	Rest of FL	Philadelphia
Dependent Variable				
Modification Indicator	0.0673	0.0648	0.0774	0.0185
	(0.251)	(0.246)	(0.267)	(0.135)
	[767666]	[611824]	[155842]	[116896]
Loan Characteristics				
Adjustable Rate Mortgage	0.7778	0.8005	0.6888	0.651
	(0.416)	(0.400)	(0.463)	(0.001)
	[767666]	[611824]	[155842]	[116896]
Delinquency in Last 6 Months	0.364	0.379	0.3049	0.0892
	(0.481)	(0.485)	(0.460)	(0.285)
	[758174]	[604261]	[153913]	[108556]
Delinquency in Last 3 Months	0.4159	0.4331	0.3483	0.1015
	(0.493)	(0.496)	(0.476)	(0.302)
	[763106]	[608159]	[154947]	[113719]
Current Balance	1,579,604	611,824	1,274,081	555,060
	(7,523,995)	(7,848,872)	(6,073,419)	(3,997,728)
	[767666]	[611824]	[155842]	[116896]
Loan-to-Value Ratio	81.059	80.978	81.3752	82.38
	(9.152)	(9.021)	(9.640)	(12.000)
	[745630]	[593741]	[151889]	[114882]
Individual Characteristics (at time of origination)				
Income (thousands)	119.277	122.86	104.752	107.268
	(151.299)	(153.067)	(143.000)	(151.907)
	[38988]	[31273]	[7715]	[5649]
FICO Score (divided by 100)	6.765	6.778	6.7134	6.707
	(0.628)	(0.615)	(0.672)	(0.689)
	[39690]	[31623]	[8067]	[5660]
Male	0.6135	0.6017	0.6599	0.6279
	(0.487)	(0.490)	(0.474)	(0.483)
	[40369]	[32166]	[8203]	[5697]
Minority	0.6208	0.6962	0.3201	0.3826
	(0.485)	(0.460)	(0.467)	(0.483)
	[39037]	[31214]	[7823]	[5159]

Note: demographics from HMDA merge

Mean of each variable with standard deviation in parentheses, and observations in brackets.

Table 2: Diff-In-Diff: Mediation Increases the Probability of Modifications in FL

Dependent Variable=1 if Loan was Modified in the Given Month						
	(1)	(2)	(3)	(4)	(5)	(6)
	All of FL	Miami Only	Rest of FL	All of FL	Miami Only	Rest of FL
Post Mediation	0.129***	0.125***	0.145***	0.165***	0.161***	0.177***
	(0.00227)	(0.00251)	(0.00536)	(0.00262)	(0.00287)	(0.00625)
Treatment	0.00498***	0.00369***	0.00981***	0.00447***	0.00275*	0.0119***
	(0.00121)	(0.00133)	(0.00288)	(0.00138)	(0.00151)	(0.00336)
Includes						
HMDA Controls	-	-	-	X	X	X
Time Dummies	X	X	X	X	X	X
County Dummies	X	X	X	X	X	X
MSA Dummies	X	-	X	X	-	X
Observations	735465	586248	149217	582814	471037	111777

Notes: Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Observations are loan months.

Treatment is equal to one if the loan is in a county with mandatory mediation after the legislation was implemented.

Columns (4), (5), (6) include loan-level controls:

sex, minority status, current balance, income, ficoscore, loan to value ratio,

delinquency in the last three and 6 months,an adjustable rate mortgage indicator, and month dummies.

Table 3: Diff-In-Diff: Mediation Still Increases the Probability of Modifications in FL when Reducing Sample Period to 6 Months pre and post

Dependent Variable=1 if Loan was Modified in the Given Month						
	(1)	(2)	(3)	(4)	(5)	(6)
	All of FL	Miami Only	Rest of FL	All of FL	Miami Only	Rest of FL
Post Mediation	0.0538***	0.0523***	0.0595***	0.0751***	0.0737***	0.0798***
	(0.00232)	(0.00255)	(0.00551)	(0.00268)	(0.00294)	(0.00645)
Treatment	0.00432**	0.00341*	0.00779*	0.00399*	0.00328	0.00664
	(0.00186)	(0.00205)	(0.00442)	(0.00213)	(0.00233)	(0.00517)
Includes						
HMDA Controls	-	-	-	X	X	X
Time Dummies	X	X	X	X	X	X
County Dummies	X	X	X	X	X	X
MSA Dummies	X	-	X	X	-	X
Observations	324260	258593	65667	256751	207554	49197

Notes: Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Observations are loan months.

Treatment is equal to one if the loan is in a county with mandatory mediation after the legislation was implemented.

Columns (4), (5), (6) include loan-level controls:

sex, minority status, current balance, income, ficoscore, loan to value ratio,

delinquency in the last three and 6 months,an adjustable rate mortgage indicator, and month dummies.

