

# *National Foreclosure Mitigation Counseling Program Evaluation*

## *Final Report, Rounds 3 Through 5*

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September 2014



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UI Project No. 08773

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## **ACKNOWLEDGMENTS**

This project culminates work that began in the summer of 2008. As with any complex research project, it could not be completed without the assistance of a dedicated group of professionals who worked to provide, clean and analyze the large amount of data used to perform this analysis of the NFMC program. CoreLogic, the data vendor that provided loan-level information and matched NFMC clients to loan-level data provided invaluable support. In particular, we'd like to acknowledge Connie Keim, Leslie Meyer and Kathy Dudek for their help throughout the process.

As always, NeighborWorks® America (NeighborWorks) staff provided thoughtful comments and displayed a welcome amount of patience with the inevitable ups and downs that arise in a project of this complexity. We'd like to acknowledge the contributions of the following NeighborWorks staff: Tina Trent, Barbara Richard, and Jeanne Fekade-Sellassie. The Urban Institute is the "home base" for this project, and Tim Ware provided excellent support for completing this report.

Although the authors received help from many people, any errors or omissions reflected in the report are their own.



## EXECUTIVE SUMMARY

The National Foreclosure Mitigation Counseling (NFMC) program is a special federal appropriation, administered by NeighborWorks® America (NeighborWorks), designed to support a rapid expansion of foreclosure intervention counseling in response to the nationwide foreclosure crisis. The NFMC program seeks to help homeowners facing foreclosure by providing them with much-needed foreclosure prevention and loss mitigation counseling. The objective of the counseling services provided to clients is to determine the most appropriate solution, given a client's circumstances and aid them in obtaining this solution. NeighborWorks distributes funds to competitively selected Grantee organizations, which in turn provide counseling, either directly or through Subgrantee organizations.

Given NFMC's status as a federal appropriation, NeighborWorks must inform Congress and other entities of the program's progress. In 2008, NeighborWorks selected the Urban Institute (UI) to evaluate the first two rounds of funding (rounds 1 and 2)—this evaluation was completed in 2011.<sup>1</sup> NeighborWorks subsequently retained UI in 2012 to complete an evaluation of the next three NFMC program funding rounds (rounds 3 through 5). This report for rounds 3 through 5 presents analyses for borrowers who received NFMC program counseling between July 2009 and June 2012; the outcomes for these clients were observed through June 2013.

Because the NFMC program's major objective is to help homeowners identify and implement the most appropriate solution for their particular circumstances, there are multiple possible outcomes for any given NFMC client. In some cases the client and counselor may try to secure a loan modification or cure a seriously delinquent mortgage. In other cases the owner may not want, or may not be able, to stay in his or her home and seek a solution that results in a short sale or other outcome in which the owner moves from his or her home. The key to interpreting the NFMC program's outcomes is to be cognizant of the fact that there are no "one-size-fits-all" solutions for owners seeking NFMC counseling services. Rather, counselors and clients work on a case-by-case basis to identify and implement the best solution for a given circumstance.

That said, the multivariate statistical analyses presented in this report, based on a sample of close to 240,000 loans, answered questions regarding the extent to which NFMC counseling helped clients achieve the following outcomes:

- Did NFMC counseling help clients receive loan modifications?

---

<sup>1</sup> The final report of the first evaluation (Mayer et al. 2011) is available at: <http://www.urban.org/uploadedpdf/412475-National-Foreclosure-Mitigation-Counseling-Program-Evaluation.pdf>.



- Did the NFMC program help client homeowners receive loan modifications with larger payment reductions than non-NFMC owners?
- For borrowers with troubled loans, did NFMC counseling increase their chances of obtaining a cure?
- For cured loans, are NFMC clients better able to sustain these cures and avoid redefault or transition to Real Estate Owned (REO)?<sup>2</sup>
- For clients that do not wish to or cannot remain in their homes, does NFMC counseling help clients close short sales?
- For NFMC clients that do not cure their mortgages or execute a short sale, do NFMC clients resolve their situation more quickly than without counseling?

According to the evaluation of rounds 3 through 5 NFMC program effects, the answer to all six outcomes is “Yes,” as detailed in the following table:

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<sup>2</sup> Real Estate Owned (REO) properties are those held by a bank, government agency or mortgage insurer after an unsuccessful foreclosure sale.



**Table ES-1: NFMC Program Impacts on Mortgage Outcomes, Counseled Compared to Non-Counseled Households**

	<i>NFMC Impact</i>
Change in odds of receiving a loan modification	2.83 times greater
Annual savings for NFMC clients resulting from loan modifications	\$518M
Change in odds of curing a troubled loan <sup>a</sup>	
<i>Loan modification cure</i>	1.78 times greater
<i>Non-modification cure</i>	1.86 times greater
Change in odds of redefaulting on the following cures:	
<i>Loan modification cure</i>	70 percent smaller
<i>Non-modification cure</i>	72 percent smaller
Change in percentage of troubled loans both curing and sustaining cures	2.9 times greater
Change in NFMC clients' probability of completing a short sale once started	21 percent greater
Change in the odds of completing the REO process for an NFMC client unable to cure a troubled loan	15 percent greater
Change in the odds of completing the REO process for an NFMC client able to cure a troubled loan	56 percent smaller

<sup>a</sup> A troubled loan is 90 or more days delinquent, in foreclosure, or in REO status.

## Loan Modifications

After entry into counseling, NFMC clients were much more likely to receive modified mortgages: the odds of such owners receiving a loan modification was 2.83 times as large as the odds of a modification for those not receiving NFMC counseling. This was not the only benefit NFMC clients received regarding loan modifications. NFMC clients who had a loan modified after entry into NFMC counseling received a payment reduction that was \$61 a month greater, on average, than non-counseled owners.

Each NFMC owner who received a loan modification had his or her annual payment reduced by about an average of \$4,980. We estimate that nearly two-thirds of the 151,000 loan modifications that NFMC clients received after entry into counseling would not have happened at all without the assistance of their counselor. This means that NFMC counseling helped an estimated 96,000 NFMC clients secure a loan modification they could not have secured on their own—saving these clients, in total about \$478 million annually. When combined with the \$61 per month (\$732 annual) savings for NFMC clients that would have received a loan modification without the assistance of a counselor but with less favorable terms on average, the total annual savings for NFMC clients generated by loan modifications is about \$518 million.



## **Modification Cures**

Modification cures bring a troubled loan current through loan modification. NFMC counseling improved the likelihood that a client would receive a modification cure for a troubled loan—that is, a loan 90 or more days delinquent, in foreclosure, or in REO status. The odds for NFMC clients of getting a loan modification cure increased by 1.78 times when compared to owners who did not receive NFMC counseling. Translating these relative odds to cumulative percentages of modification cures, after 16 months (the average observation period for loans after they became troubled), 7.1 percent of NFMC clients with troubled loans received a loan modification cure, compared to 4.0 percent of non-NFMC owners.

## **Non-Modification Cures**

NFMC counseling also increased the odds of a client receiving a non-modification cure for a troubled loan: the odds increased by 1.86 times when compared to a non-NFMC owner. When translating the change in odds to cumulative percentages over 16 months, 12.1 percent of NFMC clients cured a troubled loan without a loan modification, compared to 6.7 percent of non-NFMC owners.

## **Sustainability of Modification Cures**

The combined effect of counseling—from a larger payment reduction and other counseling assistance—substantially reduced (by approximately 70 percent) the odds that borrowers would return to troubled loan status after receiving a loan modification that cured their troubled loan. Virtually all of the improvement in sustained loan performance for cures results from NFMC counseling during which clients received help to improve their financial management skills, manage relationships with servicers and investors, and received other types of support. These services contributed substantially to better post-cure performance, while counseling's contribution to larger mortgage payment reductions through loan modification had almost no separate effect on sustaining loans cured through modification. This indicates that it is not the amount of the additional payment reduction itself that is the primary factor contributing to improved sustainability, but the other supports and assistance provided by counseling. When translated into probabilities, the cumulative redefault rate for troubled loans cured with the help of an NFMC counselor was 63 percent less than for non-NFMC owners who cured with a loan modification.

## **Sustainability of Non-Modification Cures**

NFMC counseling also substantially increased the sustainability of loans cured *without* a loan modification in circumstances where the owner is able to pay-off the arrearages. The odds of redefault to a troubled status for non-modification cures were 72 percent lower than for non-counseled borrowers. The stronger performance of non-modification cures underscores the importance of services provided by NFMC counselors beyond helping owners secure more generous loan modifications. Measured by the probability of redefault, the cumulative redefault



to a troubled status rate for typical NFMC-counseled loans that cured without a loan modification was 63 percent lower than for non-counseled owners.

### **Achieving and Sustaining Cures**

A crucial outcome for borrowers is both curing loans in serious delinquency or foreclosure *and* sustaining those cures (i.e., avoiding redefault). When the results of the curing and sustainability analyses are combined, they demonstrate that NFMC counseling more than doubled the rate of curing and sustaining. Among counseled borrowers, 14.1 percent of troubled loans were cured and sustained without redefault, compared with only 4.9 percent among non-counseled borrowers' loans—a ratio of 2.9. Moreover, as discussed below, borrowers who cured with the help of an NFMC counselor (with or without a loan modification) are less likely to transition to REO than are non-NFMC owners.

### **Short Sales and Completing the REO Process**

For some NFMC clients, the most appropriate solution is not to remain in the house. Instead, clients may want to, or be forced by mortgage costs too high for their incomes to, move from their home either after completing a short sale or allowing the foreclosure process to run its course resulting in an REO sale. The multivariate analyses show that NFMC clients who pursue a short sale are more likely to complete one than are non-clients. The probability of completing such a sale in any given month is about 21 percent greater with NFMC counseling when compared to non-NFMC owners.

The overall effects of the program show no differences in overall likelihood of transition to REO. This finding results from two counterbalancing impacts that contribute to the overall rate of REO transition. First, NFMC clients who are able to cure troubled loans are less likely to have an REO completion than non-NFMC owners; the odds for such an outcome are reduced by 56 percent. On the other hand, NFMC clients with troubled loans that *cannot cure* are able to resolve their problems through a foreclosure completion more quickly than non-NFMC owners. The odds for such NFMC clients completing an REO are about 15 percent greater than for non-NFMC owners who cannot cure a troubled loan. This result means that borrowers who are not good candidates for a cure have their cases resolved more expeditiously, thereby reducing backlogs in the foreclosure processing system. Counseling's lack of impact on overall rate of REO transition represents the combination of these two impacts: increased numbers of curing and sustaining loans, instead of REOs, and acceleration of clients moving to REOs where foreclosure avoidance is not feasible.



## Conclusion

The National Foreclosure Mitigation Counseling program started in 2008 at the beginning of the nation's foreclosure crisis. The purpose of the counseling funded by the program is to help clients determine and implement the most appropriate solution to dealing with troubled mortgage loans, given their financial and personal circumstances. As reported in the evaluation of rounds 1 and 2, the program had very positive effects for clients who received counseling from NFMC in the early period of the initiative. Similar analyses for rounds 3 through 5 reported here, looking at clients who received counseling between July 2009 and June 2012, indicate that the program continues to help its clients, who are significantly more likely to achieve positive outcomes than similarly situated homeowners who did not receive NFMC counseling.

NFMC clients with a troubled loan were more likely to cure this problem, both with and without loan modifications, than were owners in the comparison group. This is different from the previous study in which we found that NFMC clients were more likely than non-clients to cure with a loan modification but less likely than non-clients to cure without a modification, still yielding a positive net impact on cures. It may be that counselors are now more adept at identifying clients who are good candidates to cure their troubled loans without a modification than in the period studied in the rounds 1 and 2 evaluation.

As with the previous study's findings, cures of these troubled loans are more sustainable over time—owners who cure their troubled loans with the help of an NFMC counselor are less likely to have their mortgage return to a troubled status than comparison group owners. Moreover, NFMC clients received loan modifications with larger payment reductions than did borrowers in the comparison group who received loan modifications without the assistance of NFMC counselors. In addition, our analyses indicate that NFMC counselors help their clients receive loan modifications they would not otherwise have received, which provide significant (an average of \$4,980 per year) savings for each additional modification.

Remaining in the home may not always be the best outcome; some clients may not be able to sustain even reduced mortgage payments. Counselors also helped in these situations. NFMC clients were more likely to complete a short sale than were non-NFMC owners. For clients who could not cure a troubled mortgage, NFMC helped them resolve their cases more quickly, thereby reducing the time spend in an unresolved status.

The findings showing the positive effects of NFMC rounds 3 through 5 counseling are compelling, as, since 2008 when the NFMC program started, lenders and servicers have expanded their capacity to serve borrowers who face hurdles in keeping up on their mortgage payments. One might have hypothesized erroneously as this study demonstrated that this change to the industry made counseling relatively less important, as owners who did not participate in counseling presumably also benefited from the improved ability of lenders and



servicers to evaluate and undertake appropriate loan workout solutions. Given this industry shift, the continued positive effects of NFMC counseling, even for owners who received such services as late as mid-2012 (more than four years after the crisis started), is an impressive finding.



## INTRODUCTION

The National Foreclosure Mitigation Counseling (NFMC) program is a special federal appropriation, administered by NeighborWorks® America (NeighborWorks), designed to support a rapid expansion of foreclosure intervention counseling in response to the nationwide foreclosure crisis. The NFMC program seeks to help homeowners facing foreclosure by providing them with much-needed foreclosure prevention and loss mitigation counseling. The objective of the counseling services provided to clients is to determine the most appropriate solution, given a client's circumstances and aid them in obtaining this solution. NeighborWorks distributes funds to competitively selected Grantee organizations, which in turn provide counseling, either directly or through Subgrantee organizations.

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- For borrowers with troubled loans, did NFMC counseling increase their chances of obtaining a cure?
- For cured loans, are NFMC clients better able to sustain these cures and avoid redefault or transition to Real Estate Owned (REO)?<sup>4</sup>
- For clients that do not wish to or cannot remain in their homes, does NFMC counseling help clients close short sales?
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## **Loan Modifications**

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Each NFMC owner who received a loan modification had his or her annual payment reduced by about an average of \$4,980. We estimate that nearly two-thirds of the 151,000 loan modifications that NFMC clients received after entry into counseling would not have happened at all without the assistance of their counselor. This means that NFMC counseling helped an estimated 96,000 NFMC clients secure a loan modification they could not have secured on their own—saving these clients, in total about \$478 million annually. When combined with the \$61 per month (\$732 annual) savings for NFMC clients that would have received a loan modification without the assistance of a counselor but with less favorable terms on average, the total annual savings for NFMC clients generated by loan modifications is about \$518 million.

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## **Non-Modification Cures**

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## **Sustainability of Modification Cures**

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troubled loan. Virtually all of the improvement in sustained loan performance for cures results from NFMC counseling during which clients received help to improve their financial management skills, manage relationships with servicers and investors, and received other types of support. These services contributed substantially to better post-cure performance, while counseling's contribution to larger mortgage payment reductions through loan modification had almost no separate effect on sustaining loans cured through modification. This indicates that it is not the amount of the additional payment reduction itself that is the primary factor contributing to improved sustainability, but the other supports and assistance provided by counseling. When translated into probabilities, the cumulative redefault rate for troubled loans cured with the help of an NFMC counselor was 63 percent less than for non-NFMC owners who cured with a loan modification.

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### **Achieving and Sustaining Cures**

A crucial outcome for borrowers is both curing loans in serious delinquency or foreclosure *and* sustaining those cures (i.e., avoiding redefault). When the results of the curing and sustainability analyses are combined, they demonstrate that NFMC counseling more than doubled the rate of curing and sustaining. Among counseled borrowers, 14.1 percent of troubled loans were cured and sustained without redefault, compared with only 4.9 percent among non-counseled borrowers' loans—a ratio of 2.9. Moreover, as discussed below, borrowers who cured with the help of an NFMC counselor (with or without a loan modification) are less likely to transition to REO than are non-NFMC owners.

### **Short Sales and Completing the REO Process**

For some NFMC clients, the most appropriate solution is not to remain in the house. Instead, clients may want to, or be forced by mortgage costs too high for their incomes to, move from their home either after completing a short sale or allowing the foreclosure process to run its course resulting in an REO sale. The multivariate analyses show that NFMC clients who pursue a short sale are more likely to complete one than are non-clients. The probability of completing



such a sale in any given month is about 21 percent greater with NFMC counseling when compared to non-NFMC owners.

The overall effects of the program show no differences in overall likelihood of transition to REO. This finding results from two counterbalancing impacts that contribute to the overall rate of REO transition. First, NFMC clients who are able to cure troubled loans are less likely to have an REO completion than non-NFMC owners; the odds for such an outcome are reduced by 56 percent. On the other hand, NFMC clients with troubled loans that *cannot cure* are able to resolve their problems through a foreclosure completion more quickly than non-NFMC owners. The odds for such NFMC clients completing an REO are about 15 percent greater than for non-NFMC owners who cannot cure a troubled loan. This result means that borrowers who are not good candidates for a cure have their cases resolved more expeditiously, thereby reducing backlogs in the foreclosure processing system. Counseling's lack of impact on overall rate of REO transition represents the combination of these two impacts: increased numbers of curing and sustaining loans, instead of REOs, and acceleration of clients moving to REOs where foreclosure avoidance is not feasible.

## Conclusion

The National Foreclosure Mitigation Counseling program started in 2008 at the beginning of the nation's foreclosure crisis. The purpose of the counseling funded by the program is to help clients determine and implement the most appropriate solution to dealing with troubled mortgage loans, given their financial and personal circumstances. As reported in the evaluation of rounds 1 and 2, the program had very positive effects for clients who received counseling from NFMC in the early period of the initiative. Similar analyses for rounds 3 through 5 reported here, looking at clients who received counseling between July 2009 and June 2012, indicate that the program continues to help its clients, who are significantly more likely to achieve positive outcomes than similarly situated homeowners who did not receive NFMC counseling.

NFMC clients with a troubled loan were more likely to cure this problem, both with and without loan modifications, than were owners in the comparison group. This is different from the previous study in which we found that NFMC clients were more likely than non-clients to cure with a loan modification but less likely than non-clients to cure without a modification, still yielding a positive net impact on cures. It may be that counselors are now more adept at identifying clients who are good candidates to cure their troubled loans without a modification than in the period studied in the rounds 1 and 2 evaluation.

As with the previous study's findings, cures of these troubled loans are more sustainable over time—owners who cure their troubled loans with the help of an NFMC counselor are less likely to have their mortgage return to a troubled status than comparison group owners.



Moreover, NFMC clients received loan modifications with larger payment reductions than did borrowers in the comparison group who received loan modifications without the assistance of NFMC counselors. In addition, our analyses indicate that NFMC counselors help their clients receive loan modifications they would not otherwise have received, which provide significant (an average of \$4,980 per year) savings for each additional modification.

Remaining in the home may not always be the best outcome; some clients may not be able to sustain even reduced mortgage payments. Counselors also helped in these situations. NFMC clients were more likely to complete a short sale than were non-NFMC owners. For clients who could not cure a troubled mortgage, NFMC helped them resolve their cases more quickly, thereby reducing the time spent in an unresolved status.

The findings showing the positive effects of NFMC rounds 3 through 5 counseling are compelling, as, since 2008 when the NFMC program started, lenders and servicers have expanded their capacity to serve borrowers who face hurdles in keeping up on their mortgage payments. One might have hypothesized erroneously as this study demonstrated that this change to the industry made counseling relatively less important, as owners who did not participate in counseling presumably also benefited from the improved ability of lenders and servicers to evaluate and undertake appropriate loan workout solutions. Given this industry shift, the continued positive effects of NFMC counseling, even for owners who received such services as late as mid-2012 (more than four years after the crisis started), is an impressive finding.

The following section discusses the modeling approach—first with a description of the data used in the analyses followed by a discussion of the methods used to estimate the NFMC program's effect. The remaining sections of the report present findings related to the NFMC program's impact on (i) loan modifications, (ii) the likelihood of clients curing and sustaining seriously delinquent loans and (iii) completing short sales and transitioning to REO. The report concludes with a summary of the research findings.



## MODELING ANALYSIS

This section presents the methods used in our modeling analyses and our results that estimate the effects of the NFMC program on its clients. The first part describes the data sources used in the analysis and how they were employed to create samples of counseled and non-counseled mortgages for the analysis. It also covers the creation of specific outcomes and the approach to modeling the impact of the NFMC program on each one. Finally, it details the results from the modeling analyses of NFMC mortgage outcomes.

### Data Used in the Study

#### *NFMC Program Production Data*

NFMC Grantees are required to provide client-level data (referred to as *production data*), along with quarterly reports on aggregate activity toward overall goals established under the grant award. Grantees submit the production data on an ongoing basis through an electronic submission system. Production data consist of a record for each “counseling unit” provided by the Grantee, or a Grantee’s Subgrantee, to an individual homeowner.

The NFMC program recognizes two distinct levels of counseling services. In level 1 counseling, the NFMC Grantee or Subgrantee conducts a client intake process and develops a budget and a written action plan for the client. After level 1 counseling is completed, it is up to the client to follow through with any activities on the action plan. In level 2 counseling, the Grantee or Subgrantee verifies the client’s budget and takes additional steps to obtain solutions outlined by the action plan. Since an individual homeowner may receive both level 1 and level 2 counseling, these sessions are counted and referred to as separate units of counseling.<sup>5</sup>

The production data provide the list of homeowners that have received NFMC program counseling in some form and, therefore, constitute the *treatment group* for the analysis of program impacts. The data consist of information on the counseled homeowner, including identifying data (name, address), demographic characteristics, and household income; information on the client’s mortgage loan, including the current servicer, loan terms, and current default status; and information on the type and amount of foreclosure mitigation counseling received.

The results presented in this report are based on observations of a sample drawn from approximately 511,000 NFMC clients reported to NeighborWorks as of July 15, 2012. (We discuss the method used to select the sample later in this report.) We observed outcomes for

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<sup>5</sup> In previous rounds Subgrantees also reported level 3 counseling for clients that received both level 1 and level 2 services from the same Subgrantee. This changed starting in round 3: Subgrantees who provide both level 1 and level 2 counseling services to the same client will show two counseling records, rather than one level 3 record.



these clients with data that tracks loan performance through June 2013. Grantees also can report outcomes for each counseling unit, although individual outcome reporting is not required for all counseling units in the production data. Previous analysis revealed that in a majority of cases, outcomes were either not reported by the grantees, or were not considered final outcomes. For instance, they were reported as “currently in negotiation with servicer; outcome unknown” (35 percent of round 2 counseled households) or “initiated forbearance agreement” (10 percent of round 2 counseled households), which still leaves open the question of whether the forbearance agreement was sufficient to avoid foreclosure.

Given these limitations on Grantee-reported outcomes, to model the impacts of the NFMC program on key outcomes of interest it was necessary to match the homeowners from the production data with external data on mortgage performance. In addition, to model the “what if” case of households that did not receive counseling, we needed an additional sample of loans for non-NFMC program participants, including their outcomes regarding foreclosure. To provide this information, we used data from CoreLogic and the Home Mortgage Disclosure Act to supplement the production data.

#### *CoreLogic Data*

CoreLogic is a private vendor that compiles, analyzes, and sells databases containing information on properties, consumers, and mortgage loans. This study used four CoreLogic databases: (i) a static database that contains information on the characteristics of mortgages originated on or after January 1, 2002;<sup>6</sup> (ii) a loan performance database that provides monthly changes in loan performance (iii) a mortgage modification database that reports changes in loan terms from loan modifications; and (iv) a property-level database that contains information on all liens on a property. CoreLogic’s loan performance database contains information provided by mortgage servicers that the company estimates covers about 85 percent of all outstanding U.S. residential mortgages.

#### *Home Mortgage Disclosure Act Data*

The Home Mortgage Disclosure Act (HMDA), enacted in 1975, requires most lending institutions to report detailed data on mortgage application outcomes and approved loans to the Federal Financial Institutions Examination Council. HMDA data are routinely used to determine if housing credit needs are being met in particular neighborhoods and to identify discriminatory lending patterns. HMDA data are released publicly every year, and the public data include such fields as the race, sex, and income of the borrower; the loan amount and type; and the census

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<sup>6</sup> As with the previous NFMC studies, we restrict our analyses to loans originated after 2001. This allows us to have a sufficient number of loans originated in any given year to measure changes in underwriting standards in a loan’s origination year.



tract of the mortgaged property. This analysis used national loan-level HMDA data from 2002 through 2012.

We linked HMDA data to the CoreLogic data to add borrower race/ethnicity and income at origination. Furthermore, since census tract is reported on the HMDA data, combining CoreLogic and HMDA records permitted the addition of census tract information for the non-counseled loans. For counseled loans, property addresses were geocoded to add tract identifiers. These census tract characteristics were used as controls of neighborhood effects in the models.

We matched HMDA loan application records (LARs) for mortgages originated between 2002 and 2012 with CoreLogic loan records for mortgages that were active between June 1, 2009 and June 30, 2012. The objective was to attain a sufficient number of exact loan matches to generate a comparison sample of CoreLogic loan records containing information on race, gender, ethnicity, and Census tract location obtained from the matching HMDA loan records. We used the following matching process:

1. Prepare CoreLogic loan records starting with loans outstanding from June 2009 for matching within ZIP codes by assigning CoreLogic 5-digit ZIP codes to census tracts using commercially available tract to ZIP conversion data.
2. Prepare extracts of HMDA LARs for originated mortgages for all years from 2002 to 2012. HMDA LARs include information on Census tract, and 5-digit FIPS state-county codes. We used commercially available tract to ZIP crosswalks to convert HMDA tract locations to ZIP locations.
3. Develop additional common matching variables for both CoreLogic and HMDA loan records, including:
  - ZIP code
  - Origination Year
  - Original Loan Amount
  - Lien Status
  - Loan Type (Conventional, FHA, VA, Other)
  - Loan Purpose (Purchase, Home Improvement, Refinance)
  - Property Type (Single Family, Manufactured, Multi-Family)
  - High Interest Rate Loan
4. Match HMDA and CoreLogic loan records by successively loading each year of HMDA data and match merging all CoreLogic loans originated in the corresponding year.



Lien status, property type, and ethnicity were included in HMDA only since 2004, so these variables were not used in matching for HMDA years 2002 and 2003. The high-interest-rate loan indicator was excluded from the final matching algorithm due to limitations on the available data in HMDA (reported as yield spread only when exceeding yield on corresponding Treasury maturity by specified margins).

Only loans within a common ZIP code that have unique combinations of the variables used for matching were retained as potential candidates for matching, eliminating the possibility of duplicate matches prior to matching. Thus, each matched pair of HMDA and CoreLogic loans was unique among the possible combinations of ZIP, origination year, loan amount, lien status, loan type, loan purpose, and property type. This conservative approach to matching reduced the potential for measurement error in the variables assigned from HMDA to CoreLogic loans. The resulting CoreLogic loan records for each HMDA year were combined into a single matched-loan file. These loan records included CoreLogic loan IDs and additional variables from HMDA for race, gender, ethnicity, and Census tract location that provide statistical controls comparable to those available for NFMC clients.

Because only a relatively small number of HMDA loans were matched to CoreLogic's data, one potential source of bias is that the resulting sample of CoreLogic loans matched to HMDA loans contain some unobservable bias that could affect the results of the analyses. To measure the potential for bias, we compared the loan characteristics (as recorded in CoreLogic's data) of the matched loans to all active loans in CoreLogic's data between 2009 and 2012. As indicated by the tables presented in appendix B, there are no material differences in the mean loan-to-value ratio (LTV), credit score, initial interest rate, loan amount, loan type, lien position, and property type of location by state between the full population of loans active in CoreLogic's database and those loans matched to HMDA. Therefore, it is unlikely that there is any bias in the sample of HMDA-matched loans.

The comparison sample of noncounseled mortgages is drawn from the pool of matched HMDA-CoreLogic loans, as described below in the "Non-NFMC Analysis Sample" section. We calculated outcomes and estimated all of the models from a database that consists of counseled clients and the comparison group of non-counseled loans selected through propensity scoring, so that the observable characteristics of NFMC clients would be similar to the comparison group. The next two sections describe the methods used to construct each element of the database.

### **NFMC Analysis Sample**

The NFMC sample of counseled borrowers was drawn from NFMC counseling unit production data records sent by NeighborWorks to CoreLogic in July 2012 for homeowners who received counseling services between July 1, 2009 and June 30, 2012. A "counseling unit" refers to a client who received one or more counseling sessions at a given level of service from the same Grantee. CoreLogic matched 511,121 unique client counseling unit records to its



property database<sup>7</sup> by the client's address. While the initial address matching rate was 87 percent,<sup>8</sup> this eventually resulted in 137,271 usable client first-lien observations for the analysis, as shown in table 2 and discussed below.

Using addresses provided on NFMC clients, CoreLogic first identified the properties in which these clients resided, and then found mortgages that had liens against those properties. This process involved two types of databases: property-level, used to determine where NFMC clients lived, and loan-level, which contains information on mortgage characteristics and performance.

As shown in table 2, the initial address match resulted in a total of 443,342 client properties that CoreLogic matched to its property sales data. CoreLogic then attempted to match these client properties to a transaction history database that has information on any change in liens recorded on a property. About 58,000 NFMC client properties were not in both databases, resulting in a sample of 385,004 NFMC clients for whom CoreLogic had property-level information in both the property sales and transaction databases.

To obtain the mortgage performance data that was needed for the NFMC analysis, CoreLogic then had to match the transaction history records to its mortgage database. CoreLogic had mortgage information for 214,102 client transaction history records in its loan-level market analytics (LLMA) database. The number of client loans was further reduced, however, because the analyses required information on first lien loans that were active at a client's intake date. Of the 214,102 clients with mortgage information in the LLMA, 137,271 had an active first-lien loan in the database at the client intake date. Therefore, our analyses data of 137,271 counseling units is a 27 percent sample, which was similar to the sample proportion of NFMC clients used for the evaluation of rounds 1 and 2.

Finally, it should be noted that it is possible for a person to receive counseling at different levels from the same Grantee or to receive counseling from different Grantees. These would be reported in the NFMC program production data as separate counseling units. For the data presented in table 2 and used in the analysis, multiple counseling units matched to the same CoreLogic loan were reduced to a single record based on the counseling unit with the earliest intake date. Therefore, if an owner is observed as receiving counseling in July 2009, and then again in January 2010, the entire post-July 2009 period is considered to be after entry into counseling.

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<sup>7</sup> The actual number of counseling unit records sent to CoreLogic for matching was 511,242, but 121 were multiple counseling units for the same mortgages, which were subsequently reduced to a single record.

<sup>8</sup> CoreLogic's initial match rate was largely influenced by the quality of the address data it received.



**Table 2: Summary of Matching Process**

	<i>Dropped</i>	<i>Total remaining</i>	<i>Pct. Remaining</i>
NFMC R3-5 unique clients for matching	–	511,121 <sup>9</sup>	100%
Matched to Property Sales (PS) data	67,779	443,342	87%
Transaction history match	58,338	385,004	75%
LLMA record match	170,902	214,102	42%
Counseling units with an active first lien mortgage at intake	76,831	137,271	27%

Source: Urban Institute analysis of CoreLogic data matching with NFMC production data.

As shown in table 3, the counseling units in the matched sample had similar characteristics as all of the NFMC counseling units recorded for rounds 3 through 5.<sup>10</sup> The only major difference was that there was a disproportionately larger number of matched NFMC clients who lived in California (about 25 percent) compared to about 16 percent of all NFMC clients. This difference is not problematic for our modeling purposes: we included MSA- and county-level controls for changes in house prices and unemployment rates in all of our models. These variables control for local economic conditions that affect mortgage performance, and so any unique economic circumstances in California are controlled for by these variables.<sup>11</sup>

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<sup>9</sup> NeighborWorks sent CoreLogic 511,242 counseling unit records for matching, but 57 of these records did not have an identifier that we could use to include in our analyses.

<sup>10</sup> NeighborWorks provided production data for 503,638 of the 511,242 unique counseling units sent to CoreLogic for matching. The comparison shows the means for the sample for counseling units matched by CoreLogic to the full population of counseling units for which we have data.

<sup>11</sup> In addition, there is a small difference in the share of clients in the Analysis Sample that received Level 1 versus Level 2 counseling when compared to the overall population. In our previous study we found no difference in NFMC counseling effects for Level 1 versus Level 2 counseling, and so did not undertake separate analysis by Level for this study. Furthermore, a large majority of counseling cases (about 80 percent) were Level 1.

**Table 3: Comparison of NFMC Analysis Sample Counseling Units and NFMC Population of Counseling Units on Variables included in the NFMC Production Data**

<i>Characteristic</i>	<i>Analysis Sample</i>	<i>Population</i>
Number of loans	137,271	503,638
Gender		
Male	53.06%	50.46%
Female	46.94%	49.54%
Race and ethnicity		
White, non-Hispanic	41.97%	47.84%
Black, non-Hispanic	22.50%	23.56%
Hispanic	24.19%	18.99%
Asian, non-Hispanic	4.65%	3.22%
Other, non-Hispanic	4.71%	4.41%
Missing, non-Hispanic	1.98%	1.97%
Age		
34 and under	11.77%	11.37%
35 to 44	28.05%	26.80%
45 to 54	32.36%	32.28%
55 to 64	19.69%	20.49%
65 and above	7.49%	8.37%
Not reported	0.63%	0.70%
Household Income		
0-\$20,000	21.95%	25.26%
\$20,000-\$35,000	21.69%	23.37%
\$35,000-\$50,000	20.33%	19.84%
\$50,000-\$75,000	20.82%	18.86%
\$75,000-\$100,000	8.84%	7.57%
More than \$100,000	6.38%	5.09%
Counseling level		
Level 1	83.55%	76.22%
Level 2	16.45%	23.78%
Counseling mode		
Phone	31.30%	37.62%
Face to face	55.55%	50.42%
Internet	9.10%	7.99%
Video	0.00%	0.01%
Other	3.67%	3.53%
Not reported	0.36%	0.44%
Loan status		
Current	27.30%	26.44%



<i>Characteristic</i>	<i>Analysis Sample</i>	<i>Population</i>
30–60 days late	15.07%	15.21%
61–90 days late	10.99%	11.73%
91–120 days late	9.27%	10.10%
121+ days late	37.37%	36.53%
Loan type		
Fixed rate under 8%	71.17%	68.34%
Fixed rate 8% or greater	4.86%	9.72%
ARM currently under 8%	17.69%	14.01%
ARM currently at 8% or greater	2.88%	3.85%
Not reported	3.40%	4.07%
Total Monthly PITI		
Less than \$500	2.69%	6.50%
\$500 to \$1,000	19.86%	27.17%
\$1,000 to \$1,500	28.51%	26.85%
\$1,500 to \$2,000	20.26%	17.02%
More than \$2,000	28.69%	22.46%
State		
AK	0.05%	0.03%
AL	0.25%	0.72%
AR	0.10%	0.22%
AZ	4.89%	3.80%
CA	25.40%	15.69%
CO	2.32%	1.73%
CT	0.00%	1.04%
DC	0.17%	0.14%
DE	0.52%	0.48%
FL	10.14%	7.92%
GA	5.86%	4.96%
HI	0.30%	0.37%
IA	0.63%	1.09%
ID	0.42%	0.45%
IL	6.56%	6.01%
IN	0.99%	2.22%
KS	0.18%	0.27%
KY	0.29%	0.97%
LA	0.23%	0.63%
MA	1.06%	2.06%
MD	3.32%	2.50%
ME	0.03%	0.23%



<i>Characteristic</i>	<i>Analysis Sample</i>	<i>Population</i>
MI	1.45%	3.04%
MN	1.17%	3.39%
MO	1.03%	1.22%
MS	0.05%	0.77%
MT	0.33%	0.45%
NC	3.91%	4.03%
ND	0.01%	0.03%
NE	0.08%	0.15%
NH	0.13%	0.25%
NJ	2.48%	2.26%
NM	0.24%	0.31%
NV	2.69%	1.89%
NY	2.71%	3.80%
OH	4.77%	6.18%
OK	0.24%	0.28%
OR	1.44%	1.10%
PA	3.34%	4.39%
PR	0.00%	0.53%
RI	0.00%	0.73%
SC	0.52%	0.81%
SD	0.00%	0.38%
TN	1.71%	2.06%
TX	3.52%	3.12%
UT	0.45%	0.47%
VA	1.62%	1.77%
VT	0.00%	0.11%
WA	1.78%	1.46%
WI	0.63%	1.28%
WV	0.00%	0.12%
WY	0.02%	0.06%

Source: Urban Institute comparison of CoreLogic-matched and total NFMC production data.