Table 4: Diff-In-Diff: After Flagging Potential HAMP Modifications, Mediation Still Increases the Probability of Modifications in FL

Dependent Variable=1 if Loan was Modified in the Given Month						
	(1)	(2)	(3)	(4)	(5)	(6)
	All of FL	Miami Only	Rest of FL	All of FL	Miami Only	Rest of FL
Post Mediation	0.115***	0.110***	0.133***	0.150***	0.146***	0.166***
	(0.00219)	(0.00241)	(0.00521)	(0.00253)	(0.00277)	(0.00612)
Treatment	0.00477***	0.00367***	0.00882***	0.00425***	0.00280*	0.0106***
	(0.00119)	(0.00131)	(0.00284)	(0.00136)	(0.00149)	(0.00333)
Includes						
HMDA Controls	-	-	-	X	X	X
Time Dummies	X	X	X	X	X	X
County Dummies	X	X	X	X	X	X
MSA Dummies	X	-	X	X	-	X
Observations	725121	577828	147293	574020	463718	110302

Notes: Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Observations are loan months, dropping loans that could have received a HAMP modification.

Treatment is equal to one if the loan is in a county with mandatory mediation after the legislation was implemented.

Columns (4), (5), (6) include loan-level controls:

sex, minority status, current balance, income, fico score, loan to value ratio,

delinquency in the last three and 6 months, an adjustable rate mortgage indicator, and month dummies.

Table 5: Diff-In-Diff: After Flagging Potential HAMP Modifications and Reducing the Time Frame, Mediation Still Increases the Probability of Modifications in FL

Dependent Variable=1 if Loan was Modified in the Given Month						
	(1)	(2)	(3)	(4)	(5)	(6)
	All of FL	Miami Only	Rest of FL	All of FL	Miami Only	Rest of FL
Post Mediation	0.0514***	0.0499***	0.0575***	0.0726***	0.0711***	0.0777***
	(0.00229)	(0.00252)	(0.00547)	(0.00266)	(0.00292)	(0.00643)
Treatment	0.00426**	0.00349*	0.00716	0.00392*	0.00326	0.00638
	(0.00184)	(0.00203)	(0.00438)	(0.00211)	(0.00231)	(0.00514)
Includes						
HMDA Controls	-	-	-	X	X	X
Time Dummies	X	X	X	X	X	X
County Dummies	X	X	X	X	X	X
MSA Dummies	X	-	X	X	-	X
Observations	319709	254888	64821	252880	204332	48548

Notes: Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Observations are loan months, dropping loans that could have received a HAMP modification.

Treatment is equal to one if the loan is in a county with mandatory mediation after the legislation was implemented.

Columns (4), (5), (6) include loan-level controls:

sex, minority status, current balance, income, ficoscore, loan to value ratio,

delinquency in the last three and 6 months,an adjustable rate mortgage indicator, and month dummies.

Table 6: Diff-In-Diff: Heterogeneity in Zip Code level Characteristics in Mediation and Modifications in FL

	No Loan-Level Controls		Include Loan-Level Controls	
	Baseline		Baseline	
Treatment	0.00498***		0.00554***	
	(0.00121)		(0.00136)	
Observations	735465		603171	
	Minority	Non-Minority	Minority	Non-Minority
Treatment	0.00547**	0.00278**	0.00260	0.00467***
	(0.00237)	(0.00139)$^{+}$	(0.00259)	(0.00159)
Observations	225869	509596	191395	411776
	Educated	Lower Education	Educated	Lower Education
Treatment	0.00779***	-0.00173	0.0103***	-0.00228
	(0.00155)	(0.00175)$^{+++}$	(0.00179)	(0.00194)$^{+++}$
Observations	310784	424681	246033	357138
Treatment	Low Income	Higher Income	Low Income	Higher Income
	-0.00242	0.00476***	-0.00231	0.00587***
	(0.00263)	(0.00139)$^{+++}$	(0.00290)	(0.00157)$^{+++}$
Observations	178712	556753	152409	450762

Notes: Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
$^{+}$ $p < 0.10$, $^{+++}$ $p < 0.01$ indicates coefficients are statistically different from each other.
Observations are loan months.
Minority defined as zip code with 25% or higher non-white population
Educated defined as zip code with 25% or higher college-educated population
Low Income defined as lowest income quartile zip code (<$35,000 median household income)
Zip-code level demographics in Columns (2) and (4) are complements of (1) and (3).
Treatment is equal to one if the loan is in a county with
mandatory mediation after the legislation was implemented. Loan-level controls:
sex, minority status, current balance, income, ficoscore, loan to value ratio,
delinquency in the last three and 6 months,an adjustable rate mortgage indicator
month, and county dummies.

Table 7: Diff-In-Diff: Mediation Increases the Probability of Modifications in Philadelphia

Dependent Variable=1 if Loan was Modified in the Given Month				
	(1)	(2)	(3)	(4)
	1-year	6-month	1-year	6-month
Post Mediation	0.0652***	0.0237***	0.0657***	0.0212***
	(0.00425)	(0.00278)	(0.005)	(0.00325)
Treatment	0.0190***	0.00997***	0.0141***	0.00799***
	(0.00178)	(0.0021)	(0.00211)	(0.00252)
Includes				
HMDA Controls	-	-	X	X
Time Dummies	X	X	X	X
County Dummies	X	X	X	X
Observations	112487	49727	76877	35474

Notes: Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
Observations are loan months.
Treatment is equal to one if the loan is in a county with mandatory mediation after the legislation was implemented.
Controls include sex, minority status, current balance, income, delinquency in the last 3 and 6 months, fico score, loan to value ratio, an adjustable rate mortgage indicator. Model excludes Bucks County.