## Non-NFMC Analysis Sample

For the purposes of modeling program effects, we selected a group of owners who did not receive NFMC counseling as a comparison sample. One possible method for selecting the comparison group would be to select a random sample of owners among those CoreLogic records that were not matched to NFMC clients. This approach was not used because NFMC clients have mortgage characteristics that differ from the overall population of residential mortgages. For one, NFMC clients were much more likely to be delinquent on their loans than homeowners in general. For rounds 3 through 5, close to 75 percent of NFMC clients were delinquent on their mortgage when they entered foreclosure counseling, compared to an overall delinquency rate, according to the Office of the Comptroller of the Currency (OCC), of 11 percent for all mortgages as of March 2012 (OCC 2012). Therefore, a randomly chosen sample of all U.S. borrowers that did not receive NFMC counseling would almost certainly yield a group of owners that differed from the NFMC-counseled population in a number of important respects.

Instead of a random sample, we selected a comparison sample by implementing a propensity scoring model to match the characteristics of the NFMC and non-NFMC samples as closely as possible on several important dimensions. Propensity scoring is a technique for drawing matched data samples based on selected common characteristics. In this method all of the observations are used to estimate a model where the dependent variable equals 1 if an observation received NFMC counseling.<sup>12</sup> Based on the results, the probability of each observation receiving counseling is estimated. Using these estimated probabilities, the propensity scoring model finds the closest match among the non-NFMC loans in the database to those loans in the database that are for NFMC clients. The propensity scoring model matched NFMC and non-NFMC samples using the following characteristics of first lien mortgages as of loan origination and counseling intake month:

- Loan's status
- Origination year
- LTV
- FICO
- Current interest rate
- Original loan amount

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<sup>12</sup> We estimated separate propensity scoring models for each potential month of entry-which resulted in 36 models. To reduce the time it took to run these models, we estimated each month's model with OLS linear probability models (LPM) where the dependent variable equals 1 for NFMC clients. Although LOGIT models are preferred for dichotomous dependent variables, using an LPM approach for propensity scoring is an acceptable use of OLS models with a dichotomous dependent variable. (See Caliendo and Koepf [2005] for a discussion.)



- Debt-to-income ratio
- Loan purpose
- Property type
- Owner type
- Loan grade
- Low documentation
- Negative amortization
- Investor
- Judicial foreclosure state
- Borrower income
- Borrower race/ethnicity

We ran the propensity scoring models against the NFMC analysis sample and the CoreLogic loans that we matched with HMDA data but that were not matched to NFMC records. Note that loans that were not matched to NFMC counseling units are presumed *not* to have received NFMC counseling. Nonetheless, we must acknowledge that some of these homeowners may have received foreclosure counseling from some other program. It is also possible that some may have received counseling from the NFMC program itself but could not be matched to the CoreLogic database. In both cases, however, the inclusion of some counseled homeowners in the noncounseled comparison sample would result in *underestimating* any positive counseling effects.

We ran separate propensity scoring models for each intake month between July 2009 and June 2012 for clients that entered counseling in a particular month in addition to all HMDA-CoreLogic matched loans that were active in that particular month. Within each matching month, the time-varying characteristics (e.g., interest rate, months delinquent, and foreclosure status) of each NFMC loan were matched against the characteristics of the non-NFMC loans in the same month as the counseling intake for the NFMC loan. In this way, we constructed the paired-comparison samples using noncounseled loans that were in similar situations at the time that counseling started for NFMC clients. Matching with replacement was used for loans within a given intake month (meaning that one CoreLogic loan could be matched to more than one NFMC client in a particular matching month), and without replacement for each subsequent month. In other words, once a CoreLogic loan was matched to an NFMC client, that loan was no longer included in propensity scoring models for subsequent months, even if that loan remained active after the month in which it was matched to an NFMC client. Note that the order in which the months were included in the propensity score model was randomized so that the quality of matches was not a function of the time elapsed from July 2009.



To validate the success of the propensity scoring matching process, we compared the characteristics of the NFMC and non-NFMC sample first lien loans in the following table.<sup>13</sup> In general the characteristics of the NFMC and non-NFMC loans included in the propensity scoring models are similar in the two samples, except for the loan's status at intake for NFMC clients when compared to the status of the non-NFMC loans in the month in which non-NFMC loans were matched. Overall, about 26 percent of NFMC loans were current in a client's intake month. This proportion is only two fifths of that of the non-NFMC loans that were current (65 percent) in the month that they were matched to an NFMC client's loan. This difference does not affect our analytical results, however, because we condition on loan status for our cure and redefault models. We could not include a time-varying loan status variable in our mod event models because the LOGIT model would not converge. Therefore, our mod event models include a variable that equals 1 if the loan is current in the first observation period (July 2009).

**Table 4: Comparison of Non-NFMC and NFMC Analysis Samples for Non-Time-Varying Variables used in Propensity Scoring Models**

<i>Variable</i>	<i>NFMC Loans</i>		<i>Non-NFMC Loans</i>	
	<i>N</i>	<i>Mean</i>	<i>N</i>	<i>Mean</i>
InitialInterestRate	136906	6.10	103017	5.98
STATUS_INTAKE_C	137271	0.26	103393	0.65
STATUS_INTAKE_3	137271	0.09	103393	0.08
STATUS_INTAKE_6	137271	0.09	103393	0.05
STATUS_INTAKE_9	137271	0.33	103393	0.13
STATUS_INTAKE_F	137271	0.23	103393	0.08
STATUS_INTAKE_R	137271	0.01	103393	0.02
INCOME_K	137271	46.14	100151	68.23
FICO_MISS	137271	0.10	103393	0.07
FICO_300_500	137271	0.01	103393	0.01
FICO_501_550	137271	0.04	103393	0.04
FICO_551_600	137271	0.10	103393	0.09

<sup>13</sup> Additional comparison statistics between the two populations of borrowers and loans are provided in appendix A.



	NPMC Loans		Non-NPMC Loans	
Variable	N	Mean	N	Mean
FICO_601_650	137271	0.21	103393	0.18
FICO_651_700	137271	0.25	103393	0.23
FICO_701_750	137271	0.19	103393	0.20
FICO_751_800	137271	0.10	103393	0.16
FICO_801_850	137271	0.01	103393	0.03
DTI	115589	36.96	97729	30.78
HISPANIC	137271	0.24	103393	0.18
WHITE	137271	0.42	103393	0.47
BLACK	137271	0.23	103393	0.18
ASIAN	137271	0.05	103393	0.04
OTH_RACE	137271	0.05	103393	0.03
LTV	137036	84.85	103344	82.07
ORIG_LOAN_AMT_K	137271	242.28	103393	240.90
INV_PORT	137271	0.32	103393	0.32
INV_RMBS	137271	0.11	103393	0.10
INV_GSE	137271	0.29	103393	0.32
INV_GNMA	137271	0.10	103393	0.10
INV_UNKNOWN	137271	0.18	103393	0.15
JUDICIAL_FC	137271	0.35	103393	0.38
PURCHASE_LOAN	137271	0.39	103393	0.42
PROP_SFR	137271	0.79	103393	0.80
OWNER_OCCUP	137271	0.96	103393	0.92
LOAN_GRADE_A	137271	0.13	103393	0.10
LOAN_GRADE_AA	137271	0.42	103393	0.43
LOAN_GRADE_BC	137271	0.06	103393	0.05





	NPMC Loans		Non-NPMC Loans	
Variable	N	Mean	N	Mean
LOAN_GRADE_UK	137271	0.40	103393	0.42
LOW_DOC	137271	0.55	103393	0.56
NEG_AMORT	137271	0.07	103393	0.04
ORIG_YEAR_2002	137271	0.02	103393	0.02
ORIG_YEAR_2003	137271	0.06	103393	0.05
ORIG_YEAR_2004	137271	0.08	103393	0.06
ORIG_YEAR_2005	137271	0.16	103393	0.12
ORIG_YEAR_2006	137271	0.23	103393	0.18
ORIG_YEAR_2007	137271	0.25	103393	0.22
ORIG_YEAR_2008	137271	0.12	103393	0.15
ORIG_YEAR_2009	137271	0.07	103393	0.09
ORIG_YEAR_GE_2010	137271	0.02	103393	0.09
JUMBO	137271	0.12	103393	0.12

Source: Authors' calculations of CoreLogic Loan Performance Data

## Outcomes to Be Analyzed

The objective of NPMC counseling is to help a client achieve the most appropriate outcome, given his or her preference for remaining in a home and the feasibility of the owner making continued mortgage payments under the current loan terms or with a modified mortgage. As a result, counselors indicated, through web surveys and in interviews conducted in our round 1 and 2 evaluation that they attempted to achieve outcomes that were most beneficial to their clients. Consistent with these objectives, our analysis of the NPMC program for rounds 3 through 5 measures the following counseling effects:

- **Modification payment reduction:** Did the NPMC program help homeowners receive loan modifications that resulted in lower monthly mortgage payments than they would have otherwise received without counseling?
- **Loan Modifications:** Did the NPMC program help borrowers more often receive any loan modification (**mod event**)?



- **Cures:** Did NFMC clients bring current, more often than the comparison group, a troubled loan (a loan that is 90 or more days delinquent, in foreclosure, or REO status), either with a loan modification (**modification cure**) or without a loan modification (**non-modification cure**)?
- **Redefault:** Were NFMC clients less likely than the comparison group to have their cured loans re-enter a troubled status after a modification cure (**modification cure redefault**) or a non-modification cure (**non-modification cure redefault**)? As a subset, were NFMC clients who cured a troubled loan less likely to have an REO transition?
- **Short Sale/REO Transition:** Were NFMC clients more likely to successfully execute a short sale, and for NFMC clients unable to cure troubled loans, resolve their case more quickly?

To measure counseling's effects on the outcomes, we used the data sources described above to construct outcome variables corresponding to each of the above questions for both the NFMC and non-NFMC loan samples. In determining whether individual outcomes were a result of the NFMC program, we proceed as follows. For owners in the non-NFMC comparison sample, all outcomes were assumed to be "non-counseling" effects; that is, if a non-NFMC owner received a loan modification, cured a troubled loan, redefaulted on a cured loan, completed short sale or had a transition to REO, then these outcomes are not attributed to the NFMC program. For NFMC sample owners, however, the outcomes are assumed to be counseling or non-counseling effects depending on when the outcome took place relative to the start of counseling. For example, if an NFMC client received a loan modification *before* beginning to receive counseling services, then this outcome was deemed a non-counseling effect. If, however, the loan modification was received *after* the start of counseling, then the result was attributed to the NFMC program.

#### *Loan Modification Outcomes*

We modeled the impact of counseling on the aggregate change to an owner's monthly payments on all mortgages on a property in absolute terms and as a percentage of the pre-modified monthly payment. CoreLogic's data includes information about loan modifications, both modifications directly reported by servicers and those that CoreLogic has identified by observing unexpected changes in monthly loan characteristics. (CoreLogic's method for identifying loan modifications, which is described in appendix O, is similar to the one that we used in the NFMC round 1 and 2 evaluation.) As a result, we used CoreLogic's data on loan modifications to identify that such a transaction took place, as well as the magnitude of the monthly payment change.

The analyses of NFMC counseling's impact on the reduction in monthly loan payments require that an owner receive a modification in the first place. This analysis does not address a



key question: did the NFMC client receive the loan modification itself with the help of a counselor? To answer this question we estimated a LOGIT model where the dependent variable equals 1 for an owner who received a loan modification, as determined using CoreLogic's methodology to identify whether an owner received any loan modification.

### *Sustainability Outcomes*

We used models to measure the impacts of counseling on homeowners' ability to cure troubled loans in two ways:

- *Loan modification cures and non-modification cures.* We characterized an owner as receiving a loan modification cure (modification cure) for any troubled loan at the time of receiving the modification that became current as a result of the modification. Loans that change from a troubled status to current without modifications are identified as non-modification cures.
- *Redefault.* Owners whose loans were cured, either through a modification or some other (non-modification) means, are observed for possible subsequent redefault to a troubled status. Because it is common to observe missed payments of one or two months that then self-cure, we restricted redefault for the sustainability models to cases where the homeowner's loan becomes troubled again by being 90 or more days delinquent or by entering foreclosure or REO status. We restricted the redefault analyses to only those loans for which we observed a cure, so potential redefaults have a clear and simple starting point.

### *Terminal Outcomes*

Some NFMC clients either do not wish to remain in their homes or, given their financial circumstances, are unable to cure their mortgages, even with a counselor's assistance. Therefore, we also analyze NFMC counseling's impact on two types of mutually exclusive terminal outcomes: completing a short sale and transition to REO.<sup>14</sup> For REO transition we estimated NFMC counseling's impact on three types of transition to REO scenarios: (i) transition to REO from any status using all observations; (ii) transition to REO for NFMC clients that are unable to cure a troubled loan and (iii) transition to REO for NFMC clients that do cure a troubled loan.

These analyses substitute for the "foreclosure completion" models that we estimated for the previous study of rounds 1 and 2. In those models we estimated NFMC counseling's effect on an outcome (foreclosure completion) that included foreclosure sales, short sales, and other

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<sup>14</sup> In our transition to REO models we censor observations when the loan amount is paid off in the loan level servicing data. Therefore, short sales, which are recorded in the servicing data as a paid off loan, are censored in the data used to estimate transition to REO models.



involuntary losses of a home through foreclosure-related actions, as the data used in the study did not allow us to identify these outcomes separately.

We took a different approach because through discussions with counselors and other industry participants, we heard that counselors recognize that not every distressed owner may want to (or be able to) remain in his or her home, and so counselors in some cases work with clients to complete a short sale.<sup>15</sup> Short sales are preferable to losing a home through foreclosure because owners who sell a home through a short sale are eligible to receive a mortgage within 2 years instead of 5 years if the home is lost through a foreclosure. In addition, short sales are not shown on an owner's credit history, while foreclosures appear on an owner's credit history for at least 10 years. Moreover, owners who lose their home through a foreclosure must make a disclosure on any subsequent loan application submitted within 7 years of the foreclosure (Certified Distressed Property Expert). The CoreLogic data allow us to identify short sales, and so we modeled counseling's effect on a client's ability to complete a short sale.

While short sales are preferable to foreclosure completions for owners who do not wish to remain in their home, not every owner can negotiate a short sale, even with the assistance of an NFMC counselor. For such owners it may be preferable to allow the foreclosure process to complete, particularly for those who cannot cure their troubled loans. Therefore, we estimated transition to REO models that estimated counseling's effects on transition to REO for clients that could and could not cure a troubled loan. The transition to REO outcome in both models does not include short sales.

## Modeling Approach

This section describes the modeling approach for estimating NFMC counseling's impact on all of the outcomes discussed earlier.

### *Monthly Payment Reductions*

The monthly payment reduction model estimated counseling's effect by using information on the reductions in monthly payments resulting from loan modifications for NFMC clients after they entered counseling along with (1) loan modifications that NFMC clients received before entry into counseling and (2) loan modifications received by owners who never received NFMC counseling. The NFMC counseling effect was estimated with an ordinary least squares (OLS) model that includes the control variables described later in this section.<sup>16</sup>

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<sup>15</sup> The data do not allow us to identify deed-in-lieu transactions, and so any such sales are not included in our analysis of short sales.

<sup>16</sup> There are a small number of cases where an owner received more than one loan modification during the July 2009 to June 2013 observation period. In such cases, we used only the first loan modification. If this took place prior to entry into counseling, it was coded as occurring prior to entry into counseling; if recorded after entry into counseling it



### *Loan Modification Events*

We estimated NFMC counseling's impact on the likelihood of a client receiving any loan modification with a LOGIT model in which the dependent variable equals 1 if a loan modification (using the events included in the monthly payment reduction model) is observed in a given period.

### *Cures of Troubled Mortgages*

We estimated the NFMC program's impact on cures with LOGIT models in which the dependent variable equals 1 if an owner's loan is troubled (is seriously delinquent, in foreclosure or REO) and changes to a current status in a given month. There are two types of cures: one in which the cure is recorded at the same time as the owner receiving a loan modification (a "modification cure") and another in which there is no loan modification recorded at the same time as the cure (a "non-modification" cure). In addition to the control variables described in table 5, cure models included a counter variable that measured the length of time that a loan was in a troubled status.

### *Sustainability of Cures*

For the analyses of the sustainability of cures, we estimated separate LOGIT models for modification cures and non-modification cures that were recorded between July 2009 and June 2013, where the dependent variable equals 1 if a cured loan re-entered a troubled status. The LOGIT models were specified with the standard control variables, but also included a counter that measured the number of months after the loan is cured. In addition, we estimated a LOGIT model for cured loans to determine NFMC counseling's impact on transition to REO for any owner who cured a troubled mortgage.

### *Terminal Events*

Transitions to REO are terminal events, and so we cannot observe such outcomes for NFMC clients prior their entry into counseling. To control for potential selection bias in determining NFMC counseling's effect on the total number of transitions to REO, we estimated two LOGIT models that corresponded to a "world with counseling (WWC)" and a "world without counseling (WWOC)." The WWOC model censored monthly loan observations for clients upon entry into the NFMC program. In contrast, the WWC model did not censor observations at the start of counseling; observations were only censored at the time a distressed sale was completed or at the end of the observation period, whichever came first. Both models included a counter that measured the number of months that a loan was observed after July 2009, which was the earliest intake month that we can have for a client.

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was coded as occurring after entry into counseling. This is the same approach used in the earlier round 1 and 2 evaluation.



To measure the program effect, we produced separate survivor curves using the parameter estimates from the WWC and WWOC models and the means from the sample used to estimate the models. In other words, we simulated what share of loans would have an REO transition in a world with the NFMC program (WWC model) and a world without the NFMC program (WWOC). The difference in the share of loans that had such a transition between the two models reflects the impact of NFMC counseling on the overall number of REO transitions. We used a similar technique in the Round 1–2 study, and found that the parameter estimates for the common variables used in both WWC and WWOC models were essentially the same. As a result, we estimated models for short sale and transition to REO for cured and non-cured loans using only WWC models.

### **LOGIT Model Simulations**

All of the remaining models (except those that estimate the NFMC program's effect on the amount of loan modifications) used logistic regressions that estimated the impact of counseling on the likelihood of an event happening in a given month. The output for these models reported parameter estimates and odds ratios for each explanatory variable. Odds ratios provide information about the impact of explanatory variables but are difficult to interpret.<sup>17</sup> Therefore, to make the results more accessible, we conducted simulations using the parameter estimates for each LOGIT model and the mean value for each variable used in a particular model to generate estimated probabilities of an event occurring in a particular month.<sup>18</sup> These probabilities change over time because we included counter variables (such as the length of a delinquency spell) as explanatory variables. Therefore, we calculated monthly probabilities and used these estimates to generate cohort analyses that estimated the share of owners, starting at a particular point that would have had an outcome (such as a loan modification cure) in a particular month. Based on this estimate we constructed a survivor curve for cohorts assuming that they did or did not receive counseling. This technique allows for a more accessible presentation of the NFMC program's effect on outcomes.

### **Control Variables**

Many factors, apart from counseling, could affect our observed outcomes. The more we are able to measure and include such factors in our analysis, the better our models will be at isolating and estimating the specific impacts of counseling. The literature on loan performance

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<sup>17</sup> The odds for a particular outcome are calculated by dividing the probability of the outcome (P) by 1-P. For example, if the probability of an event occurring is 25 percent, the odds for that event happening are  $0.25/(1-0.25) = 0.33$ . An odds ratio is the ratio of two odds. For example, assume that the probability of an event occurring with counseling is 0.25, the odds = 0.33. If the probability of the same event occurring without counseling is 0.40, the odds without counseling =  $0.40/(1-0.40) = 0.66$ . The odds ratio of the event occurring with counseling =  $0.33/0.66 = 0.50$ . The odds ratio that is less than 1.0 indicates that counseling makes it less likely for the event to occur.

<sup>18</sup> A description of the simulation methodology is in appendix N.



identifies many likely factors. The data available to us, of course, limit the variables we can actually employ.

Table 5 summarizes the control variables that we used in all of our models. Note that all of the variables that we used in the previous evaluation are included in the models for the rounds 3 through 5 evaluation. In addition, three new controls were added to the models for this study.

**Table 5: Control Variables Used in All Models**

<i>Variable label</i>	<i>Description</i>
Black borrower	Equals 1 if client is African-American. <sup>a</sup>
Hispanic borrower	Equals 1 if client is Hispanic/Latino. <sup>a</sup>
Asian/PI borrower	Equals 1 if client is Asian or Pacific Islander. <sup>a</sup>
Other race borrower	Equals 1 if client is other race. <sup>a</sup>
Income	Homeowner income (\$ thousands). For NFMFC loans, reported at time of counseling intake; for non-NFMFC loans, reported at time of mortgage origination.
FICO/credit score—original	Owner's FICO score at origination.
Debt-to-income ratio	The total of all debt payments including the new mortgage payment (principal, interest, insurance and taxes, (PITI) divided by the gross monthly income of the borrower(s).
Current interest rate	Current interest rate of owner's first lien mortgage (%).
Grade B/C mortgage	Equals 1 if first lien mortgage is subprime (grade B or C as reported by mortgage servicer in LPS Analytics data).
ARM loan	Equals 1 if first lien mortgage is an ARM.
Other interest type loan	Equals 1 if first lien mortgage has an interest type other than ARM, Option ARM, or fixed.
Negative amortization	Equals 1 if first lien mortgage is an ARM that permits negative amortization.
Agency loan	Equals 1 if first lien mortgage is a Fannie Mae or Freddie Mac loan.
Jumbo loan	Equals 1 if first lien mortgage was a jumbo loan at origination.
Portfolio	Equals 1 if first lien mortgage is held in portfolio by the originator.
Government	Equals 1 if first lien mortgage is government insured.



<i>Variable label</i>	<i>Description</i>
Probability that owner has negative equity	The probability of negative equity (varies from 0 to 1) represents the likelihood that an owner's current first lien loan balance exceeds the current value of their home during the time period of interest.
Home mortgage approval rate (%), 2007–08	Percentage of loan applications that were approved between 2006 and 2007 in census tract where client's home is located.
Mortgage originations median amount home purchase (thousands)	Median purchase loan amount for mortgages originated in a client home's census tract between 2006 and 2007.
Monthly unemployment rate	Unemployment rate (%) reported by the Bureau of Labor Statistics for the MSA or state in which the mortgaged property is located.
Change in unemployment rate since July 2009	Percentage change in the current month's unemployment rate from the July 2009 rate.
Year originated	Dummy variables for primary loans originated in 2003 to greater than 2009. (2002 is the omitted reference year.)
Loan-to-value ratio	The loan-to-value ratio for the first lien mortgage loan at origination, as a percentage.
LTV is not exactly 80 percent	Equals 1 if LTV at origination is not equal to 80 percent. This variable is used to estimate the presence of subordinate debt at origination.
Original loan amount	Amount of the original first lien mortgage loan (\$ thousands).
Judicial versus non-judicial state	Equals 1 if state has a judicial foreclosure process. The coding comes from the Mortgage Bankers Association (MBA).
Owner-occupied unit	Equals 1 if unit is owner-occupied.
Loan purpose	Equals 1 if loan purpose is for a purchase.
Property type	Equals 1 if property type is single family.
Loan documentation type	Equals 1 if loan has "low documentation."
Subordinate lien	Equals 1 if an owner has a subordinate lien recorded against his or her property.

<sup>a</sup> All of the race codes treat Hispanic as a separate "race." Therefore, if an owner is Hispanic, he/she will be coded as Hispanic. White, Black and Asian/Pacific Islanders are coded as such only if they are not Hispanic. Non-Hispanic Whites were the omitted race category in the models; that is, the values of the parameter estimates for blacks, Hispanics, and so on, are relative to non-Hispanic white owners.





The first new variable is the probability that an owner has negative equity in the property (also referred to as an “underwater mortgage”). The probability of negative equity, which varies from 0 to 1, represents the likelihood that an owner’s aggregate loan balances exceed the current value of their home during the time period of interest. This probability was calculated using the current balance of an owner’s mortgages and house values computed using estimates of house price drift and volatility based on the Federal Housing Finance Agency (FHFA) House Price Index. Since owners with negative equity are considered more likely to default and more likely to end up in foreclosure, it is important to control for this characteristic when modeling counseling impacts.<sup>19</sup>

CoreLogic’s Transaction History databases provide information on liens recorded against a property. We used this information to identify subordinate liens recorded against a property on or after the origination date for the first lien mortgage that was active as of (i) the intake date for NFMC clients or (ii) the month in which a non-NFMC owner was matched to an NFMC owner in the propensity scoring process. By only including subordinate liens in our calculations that were recorded on or after the active first lien origination date, we ensured that we did not include any subordinate liens originated against the property before the current owner moved into the home. There is a small chance that some subordinate liens that were originated to the current owner but before the active first lien loan was originated are not included in our probability of negative equity calculations. However, it is unlikely that many subordinate liens remain in place after refinancing a first-lien loan.

We do not have amortization information about subordinate liens in the loan-level data. Therefore, we included the full balance of the recorded subordinate lien in our negative equity calculations (which use the current unpaid principal balance [UPB] reported for the first-lien mortgage, which reflects amortization). To the extent that subordinate liens amortize over time, we overstate the total UPB of liens recorded against a particular property. We believe this potential measurement error is better than not including any subordinate lien information, as about 27 percent of all owners have a subordinate lien recorded against their property. In addition to using the Transaction History file to estimate an owner’s probability of negative equity, we also created a dummy variable that equals 1 for observation periods where there is a subordinate lien present against an owner’s property. This variable identifies owners where there are multiple liens against a property, which may complicate negotiations with servicers regarding loan work-outs.

In addition to variables related to the probability of negative equity and the presence of subordinate liens, we also included a dummy variable indicating whether the mortgaged

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<sup>19</sup> In our models we converted the probability of negative equity into a categorical variable, with categories for the probability of negative equity as follows: below 10 percent; 10—25 percent; 25—50 percent; 50—75 percent and 75—100 percent.



property is located in a state that has a judicial foreclosure process. The coding comes from the Mortgage Bankers Association (MBA). According to the MBA, a judicial foreclosure is a court proceeding that begins when the lender files a complaint and records a notice in the public land records announcing a claim on the property to potential buyers, creditors and other interested parties. The complaint asks the court to allow the lender to foreclose its lien and take possession of the property as a remedy for non-payment. The defendant (borrower) is permitted to dispute the facts (such as show that payments were made), offer defenses, or present counterclaims by answering the complaint, filing a separate suit, or by attending a hearing arranged by the court. If the defendant shows there are differences of material facts, a trial will be held by the court to determine if foreclosure should occur.

Twenty-two states use judicial procedures as the primary way to foreclose: Connecticut, Delaware, Florida, Hawaii, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, New Jersey, New Mexico, New York, North Dakota, Ohio, Oklahoma, Pennsylvania, South Carolina, South Dakota, Vermont and Wisconsin. In all other states and the District of Columbia, a foreclosure is usually handled by attorneys who follow a specified administrative process. Mortgage documents in these states give lenders the “power of sale” in the event of an uncured default. Documentation or affidavit issues are not common in these states because of the non-judicial nature of the process.

Since the type of foreclosure process—judicial or nonjudicial—may have an impact on the speed and possible outcome of a foreclosure process, we included a control variable in our models to indicate whether the client’s property was located in a judicial foreclosure state.

### **Interaction Models**

Clients with subordinate liens on their property or who have a relatively high probability of being underwater may present particular challenges for counselors when negotiating loan modifications. Therefore, for models in which we estimated NFMC counseling’s effect on the payment change resulting from a loan or whether a client receives a loan modification, we estimated models that included, respectively, variables where the *postEC* dummy variable was interacted with the subordinate lien dummy and a dummy variable that equals 1 when a borrower’s probability of negative equity is greater than 50 percent.

In addition, the ability to receive a loan modification, the amount of the modification, the ability to cure a troubled loan and complete a short sale may be affected by whether or not an NFMC client’s property is located in a state with a judicial (as compared to a non-judicial) foreclosure process. Therefore, we estimated models for these outcomes in which the *postEC* variable is interacted with the judicial foreclosure state dummy.

Estimating the interaction term for the loan amount model is straightforward, as the ordinary least squares parameter estimate for the interaction term reflects the marginal impact of the interaction term on the dependent variable. For outcomes modeled with LOGIT models,



we estimated interaction effects with the approach suggested by Norton and colleagues (2004).<sup>20</sup>

### **Program Selection and Omitted Variable Bias**

A key challenge presented in evaluating the effects of the NFMC program is a common problem in many program evaluation studies, that of *selection bias*. Put simply, certain factors that influence an owner's decision to enter NFMC counseling may also affect his or her observed outcomes. For example, people who enter NFMC counseling may be more proactive when dealing with financial matters, and so would be able to improve their situations even without outside help. For such people, it would be incorrect to attribute positive outcomes entirely to the NFMC counseling. Alternatively, people who decide to enter counseling may have relatively poor financial management skills, thus rendering them less able to follow through with a counselor's suggested plan of action after receiving NFMC services. In these cases, the estimated program effect may *understate* the impact of counseling. Or, specific events that took place during our observation period, such as a job loss, that we are unable to track may influence the decision to seek NFMC services or the eventual loan outcomes.

Econometricians have long recognized the problems of selection bias and have developed techniques to produce unbiased estimates. A common method is to use instrumental variables that predict whether a person seeks treatment but do not influence the outcome of interest. In a study of post-purchase counseling (Collins and Schmeiser 2010), the authors measure an organization's outreach advertising in Chicago as an instrumental variable that predicts entry into counseling but does not affect outcomes for clients who receive counseling. The results of this analysis suggest that the factors that influence selection into counseling also affect counseling outcomes, thereby creating a biased estimate of counseling's effect.

Unfortunately, a similar instrumental variable approach does not work here because we are analyzing counseling across many different cities, so we do not know when particular Grantees and Subgrantees made outreach efforts that would influence selection into counseling. Nor do we have an alternative instrumental variable available that would be correlated with the decision to enter counseling but *not* to the different outcomes that concern us.

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<sup>20</sup> In Norton and colleagues' approach, the effect for an interaction term in a LOGIT model that is the product of two dummy variables is the residual difference in probability calculated by subtracting three terms from the estimated probability when the two dummy variables included in the interaction variable equal 1, along with the interaction term also equaling 1: (i) two probabilities calculated when each one of the dummy variables equals 1 and (ii) a third term that is the estimated probability when none of the dummy variables or the interaction term equals 1.



### Using Observations before Counseling Entry to Correct for Possible Selection Bias

Since standard correction methods were unavailable, we use an alternative approach to address possible selection bias. Our approach takes advantage of the fact that we had observations regarding loan modifications and loan performance for NFMC client loans before they entered NFMC counseling. These observations provide us information about the impact of unobservable characteristics of NFMC clients on our model estimates.

We specify a variable—*preEC*—that equals 1 for observations for NFMC clients before their entry into counseling and 0 for clients after their entry into counseling. The variable *preEC* also equaled 0 for all observations for non-NFMC loans. Including this dummy variable in our models allows us to estimate how outcomes differ for NFMC clients *before receiving counseling services*, compared with the non-NFMC sample. The parameter estimate on this variable represents the impact of unobservable characteristics of the NFMC sample relative to our non-counseled comparison sample.

If, for example, the estimated parameter for *preEC* is statistically significant and positive, it means that the effect of unobservable characteristics of NFMC clients makes them more likely to have this particular outcome *without counseling* than people who never sought NFMC counseling. If, on the other hand, the *preEC* parameter is significant and negative, then NFMC clients are less likely to have this outcome than our comparison group of non-counseled borrowers. Finally, if the *preEC* parameter is not statistically significant, then unobservable characteristics do not have a measurable impact on the outcome in question. Another way to interpret the *preEC* parameter is that it represents the performance of the NFMC-counseled population *if the NFMC program had not been available*.

To determine the net program effect on NFMC clients, we subtract the *preEC* parameter estimate from the *postEC* parameter, which takes the value of 1 for all post-counseling intake observations of NFMC loans.

$$\text{Estimated net program effect} = \text{postEC} - \text{preEC}$$

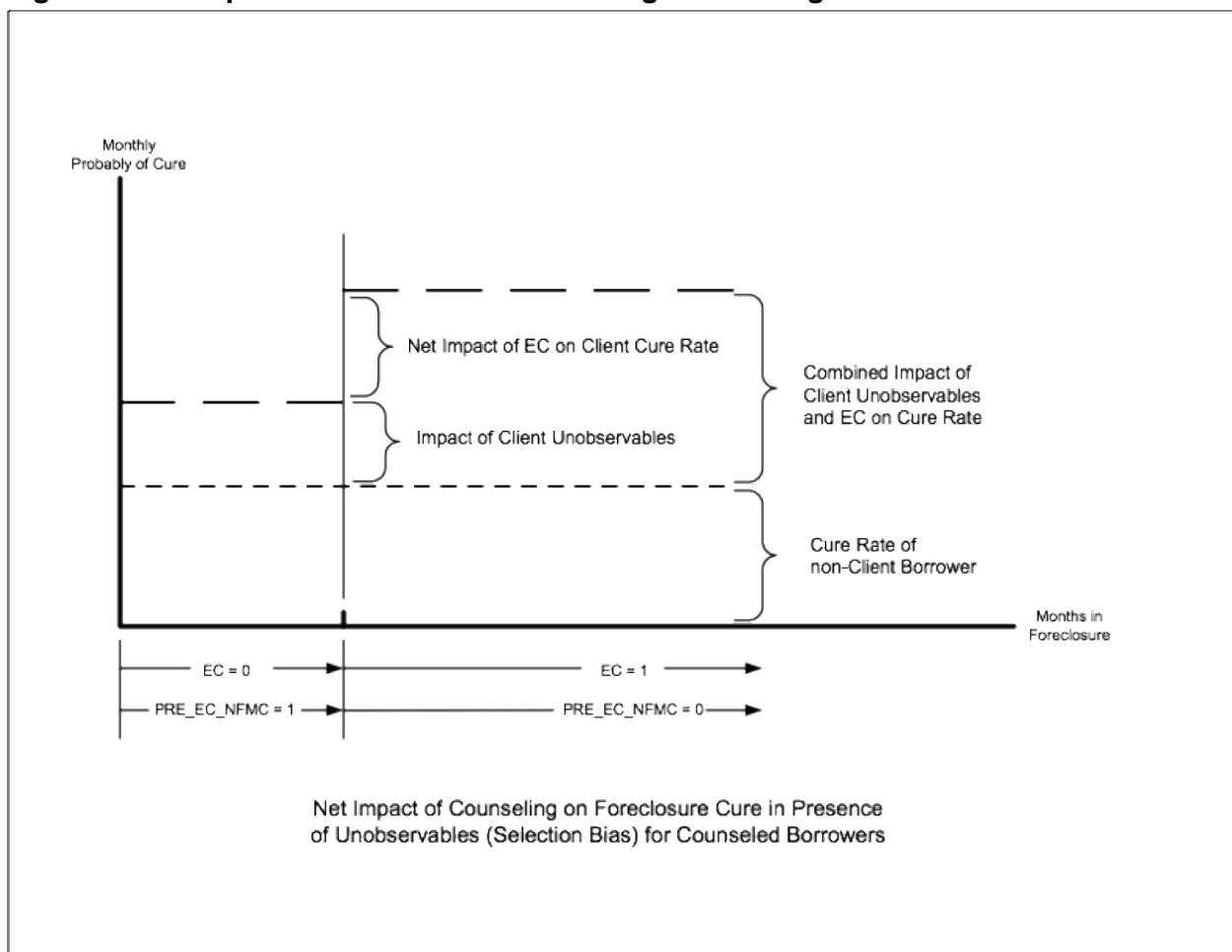
The difference between the two parameters subtracts out the potential impact of unobservable characteristics of NFMC clients on outcomes and therefore corrects for any characteristics that affect entry into counseling or the ability of counseling to help clients achieve the particular outcome being modeled.

Figure 1 illustrates this impact using the example of a cure model. The “cure rate of non-NFMC borrowers” (bottom dotted line) indicates the baseline cure rate estimated for the non-



NFMC comparison group. This rate is estimated with both  $preEC = 0$  and  $EC = 0$ .<sup>21</sup> The “impact of NFMC client unobservables” (the middle dashed line) represents the cure rate for NFMC clients *without counseling* and is estimated with  $preEC = 1$  and  $EC = 0$ . The example in the figure shows that NFMC clients prior to entry into counseling have a higher probability of curing a delinquent loan than non-NFMC clients, due to differences in unobservable characteristics between the two groups. The observed probability of NFMC clients *after* entry into counseling, represented by the highest dashed line (when  $preEC = 0$  and  $EC = 1$ ) shows that the probability of a cure is even greater than for NFMC owners after entry into counseling than it is for NFMC clients before they entered counseling.

**Figure 1: Conceptual Framework for Estimating NFMC Program Effects**



<sup>21</sup> In the figure, Pre\_EC\_NFMC is the same as  $preEC$  and EC is the same as  $postEC$  discussed above.



It would be incorrect to attribute the entire difference in probability between NFMC clients *after* entry into counseling and non-NFMC clients to the NFMC program. The reason is that even without counseling, NFMC clients in the example are more likely to cure than are non-NFMC owners due to unobservable characteristics. Therefore, attributing all of the observed differences between NFMC clients after entry into counseling and non-NFMC clients to NFMC counseling would overstate the program's effect. To avoid such a mistake, we estimated the NFMC program effect by calculating the difference between the *preEC* and *EC* parameter estimates, shown in the graph as the distance between the two higher dashed lines.

## Findings

This section details the results from our modeling of outcomes for the NFMC program clients.

### *NFMC Program's Effect on Loan Modifications*

As shown in table 6, NFMC clients who received loan modifications after they entered counseling had an average payment reduction of \$415, which was just about the same as the reductions for non-NFMC borrowers and \$162 greater than the average payment reduction received by NFMC clients before they entered counseling. (About 18 percent of NFMC client loan modifications were secured prior to entry into counseling.) These descriptive results show that NFMC clients who receive loan modifications with the assistance of an NFMC counselor end up with mortgage payment reductions that are about the same size as owners who do not use such services. This finding, though, does not take into account any unobservable characteristics of NFMC clients that, absent the NFMC counseling, would result in loan modifications with smaller payment reductions than non-NFMC owners.

When expressed in percentage terms, NFMC clients who received a loan modification after entry into counseling had their payments reduced by an average of 27 percent, which is very similar to the average payment reduction for non-NFMC owners (25 percent). NFMC clients who received their loan modification prior to entry into counseling had modifications that resulted in payment reductions of 17 percent, or about 10 percentage points less than post entry modifications.



**Table 6: Mean Payment Change for Non-NFMC and NFMC Clients Receiving Loan Modifications between July 2009 and June 2013**

	<i>Mean Reduction to Monthly Loan Payment</i>	<i>Difference from postEC</i>
<b>Dollar change to monthly loan payment</b>		
<i>postEC</i>	\$415	NA
<i>preEC</i>	\$253	\$162
Non-NFMC	\$419	-\$4
<b>Percentage change to monthly loan payment</b>		
<i>postEC</i>	27%	NA
<i>preEC</i>	17%	10%
Non-NFMC	25%	2%

Source: NFMC program data for July 2009 to June 2013 and CoreLogic loan modification data through June 2013.

Note: A negative effect should be interpreted as a larger loan modification monthly payment reduction.

The model results, presented in table 7, control for unobservable differences between NFMC clients and non-NFMC owners by using the *preEC* variable, and show that NFMC counseling resulted in loan modifications that had, on average a \$61 *greater* reduction in the monthly payment.<sup>22</sup> Note that NFMC clients, prior to entry into counseling received loan modifications that, on average had changes that were \$64 *less* than non-NFMC clients, holding other factors constant. This suggests that, holding factors constant, NFMC clients on their own received less favorable loan modifications than the non-NFMC borrowers, perhaps due to unobserved characteristics such as a more limited ability to negotiate with loan servicers.

<sup>22</sup> Full model results are in appendix C.

**Table 7: OLS Regression Model Estimates for Counseling Effects on Dollar Reduction in Monthly Payment Resulting from Loan Modifications**

	<i>Average Additional Reduction in Monthly Payment</i>		
	<i>Parameter estimate</i>	<i>95 Percent Confidence Interval</i>	
<b>Dollar change to monthly payment</b>			
<i>preEC</i>	\$64	\$53	\$74
<i>postEC</i>	\$3	-\$5	\$10
Net Effect of NFMC Counseling	-\$61	-\$52	-\$70
<b>Percentage change to monthly payment</b>			
<i>preEC</i>	2.4	2.0	2.9
<i>postEC</i>	-1.3	-1.0	-1.6
Net Effect of NFMC Counseling	-3.7	-3.3	-4.2

Source: OLS model estimates from NFMC program data for July 2009 to June 2013 and CoreLogic loan performance data through June 2013.

Note: A negative effect should be interpreted as a larger loan modification monthly payment reduction.

After counseling, NFMC clients received loan modifications that have payment reductions \$3 smaller than non-NFMC borrowers, holding other factors constant. However, this estimate does not take into account NFMC clients' unobservable characteristics that resulted in relatively smaller loan modification payment changes received prior to entry into counseling when compared to non-NFMC borrowers. Therefore, the net effect of counseling (calculated by subtracting the *preEC* parameter estimate of \$64 from the *postEC* parameter estimate of \$3) reflects unobserved characteristics that influence NFMC clients' loan modification payment changes without the assistance of a counselor.

The NFMC program effect on changes to loan payments resulting from modifications (\$61) was smaller than the \$176 impact reported for clients receiving NFMC counseling in rounds 1 and 2 (Mayer et al. 2011). This reduction in the program impact may reflect changes in the processes used by loan servicers to determine the reduction in a borrower's payment. To the extent that Home Affordable Modification Program (HAMP) standardized calculations used by servicers, the modified payment may result from a more algorithm-based process, and therefore not as greatly influenced by the negotiating skills provided by an NFMC counselor. Yet, even in this type of environment, NFMC counselors do help their clients receive more generous loan modifications, when compared to non-NFMC borrowers.





Models that used the percentage change in payments as the dependent variable had very similar results: NFMC counseling resulted in loan modifications with payment reductions that were about 4 percent greater than for non-counseled owners. This counseling effect takes into account the parameter estimate showing that NFMC clients, prior to entry into counseling (and holding other factors constant) receive loan modifications with payment reductions that were 2.4 percent smaller than non-NFMC owners. This difference effectively disappeared for NFMC clients who received their modifications with the assistance of an NFMC counselor.

The percentage change model uses the pre-modified mortgage payment as the denominator, and the payment change as the numerator. However, NFMC counseling increases the average NFMC client's loan payment reduction from a loan modification by \$61; this means that the reduction in loan payments would have been \$61 lower without counseling. Given that the average payment reduction for NFMC clients who receive a loan modification with the assistance of a counselor is \$415, *the \$61 increase in the reduction represents a 17 larger payment reduction than would have been achieved by NFMC clients without the assistance of a counselor.*

### **Interaction Model Results**

The estimated NFMC program effect of \$61 represents an average across all NFMC clients who received a loan modification with the assistance of a counselor. Table 8 summarizes the change to counseling's effect for three types of NFMC clients: (i) those with a subordinate lien; (ii) with a probability of greater than 50 percent of being in a negative equity position and (iii) residing in state with a judicial foreclosure process.<sup>23</sup>

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<sup>23</sup> Full model results are in appendix N.

**Table 8: Summary of Interaction Variables' Impact on NFMC Counseling's Effect on Loan Modification Payment Changes**

	<i>Additional Change in Monthly Payment Reduction</i>		
	<i>Parameter estimate</i>	<i>95 Percent Confidence Interval</i>	
<i>Presence of a subordinate lien</i>	-\$55	-\$40	-\$69
<i>Probability of negative equity GT 50 percent</i>	\$25	\$12	\$38
Client resides in a state with a judicial foreclosure process	\$24	\$12	\$38

\* Not statistically significant at  $p > 0.05$

Source: OLS model estimates from NFMC program data for July 2009 to June 2013 and CoreLogic loan performance data through June 2013.

Note: A negative effect should be interpreted as a larger loan mod reduction.

The interaction results show that a client living in a state with a judicial foreclosure process, on average received loan modifications with \$24 per month smaller payment reductions than NFMC clients who lived in states with a non-judicial foreclosure process. Regarding the other two effects: NFMC clients with a subordinate lien receive loan payment reductions through modifications that were about \$55 larger than clients without a subordinate lien. The reverse was true for clients more likely to be underwater: the reduction to their monthly payments resulting from loan modifications were, on average about \$25 smaller than for NFMC clients who were less likely to have negative equity.

#### *NFMC Program's Effect on Clients Receiving Loan Modifications*

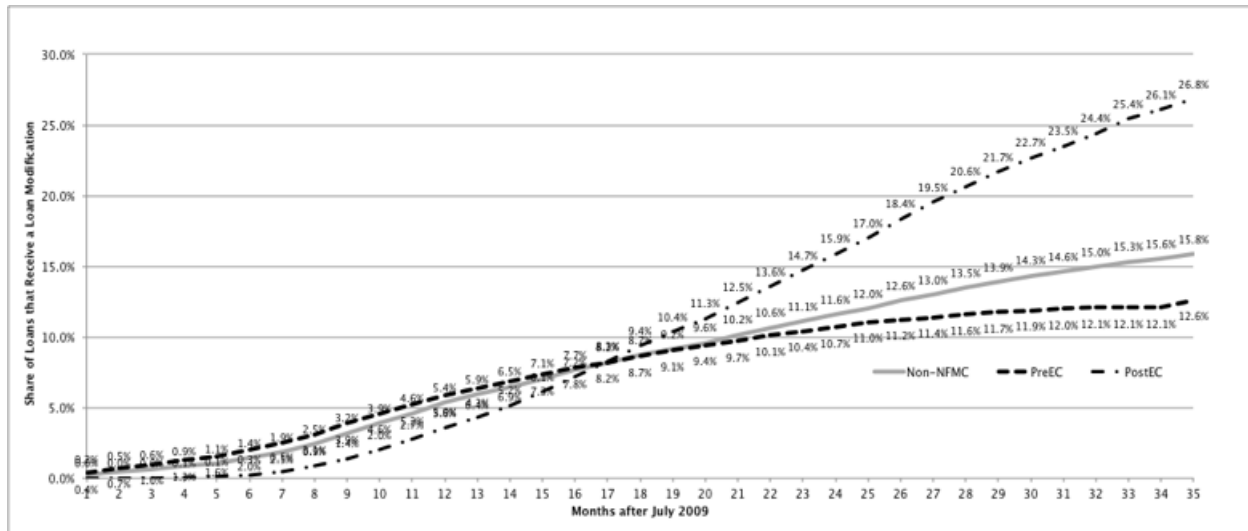
The NFMC program impact on loan modifications goes beyond the difference in mortgage payment reductions for owners who receive modifications with or without NFMC counseling. NFMC counselors may also be able to secure loan modifications for owners who would otherwise not have received any loan modification without a counselor's assistance. Counseling's benefit for such owners was the *full* payment reduction on their mortgage, as their payment reduction without counseling would have been \$0.

As shown in the following figure, the share of NFMC clients who received a loan modification after they entered counseling was greater than the share of non-NFMC homeowners and the share of NFMC clients receiving modifications before they entered counseling. By the end of the observation period, about 27 percent of NFMC clients received a loan modification after entry into counseling, compared to about 16 percent of non-NFMC homeowners. These shares were greater than the proportion of NFMC clients that received a



loan modification prior to receiving counseling services: about 13 percent of such owners obtained a loan modification prior to entry into counseling.

**Figure 2: Hazard Functions for Loan Modifications Recorded after July 2009**



Source: NFMC program data for July 2009 to June 2012 and CoreLogic loan performance data through June 2013.

To estimate NFMC's impact on the likelihood of receiving a loan modification, we estimated a LOGIT model where the dependent variable equals 1 if an owner received a loan modification at any point during the observed time period between July 2009 and June 2013. As with all of our models we included a dummy variable indicating periods prior to an NFMC client's entry into counseling (*preEC*) and another after entry (*postEC*). We used the standard sets of controls in the model, except that we did not include a measure of a loan's status as a time-varying covariate, because there were not enough observations for loans that were less than 30 days delinquent that had a modification to allow for a dummy variable measuring whether or not a loan was delinquent in the month prior to the observed modification. Instead, we used a variable that measured whether or not a loan was current in the first observation period for that particular mortgage, which was typically in July 2009. We also include a counter that measures the time (in months) elapsed since July 2009.

The results in the following table show that NFMC counseling resulted in a 2.83 increase in the net odds of a borrower receiving a loan modification when compared to owners who did



not receive NFMC counseling. Note that the net odds ratio reflects the impact of the *preEC* parameter estimate and the *postEC* parameter estimate.<sup>24</sup>

The 0.82 odds ratio for the *preEC* parameter estimate for receiving a loan modification indicates that NFMC clients, before entering counseling, had a lower likelihood of receiving a loan modification than a non-NFMC owner. The odds ratio for the *postEC* parameter estimate of 2.32 indicates that NFMC owners were more likely to receive a loan modification with the assistance of an NFMC counselor than non-NFMC owners. The net effect of counseling was calculated dividing the odds ratio for *postEC* of 2.32 by the *preEC* odds ratio of 0.82, which is 2.83.

**Table 9: Net Odds Ratios of NFMC Program's Effect on Receiving a Loan Modification**

	<i>Point Estimate</i>	<i>95 Percent Confidence Interval</i>	
<i>preEC</i> odds ratio	0.82	0.80	0.84
<i>postEC</i> odds ratio	2.32	2.27	2.37
Net odds ratio	2.83	2.75	2.91

Source: LOGIT results using NFMC program data for July 2009 to June 2013 and CoreLogic loan performance data through June 2013.

Note: An odds ratio of greater than 1 indicates that a factor increased the relative odds of the borrower receiving a loan modification; an odds ratio of less than 1.0 indicates that a factor decreased the relative odds of a borrower receiving a loan modification.

Using the results of the LOGIT model we estimated that the share of NFMC clients receiving a loan modification after entry into counseling was 2.75 times as large as the share of clients that would have received a loan modification without the assistance of an NFMC counselor for a 22-month period.<sup>25</sup>

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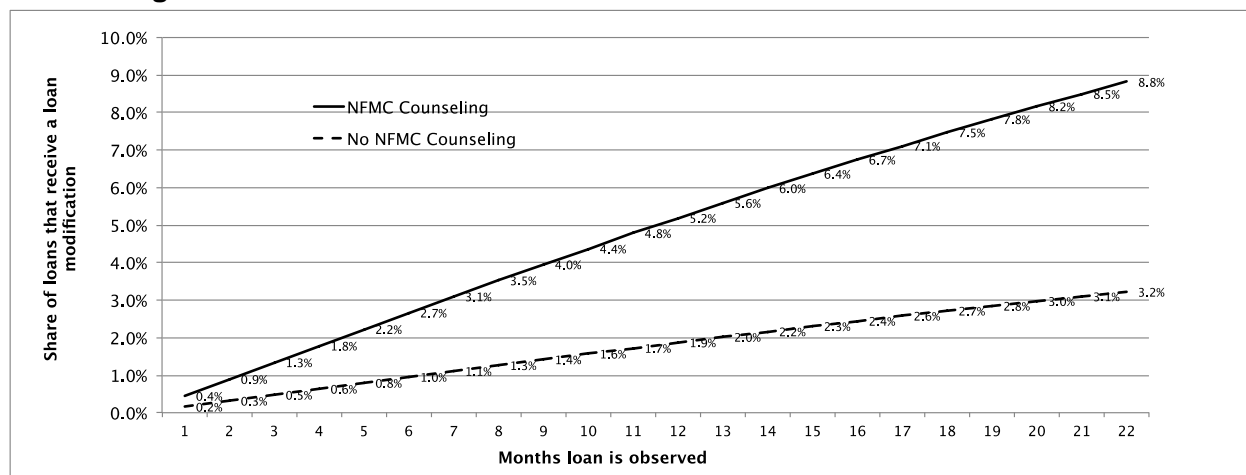
<sup>24</sup> Full model results are in appendix D.

<sup>25</sup> Note that the simulations are based on the average impact of a one-month increase in time since July 2009. As the descriptive hazard showed, the actual number of loan modifications for NFMC clients after entry into counseling is small within the first few post-July 2009 months. This is because it takes time for clients to receive their loan modification. As a result, the simulation shows a smoother increase in the share of NFMC clients with a loan modification after entry into counseling than the descriptive hazard model.

We estimated simulations for a 22-month period because that is the average length of time loans are observed after July 2009.



**Figure 3: Simulation of Modifications Received by Owners with and without NFMC Counseling**



Source: LOGIT results using NFMC program data for July 2009 to June 2012 and CoreLogic loan performance data through June 2013

### Estimated Aggregate Benefits of Counseling on Loan Modifications

As detailed in table 10, we observed 40,468 loan modifications that were recorded after an NFMC client entered counseling in the sample used to estimate the NFMC program effect; because the sample includes about 27 percent of all NFMC clients served between July 2009 and June 2012, we estimated that about 151,000 such clients received loan modifications after they entered counseling. Of these 151,000 loan modifications, our findings suggest that about 96,000 (64 percent) would not have occurred without NFMC counseling. Because these clients would not have received any loan modification, they derive a benefit of having their loan payments reduced by the full average monthly payment reduction of \$415—or \$4,980 annually. Therefore, to the extent that owners remain current on the modified mortgage and have the same mortgage (rather than refinancing it), the aggregate annual benefit to NFMC clients was \$478 million—which reflects lower monthly mortgage payments for clients who otherwise would not receive a loan modification.

**Table 10: Calculation of Estimated Annual Savings of Receiving Loan Modifications for NFMC Clients**

	Population	Sample
Total PostEC Mods for NFMC Clients	150,943	40,468
Estimated Number of Post EC Mods Without Counseling	54,964	14,736



Estimated Number of Post EC Mods Resulting from Counseling	95,979	25,732
Average annual payment reduction for PostEC Mods	\$4,980	–
Average Annual Savings Resulting from Loan Modifications Resulting from Counseling	\$477,975,420	–
Average annual payment reduction for NFMC clients who would have received a loan modification on their own	\$732	–
Estimated Number of Post EC mods that would have happened without counseling	54,964	14,736
Average annual savings Resulting from Loan Modifications that would have happened without NFMC counseling	\$40,233,648	–
Total estimated annual savings	\$518,209,068	–

Source: OLS results of NFMC counseling's effect on size of loan modification and LOGIT results using NFMC program data for July 2009 to June 2012 and CoreLogic loan performance data through June 2013

Note that this \$478 million annual benefit was *in addition* to the savings realized by NFMC clients who would have received a loan modification even without the assistance of an NFMC counselor. Such clients receive loan modifications with payment reductions that are on average \$61 greater than the payment reduction they would have received on their own. We estimated that about 55,000 of the 151,000 loan modifications received by NFMC clients after entry into counseling would have happened even without the assistance of a counselor. These owners received an average annual benefit of \$732, or a total aggregate annual benefit of about \$40 million.

Therefore, NFMC counselors helped save their clients, by securing loan modifications for clients who would not otherwise have received such changes, or negotiating larger payment reductions for clients who could have secured a loan modification on their own, *an average annual savings of about \$518 million.*



### Interaction Effects

Table 11 summarizes the results of our interaction analyses. The presence of a subordinate lien slightly reduces the positive NFMC counseling impact. The same was true for NFMC clients in a judicial foreclosure state: such a process reduces NFMC counseling's impact.

**Table 11: Interaction Effects on Probability of Receiving a Loan Modification through NFMC Counseling**

	Statistically Significant	Change in Counseling's Effect
Presence of subordinate lien	Yes	Negative
Probability of negative equity GT 50 percent	Yes	Positive
Judicial foreclosure state	Yes	Negative

Source: LOGIT results using NFMC program data for July 2009 to June 2013 and CoreLogic loan performance data through June 2013.

Conversely, the NFMC counseling impact is slightly greater for clients who have a greater than 50 percent chance of owning a property that is underwater.

It's important to bear in mind that the negative interaction effects for the presence of a subordinate lien and residing in a judicial foreclosure state were very small, as they reduce the increase in probability of an NFMC client receiving a loan modification compared to a non-NFMC homeowner in either case by about five percent. The positive interaction effect for the presence of a subordinate lien, however, was greater, as it increases the additional probability of an NFMC client receiving a loan modification by about 14 percent when compared to a client who was likely not underwater. This may result from lenders/servicers' willingness to negotiate a loan modification in circumstances where they were more likely to suffer relatively large losses from foreclosure, as the property's value was less than the outstanding principal balances on mortgages with liens on the property.

Previous studies report that minorities are equally likely to receive a HAMP modification, holding other factors constant (Mayer and Piven 2012). Therefore, for this outcome we also estimated interaction models to determine if NFMC counseling had any differential effects for black and Hispanic clients. The results indicate that NFMC counseling has slightly larger statistically significant positive effects for black and Hispanic clients, when compared to non-Hispanic white clients, on the probability of receiving a loan modification. While positive and statistically significant, the increase to the probability of black and Hispanic NFMC clients when compared to non-Hispanic white NFMC clients was not material.



### *NFMC Program's Effect on Curing Troubled Loans and Sustaining Cures*

Foreclosure prevention counselors assist clients who are having difficulty paying their mortgages. In this section we report our findings on two key questions:

1. Does NFMC counseling increase the likelihood that borrowers with a troubled loan can cure their mortgages (bring them to a current status)?
2. Once cured, are NFMC clients more likely to have their mortgages remain out of a troubled status?

To answer these questions we estimated four separate models:

1. A “modification cure” model where the dependent variable equals 1 if a borrower’s loan switched from a troubled status (90 or more days delinquent, in foreclosure, or in REO)<sup>26</sup> to a current status at the same time as a loan modification was recorded;
2. A “non-modification cure” model where the dependent variable equals 1 if a borrower’s loan switched from a troubled status to a current status, but there was no loan modification recorded at the time of the cure;
3. A “modification cure redefault” model where the dependent variable equals 1 if a borrower who received a modification cure subsequently had a loan become troubled; and
4. A “non-modification cure redefault” model where the dependent variable equals 1 if a borrower who received a non-modification cure subsequently had a loan become troubled.

Our analysis, detailed below, provides positive answers about the impact of counseling for both sustainability questions:

- *Counseling significantly increases the percentage of borrowers who were able to cure troubled loans either with or without a loan modification, and*
- *Counseling significantly improves the subsequent performance of troubled loans that were cured.*

### **Descriptive Cure and Sustainability Analysis**

In this section we present separate charts that show the share of actual troubled loans that cured with and without a loan modification. These charts are formally referred to as “hazard

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<sup>26</sup> Curing from REO is possible in states that have redemption periods after a foreclosure completion, where a borrower can reclaim his or her property by paying off the total debt plus additional costs and interest. In the data, we observed a small number of cures from REO status so we included loans entering REO in the cure models.





functions,” as they reflect the cumulative share of loans that either cured or redefaulted in a given month. In addition, we provide the redefault rates for both of these types of cures to a troubled status after the cure took effect. Each chart contains three lines: non-NFMC loans, NFMC clients prior to entry (*preEC*), and NFMC client after entry into counseling (*postEC*). The hazard functions of non-NFMC loans show the share of troubled non-NFMC owners who had a troubled loan, cured it (without counseling), and sustained that cure to the end of the observation period. The hazard functions for *preEC* NFMC clients show the share of troubled NFMC owners who had a troubled loan before entry into counseling that cured and, if they cured prior to entry, sustained that cure before entering counseling. The *postEC* hazards were based on NFMC clients that had a troubled loan after entry into counseling and cured such a loan.

It is important to remember that these descriptive charts do not account for differences across the three groups, and so cannot be used to infer an NFMC program effect. Nonetheless, they provide useful context for interpreting the models that do identify a program effect presented in the following section.

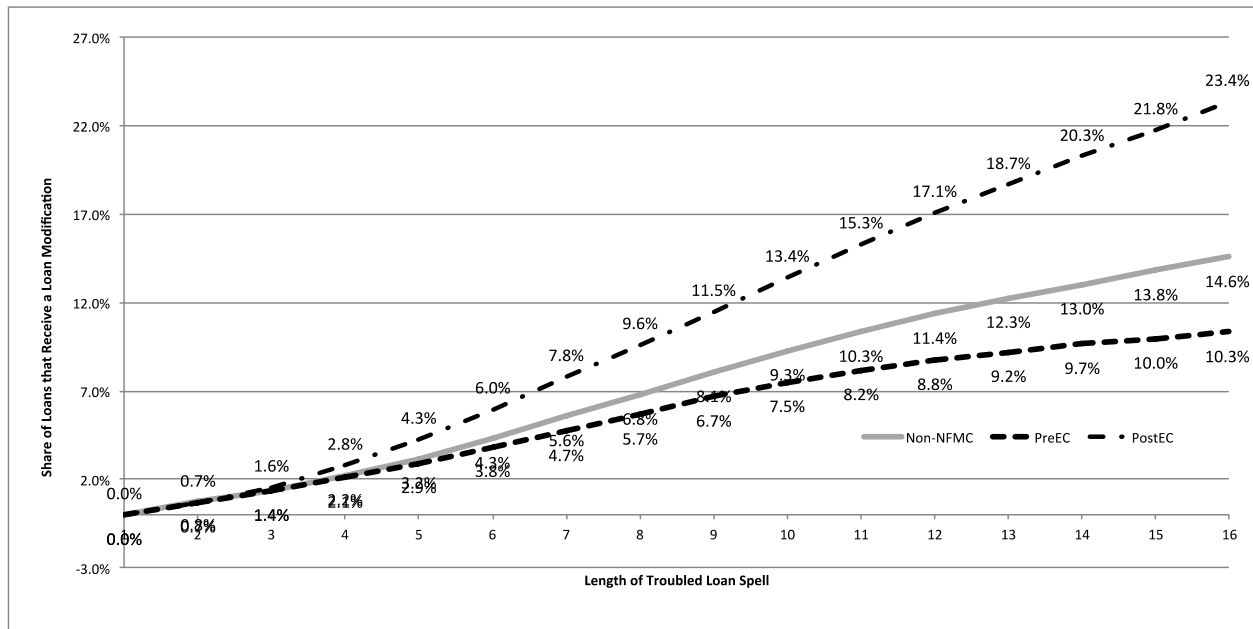
We start below with the modification cure hazard functions (figure 4). After 16 months of being in a troubled status, about 15.0 percent of non-NFMC owners received a modification cure, which was just about the same share of NFMC clients before entry into counseling. The share of NFMC clients who receive a modification cure (23 percent) after they enter counseling was greater than for non-NFMC clients and NFMC clients before they enter counseling.<sup>27</sup>

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<sup>27</sup> We present 16-month descriptive hazard data for cures because that is the average length of time a troubled loan is observed.



**Figure 4: Descriptive Hazard Function for Modification Cures**

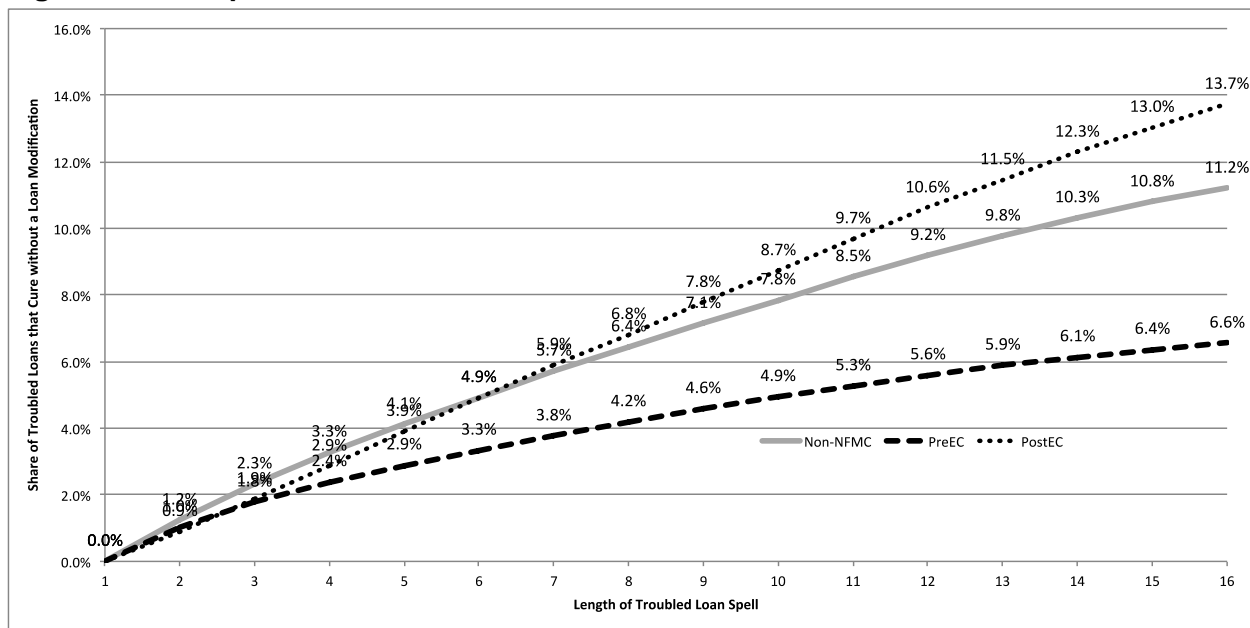


Source: NFMC program data for July 2009 to June 2012 and CoreLogic loan performance data through June 2013.

The hazard functions for non-modification cures (figure 5) show that a larger share of non-NFMC owners cure their troubled loans with a non-modification cure than the share of NFMC clients before entry into counseling, as shown by comparing the non-NFMC and PreEC lines in the figure. But, the share of NFMC clients receiving a non-modification (the PostEC line in the figure) increases when compared to the share of non-NFMC owners after clients enter counseling.



**Figure 5: Descriptive Hazard Function for Non-Modification Cures**



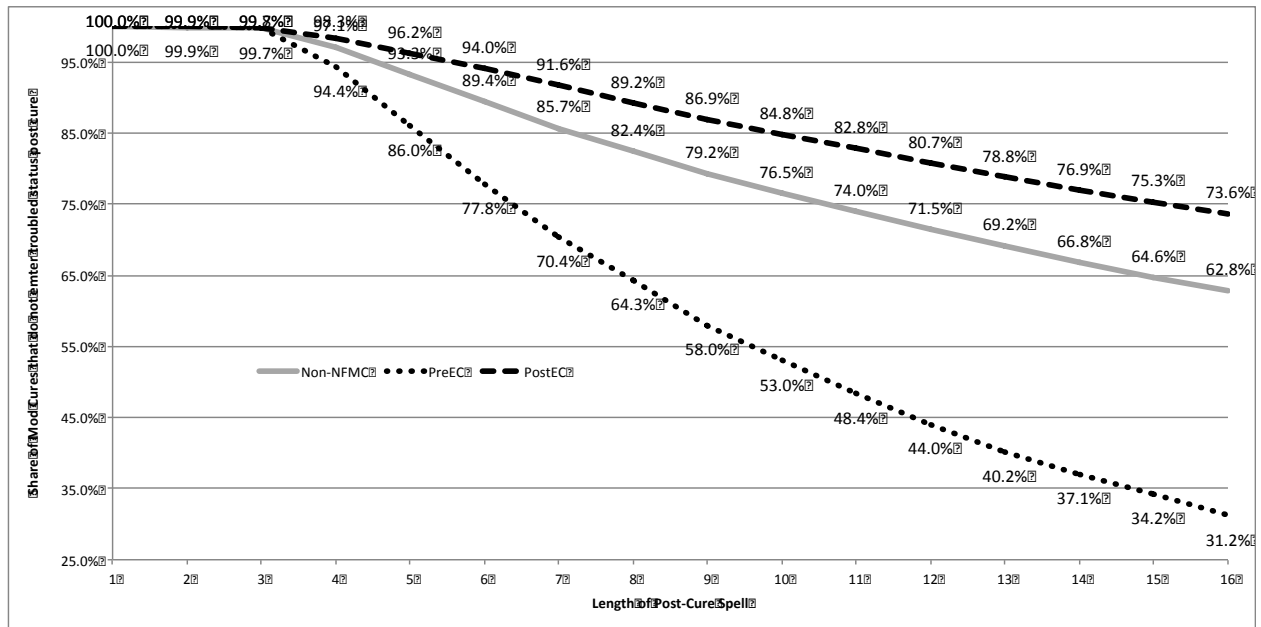
Source: NFMC program data for July 2009 to June 2012 and CoreLogic loan performance data through June 2013.

Figures 6 and 7 show the hazard functions for redefault of cures that took place with and without a loan modification.<sup>28</sup> The actual functions display the share of loans that *did not redefault* to a troubled status. NFMC clients, whether they received a modification cure or non-modification cure, were much less likely to redefault to a troubled status when compared to NFMC clients prior to entry into counseling and to non-NFMC borrowers. About 74 percent of NFMC clients who receive a modification cure after entry into counseling do not redefault within 16 months, compared to 63 percent of non-NFMC borrowers who received a modification cure and 31 percent of NFMC clients who received a modification cure prior to entry into counseling.

<sup>28</sup> We present descriptive hazard data for redefaults for a 16-month period because that is the average length of time cured loans are observed.



**Figure 6: Descriptive Hazard Function for Modification Cures Avoiding Redefault to Troubled Status**

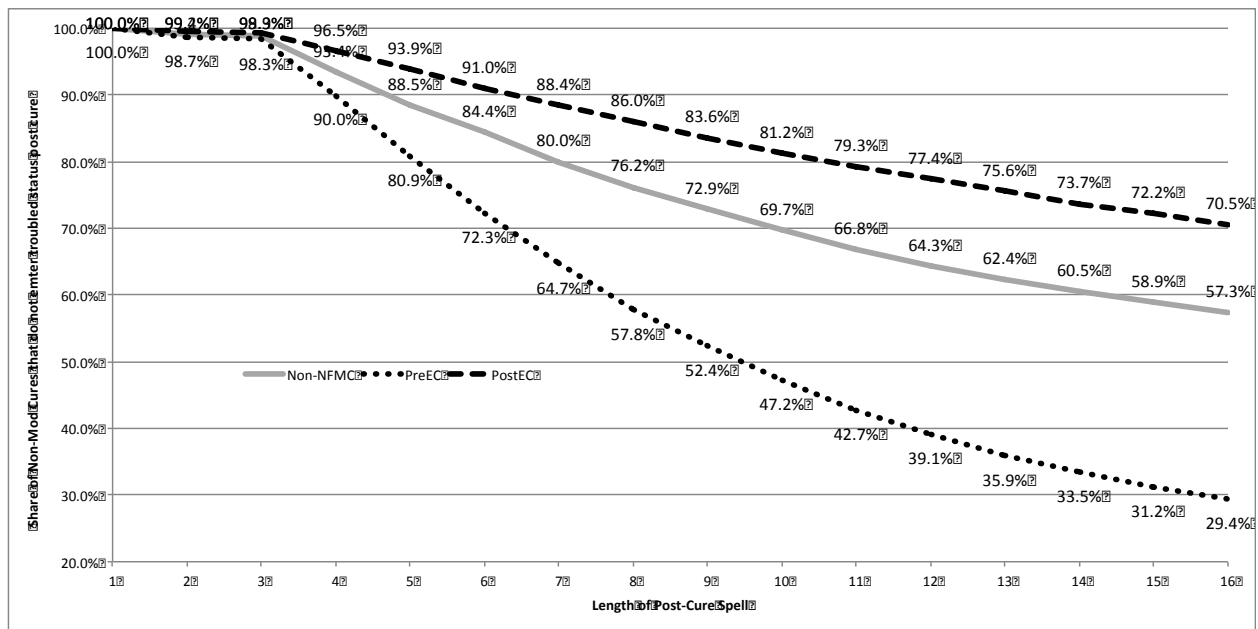


Source: NFMC program data for July 2009 to June 2012 and CoreLogic loan performance data through June 2013.

The same pattern holds for non-modification cure redefaults. About 70 percent of NFMC clients who receive such a cure after entry into counseling do not redefault to a troubled status after 16 months, compared to 57 percent of non-NFMC owners and only about 29 percent of NFMC clients who receive a non-modification cure before entering counseling.



**Figure 7: Descriptive Hazard Function for Non-Modification Cures Avoiding Redefault to Troubled Status**



Source: NFMC program data for July 2009 to June 2012 and CoreLogic loan performance data through June 2013.



### *NFMC Program Effect on Curing Troubled Loans*

The models for the NFMC program's impact on the likelihood of an owner curing a troubled loan included all of the standard controls described earlier, but also included a variable that measures the length of time that an owner's loan was in a troubled status. The results (in table 12) show that NFMC counseling increased the odds of an owner curing his or her troubled loan.<sup>29</sup> The odds of an owner curing with a loan modification increased by 1.78 with counseling and were 1.86 times greater for curing a troubled loan without a loan modification.

**Table 12: Net Odds Ratios of NFMC Program's Effect on Cures**

	<i>Point Estimate</i>	<i>95 Percent Confidence Interval</i>	
<b>Modification Cures</b>			
<i>preEC</i> odds ratio	1.03	1.00	1.07
<i>postEC</i> odds ratio	1.84	1.79	1.89
Net odds ratio	1.78	1.73	1.84
<b>Non-Modification Cures</b>			
<i>preEC</i> odds ratio	0.78	0.75	0.81
<i>postEC</i> odds ratio	1.46	1.41	1.50
Net odds ratio	1.86	1.80	1.93

Source: LOGIT results using NFMC program data for July 2009 to June 2013 and CoreLogic loan performance data through June 2013.

Note: An odds ratio of greater than 1 indicates that a factor increased the relative odds of the borrower curing a troubled loan; an odds ratio of less than 1.0 indicates that a factor decreased the relative odds of a borrower curing a troubled loan.

### **Judicial versus Non-Judicial Interaction Results**

Our models that include an interaction variable of *postEC* and the judicial foreclosure state dummy variable shows that NFMC counseling was slightly less effective for NFMC clients to receive a modification cure in states with a judicial foreclosure. There was no statistically significant effect on the non-modification cure outcome. The impact on modification cures, however, was very small, reducing the probability of an NFMC client receiving a modification cure in any given month after entering a troubled loan status by about five percent.

As discussed earlier, odds ratios are not the same as probabilities, and to ease the interpretation of the results we performed simulations by applying the parameter estimates from both cure models (loan modification and non-modification) to the means for each of the

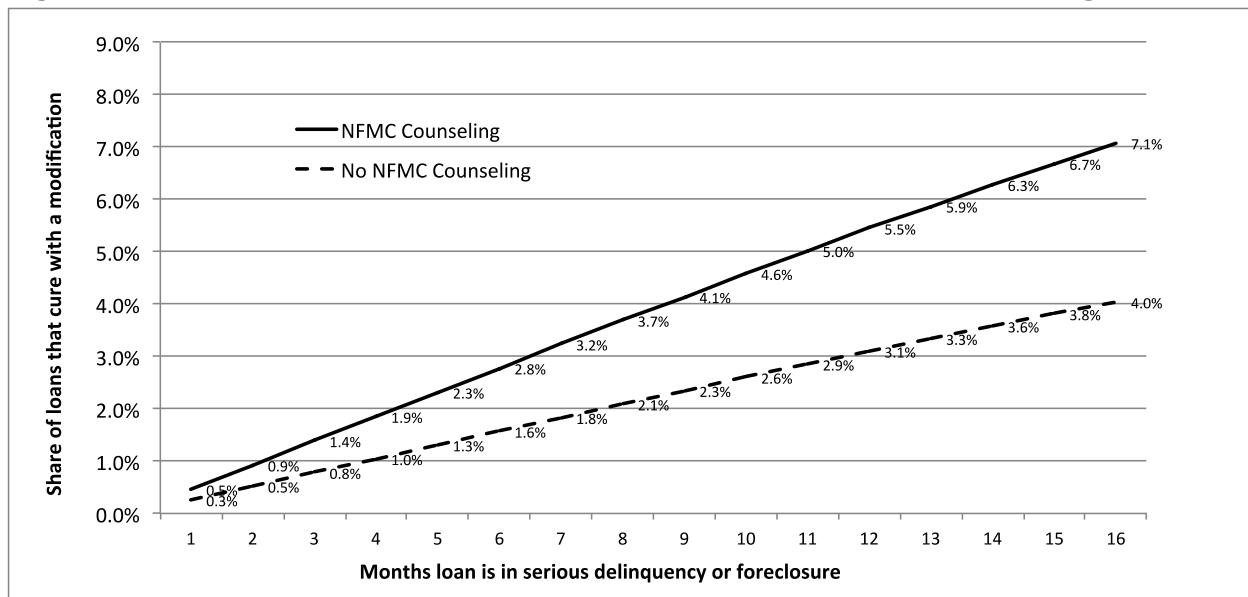
<sup>29</sup> Full model results are in appendices E and F.



explanatory variables used in the models. Because the models estimate the likelihood of a cure for a given month, we calculated the probability of a loan curing for each month after entering a troubled status and applied these probabilities to a cohort of borrowers whose loans became troubled and either (1) never entered counseling or (2) immediately entered counseling.

Figure 8 illustrates the results of our simulations for a 16-month period, which was about the average time that troubled loans were observed in the data. With NFMC counseling, about 7 percent of troubled borrowers cured their default with a loan modification. This proportion was 1.8 times greater than the 4 percent of owners with troubled loans that would have been expected to cure their mortgages with a loan modification without the benefit of NFMC counseling.

**Figure 8: Simulation of Modification Cures with and without NFMC Counseling**

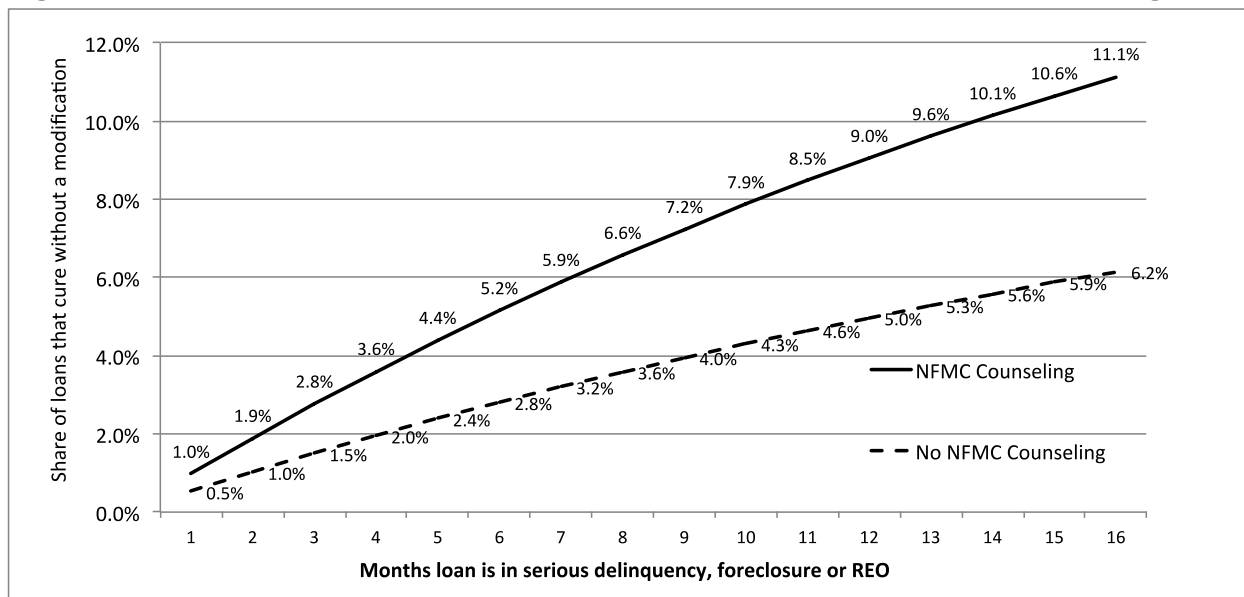


Source: LOGIT results using NFMC program data for July 2009 to June 2012 and CoreLogic loan performance data through June 2013.

The results for the NFMC program's impact on non-modification cures were similar. The share of troubled borrowers who cured their mortgage without a loan modification with counseling was about 11 percent after 16 months, as reflected in figure 9. This share was 1.8 times greater than the 6.2 percent of owners with troubled loans who would cure without a loan modification over the same time period. This finding was different from that for rounds 1 and 2, in which non-modification cures were less frequent for counseled homeowners than for those without counseling. In rounds 3 through 5, both modification and non-modification cures increased with counseling.



**Figure 9: Simulation of Non-Modification Cures with and without NFMC Counseling**



Source: LOGIT results using NFMC program data for July 2009 to June 2012 and CoreLogic loan performance data through June 2013.

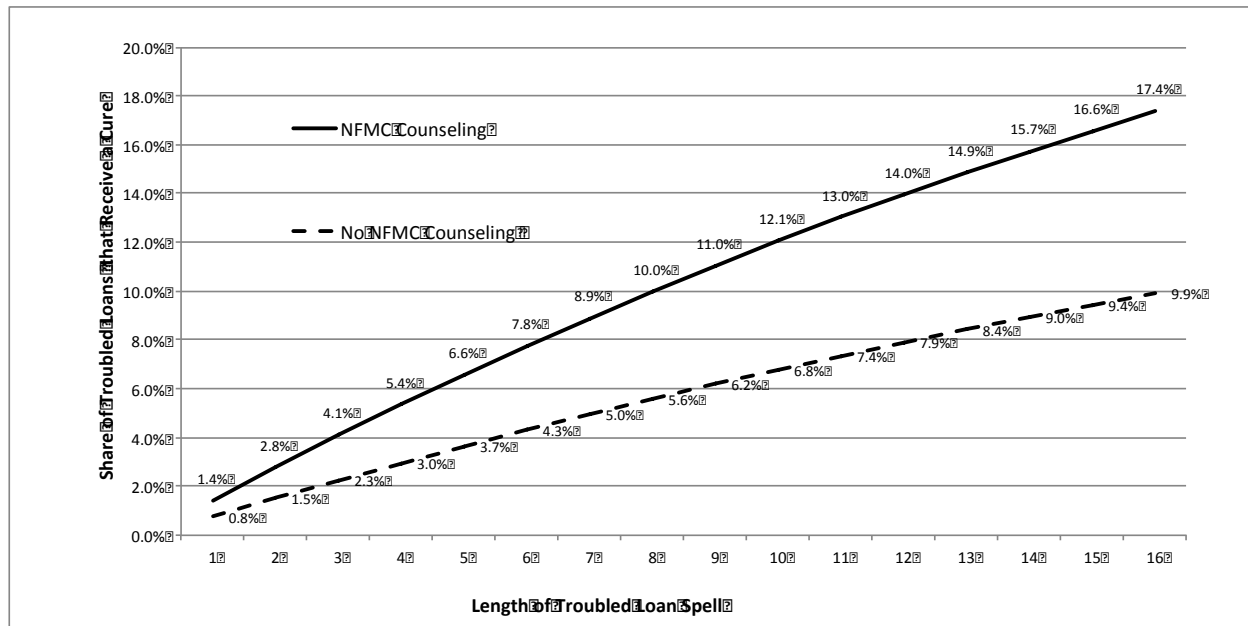
Both cure models estimated a strong, positive impact of NFMC counseling. Troubled borrowers were more likely to cure such loans either with or without a loan modification. Figure 10 shows the combined effect of the two cure models. The chart shows the share of troubled loans that cure (with or without a loan modification) over a 16-month period.<sup>30</sup> The simulations indicated that about 17 percent of NFMC clients with troubled loans cured within 16 months of entering counseling, which was 1.7 times as large as the estimated 10.0 percent of such owners that would have cured a troubled loan without NFMC counseling.

<sup>30</sup> The combined probabilities use the results of the modification cure and non-modification cure models, but adjusted to reflect the competing risk nature of cures—owners can only have one type of cure in a given period. The adjustment uses the methodology summarized in Begg and Gray (1984). As a result, the combined probabilities of any type of cure are less than the sum of the probabilities from both individual cure models.





**Figure 10: Simulation of All Cures with and without NFMC Counseling**



Source: LOGIT results using NFMC program data for July 2009 to June 2013 and CoreLogic loan performance data through June 2013.

### *NFMC Program Effect on Sustaining Cured Loans*

While the NFMC program increased the likelihood that owners cured their troubled loans, such cures are one part of the process for an initially troubled owner to remain in his or her home. The objective for any homeowner is to have their cure be sustained over time. To determine the impact of counseling on this objective, we estimated models that measured the NFMC program's effect on the redefault rates of cured mortgages.<sup>31</sup> This analysis used the troubled loans that were cured (brought to current) and measured the impact of NFMC counseling on loan performance after the cure was observed.

The redefault models included the same standard controls as in the loan modification and cure models, but also included a variable that measures the length of time (in months) after the cure was observed. In addition, the modification cure redefault model includes variables that measured the amount of the payment reduction resulting from the loan modification, which may affect the borrower's ability to make the revised payments, and whether the modification resulted in an increase or decrease to the loan's principal balance. This latter variable was

<sup>31</sup> Owners are considered to redefault if their loan enters 90+ days delinquency, foreclosure or REO status after being cured.



included because previous analyses of the performance of modified loans have shown that principal reductions have a large impact on subsequent performance.

Because NFMC clients can cure their troubled loan prior to entry into counseling, we used the same *preEC/postEC* specification as with our loan modification and cure models. However, we want to distinguish the counseling effect between NFMC clients who cured their loan *prior to entry* into counseling and clients who cured their loan *after* entry into counseling. This is an important distinction—it may be the case that an NFMC counselor’s ability to help a client who negotiated a sub-optimal loan modification before entering counseling was more limited than for a client who worked with a counselor to develop a solution to cure a troubled loan. Therefore, in addition to the *postEC* variable (which equals 1 for all NFMC clients after they enter counseling, whether or not a cure took place with the help of a counselor), we included a variable that equals 1 for NFMC clients who cured their loan *after* they entered counseling.

The modification cure redefault model results, summarized in table 13,<sup>32</sup> reflect two counseling effects: (1) the advantage of loan modifications received by NFMC clients with the assistance of counselors that were \$50 greater than modifications without such assistance;<sup>33</sup> and (2) the benefits of working with an NFMC counselor beyond receiving a modification with a larger payment reduction.<sup>34</sup> These benefits include developing a solution with a counselor that is appropriate given the owner’s financial conditions and budgeting/general financial management skills included in the counseling session with the owner.

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<sup>32</sup> Full model results are in appendices G (the redefault model) and H (the mod amount model).

<sup>33</sup> We estimated a model where the dependent variable equals a loan modification change, conditioned on a modification curing a troubled loan. This is different from the model in which we estimated NFMC counseling’s effect on all loan modifications, whether they cured a troubled loan or not. The estimated effect for NFMC counseling in this model is about \$50; that is the parameter we used in the modification cure redefault simulations.

<sup>34</sup> In addition to the positive relationship between the size of a loan modification payment reduction and performance, modifications with a principal reduction of at least \$5,000 had an odds ratio of 0.86—indicating that loan modifications with material principal reductions improved subsequent loan performance. Conversely, loan modifications with a principal increase of at least \$5,000 had an odds ratio of 1.37—meaning that loan modifications in which arrearages and other fees were rolled into the principal of the loan performed worse than mortgages where that was not the case.

**Table 13: Odds Ratios of NFMC Program's Effect on Modification Cure Redefaults to Troubled Status**

	<i>Point Estimate</i>	<i>95 Percent Confidence Interval</i>	
Odds ratio from \$50 loan modification payment difference resulting from NFMC counseling	0.99	0.98	1.00
<i>preEC</i> odds ratio	2.10	2.00	2.20
<i>postEC</i> odds ratio	2.00	1.89	2.10
Odds ratio for modification cure recorded after EC	0.32	0.31	0.34
Net odds ratio of direct counseling effect for NFMC clients who received a modification cure after entry into counseling	0.30	0.28	0.33
Total net odds ratio for NFMC clients who received modification cures after entry into counseling	0.30	0.27	0.32

Source: LOGIT results using NFMC program data for July 2009 to June 2012 and CoreLogic loan performance data through June 2013.

Note: An odds ratio of greater than 1 indicates that a factor increased the relative odds of the borrower redefaulting on the loan to a troubled status; an odds ratio of less than 1 indicates a decrease in the relative odds of redefaulting to a troubled status.

The results show that NFMC clients who received a modification cure for a troubled loan before entering counseling had much higher odds of redefault than do non-NFMC clients. This may be the result of NFMC clients, before entering counseling negotiating loan modifications that have features (such as modest payment reductions) that make it difficult to sustain over time.

NFMC clients who cured their troubled loan with a modification obtained with the benefit of help from a counselor had lower odds for redefault, however, than either NFMC clients who receive a modification cure before entering counseling or non-NFMC owners. The modification cure redefault model found that the odds of a redefault for NFMC clients who received a modification cure after entering counseling were about thirty percent of the odds of redefault without counseling, when taking into account the benefit from the reduced payment resulting from counseling and receiving a modification cure through working with a counselor. This was a large reduction (70 percent) in the odds of redefault. It largely results from counseling benefits

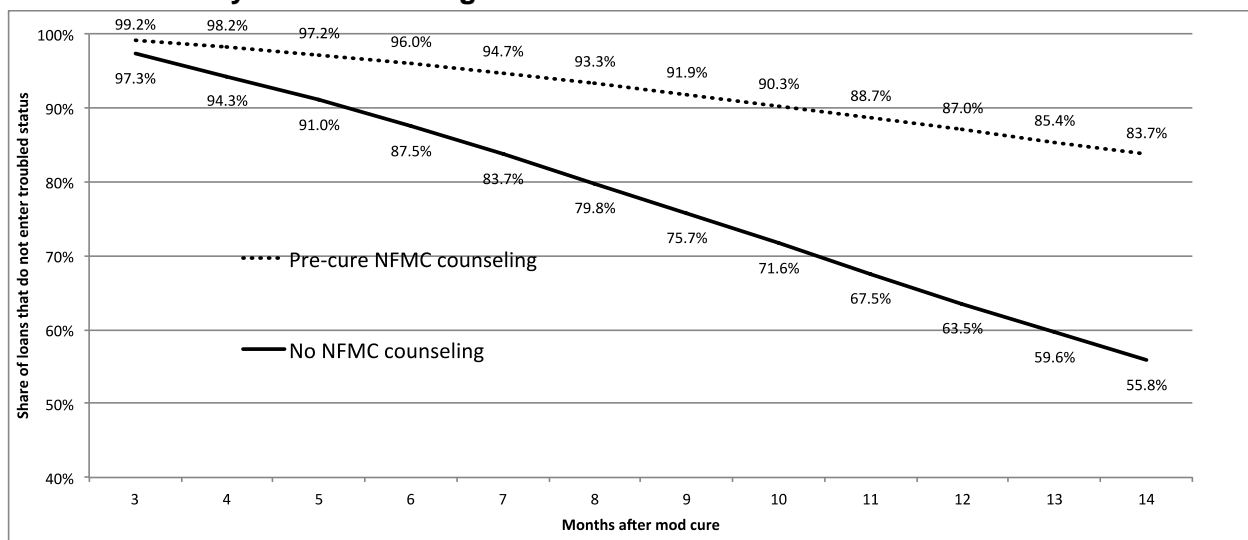


beyond an NFMC client receiving a modification with a larger payment reduction by working with a counselor.

We used the modification cure redefault model results to run simulations of survivorship (loans that did not re-enter troubled status after cure) for NFMC clients who cured loans after entry into counseling and owners who did not enter counseling at all. We estimated monthly probabilities and simulated the performance of a cohort of owners who cured with and without the help of a counselor for a 14-month period, which was the average length of post-cure time observed in the data.

The simulation results depicted in figure 11 show that, after 14 months, about 84 percent of NFMC clients who received a loan modification cure after they entered counseling did not redefault on their cured mortgages, compared to about 56 percent of non-NFMC owners who received such a cure. Put another way, 16 percent of NFMC clients who received a modification cure after entrance to counseling had their loan enter a troubled status post-cure, compared to 44 percent of non-NFMC owners. Therefore, NFMC clients who received a modification cure are about one-third as likely to redefault on their modified loan when compared to owners who did not receive counseling.

**Figure 11: Simulation of Modification Cure Redefault Avoidance for NFMC Clients Who Cured after Entry into Counseling and Non-NFMC Owners**



Source: LOGIT results using NFMC program data for July 2009 to June 2012 and CoreLogic loan performance data through June 2013.

NFMC counseling had a similarly large impact on improving the performance of non-modification cures. The non-modification cure redefault model included the standard controls,



but also as a variable measuring the length of time (in months) since a loan was cured and a dummy variable indicating whether or not the cure took place for an NFMC client after entry into counseling. In addition, the model included a variable that indicates whether or not a borrower cured his or her loan after entry into counseling in addition to the *preEC* and *postEC* dummy variables.

As shown in table 14, NFMC clients who cured a troubled loan without a modification prior to entry into counseling had higher odds of redefault than non-NFMC clients.<sup>35</sup> This may result from NFMC clients, before entering counseling negotiating non-modification cures that were not appropriate, given their circumstances. On the other hand, the odds for a redefault for an NFMC client who cured his or her troubled loan without a loan modification, *but after entry* into counseling were much lower (by about two-thirds) than non-NFMC owners and NFMC clients who cured troubled loans before entering counseling.

**Table 14: Odds Ratios of NFMC Program's Effect on Non-Modification Cure Reforefaults**

	<i>Point Estimate</i>	<i>95 Percent Confidence Interval</i>	
<i>preEC</i> odds ratio	2.29	2.16	2.43
<i>postEC</i> odds ratio	2.06	1.93	2.19
Non-Modification cure recorded after EC odds ratio	0.31	0.29	0.33
Total net odds ratio for NFMC clients who had a non- modification cure after entry into counseling	0.28	0.25	0.31

Source: LOGIT results using NFMC program data for July 2009 to June 2012 and CoreLogic loan performance data through June 2013.

Note: An odds ratio of greater than 1 indicates that a factor increased the relative odds of the borrower redefaulting on the loan; an odds ratio of less than 1 indicates a decrease in the relative odds of redefaulting.

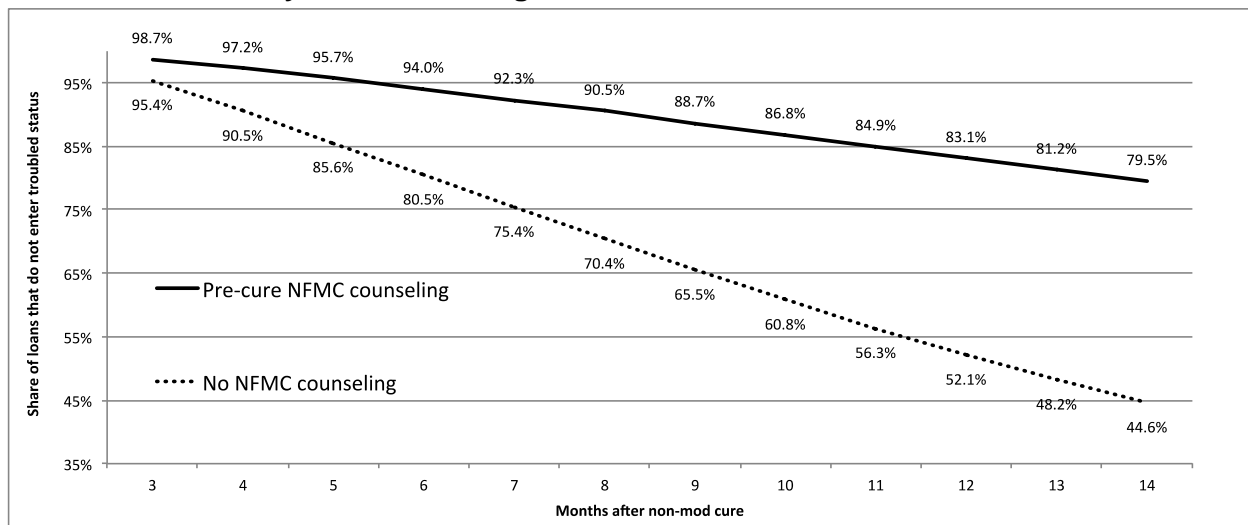
The simulations presented in figure 12 show NFMC counseling's impact of improved loan performance for non-modification cures. After 14 months about 80 percent of NFMC clients who cured their troubled loan without a modification but after entry into counseling remained out of trouble on their loan, compared to 45 percent of non-NFMC borrowers who cured without a loan modification. Therefore, the likelihood that an NFMC client who cured without a loan

<sup>35</sup> Full model results are in appendix I.



modification will redefault to a troubled status (20 percent) was about one-third as great as non-NFMC owners who also cured without a loan modification (55 percent).

**Figure 12: Simulation of Non-Modification Cure Reforedefault Avoidance for NFMC Clients Who Cure after Entry into Counseling and Non-NFMC Owners**



Source: LOGIT results using NFMC program data for July 2009 to June 2012 and CoreLogic loan performance data through June 2013.

### Putting It Together: NFMC Program Effect on Combined Cures and Sustains of Troubled Loans

The modeling analysis indicated that NFMC counseling helped troubled borrowers in two ways: (1) they were more likely to cure their troubled mortgages and (2) cured mortgages were less likely to become troubled again, whether or not the NFMC client cured his or her troubled loan with a loan modification. Using the results of the simulations for all four models (modification cure, non-modification cure, modification cure redefault and non-modification cure redefault) we estimated the NFMC program's effect on the share of owners with troubled loans who were able to both cure and sustain their mortgages. As shown in table 15, NFMC clients were 3.2 times more likely to cure and sustain troubled mortgages without a loan modification than non-NFMC owners and 2.6 times more likely to cure and sustain a troubled loan with a loan modification than non-NFMC owners, with an overall cure and sustain rate combining the two different types of potential cures that was 2.9 times greater with NFMC counseling than without such help.

**Table 15: Summary of Simulations for Cures and Sustains of Troubled Loans with and without NFMC Counseling**

	<i>With NFMC Counseling</i>	<i>No NFMC Counseling</i>	<i>Ratio of NFMC Counseling to No NFMC Counseling</i>
Share of troubled loans receiving a non-modification cure within 16 months of entering a troubled status	10.8%	6.0%	1.78
Share of troubled loans receiving a modification cure within 16 months of entering a troubled status	6.6%	3.9%	1.70
Share of non-modification cures that do not become troubled loans within 14 months of curing	79.5%	44.6%	1.78
Share of modification cures that do not become troubled loans within 14 months of curing	83.7%	55.8%	1.50
<b>Share of owners with a troubled loan obtaining sustained non-modification cures</b>	<b>8.5%</b>	<b>2.7%</b>	<b>3.18</b>
<b>Share of owners with a troubled loan receiving sustained modification cures</b>	<b>5.5%</b>	<b>2.2%</b>	<b>2.55</b>
<b>Total Cure and Sustain Rate</b>	<b>14.1%</b>	<b>4.9%</b>	<b>2.90</b>

Source: LOGIT results using NFMC program data for July 2009 to June 2012 and CoreLogic loan performance data through June 2013.

### *Short Sales*

The results discussed above show that NFMC counseling helps clients get loan modifications and sustainable cures. But, does counseling have an impact for owners who were unable to cure a loan? Counselors and other industry participants interviewed for this study acknowledge that not every client is best served by a solution in which s/he remains in the home. Therefore, we analyzed the impact of NFMC counseling on a short sale in which an owner with negative equity was able to get their loan servicer to agree to a sale of the home where the proceeds were less than the seller's unpaid principal balance. As discussed earlier, such sales are the preferred outcome to losing a home through a foreclosure.



Because short sales are terminal events, we only observe such outcomes for NFMC clients after they enter counseling. Therefore, the *postEC* parameter estimate represents NFMC counseling's impact on a client's ability to complete a short sale. In this model we also included a dummy variable that equals 1 if a borrower was 90 days delinquent in the prior month. The results in table 16 show that the odds for completing a short sale increase by 21 percent for NFMC clients when compared to non-NFMC owners.<sup>36</sup>

**Table 16: Odds Ratios of NFMC Program's Effect on Short Sales**

	95 Percent		
	Point Estimate	Confidence Interval	
<i>postEC</i> odds ratio	1.21	1.13	1.29

Source: LOGIT results using NFMC program data for July 2009 to June 2012 and CoreLogic loan performance data through June 2013.

Note: An odds ratio of greater than 1 indicates increased relative odds of the borrower completing a short sale.

In addition, the results show that owners with subordinate liens were much less likely to complete a short sale: the odds ratio for the presence of a subordinate lien were 0.35, which means that the odds for completing a short sale with a subordinate lien were 65 percent smaller than for owners without a subordinate lien. In addition, our interaction model shows that the presence of a subordinate lien reduces counseling's positive effect. This may be due to the complexity in negotiating a short sale with more than one lien holder, which makes it difficult for any owner, including NFMC clients to negotiate a short sale.

### Interaction Effects of a Judicial versus Non-Judicial Foreclosure Process

For short sales, the estimated interaction effect between NFMC counseling and a property being located in a state with a judicial foreclosure process was negative and significant. This means that NFMC counseling's impact for clients in states with a judicial foreclosure process on their ability to complete a short sale was smaller than for NFMC clients in states with a non-judicial foreclosure process. This effect was relatively large: the probability for an NFMC client completing a short sale in any given month in a state with a judicial foreclosure process was about 40 percent less than a similar client in a state with a non-judicial foreclosure process. It is unclear what accounts for this difference, but it may be that servicers were less likely to negotiate a short sale when there was a possibility of another solution resulting from the judicial foreclosure process.

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<sup>36</sup> Full model results are in appendix M.





Using the results of the LOGIT model, we estimated that there were 21 percent more short sales for NFMC clients than the number for NFMC clients that would have been completed without the counseling (table 17). This suggests that counselors were able to work with clients and servicers to identify suitable candidates for short sales and negotiate such outcomes for these clients.

**Table 17: Estimate of NFMC Counseling's Effect on Number of Short Sales**

	Estimated Number of Total Short Sales for NFMC Clients	Estimated Number of Short Sales without NFMC counseling	Estimated Number of Short Sales Resulting from NFMC Counseling	% Increase in Short Sales
Number of NFMC Clients	11,857	9,784	2,073	21.2%

Source: LOGIT results using NFMC program data for July 2009 to June 2012 and CoreLogic loan performance data through June 2013.

### *Transition to REO*

In estimating the program effect for this study (using the WWC and WWOC methods) we found that the NFMC program had no overall effect on transition to REO. This result is surprising, as NFMC counseling has a positive impact on clients receiving sustainable cures for troubled mortgages. However, to the extent that NFMC counselors seek to implement the most appropriate solution, given a client's circumstances, it may be preferable for a client who cannot cure a troubled loan to resolve his or her situation more quickly, and thereby have the foreclosure process complete relatively quickly rather than remain in the home that is no longer affordable.

To test this hypothesis, we estimated a LOGIT model where the dependent variable equals 1 for a loan that enters REO status, but censored observations when a troubled loan cured.<sup>37</sup> As with short sales, we can only observe a transition to REO after an NFMC client enters counseling. Therefore, our model estimates NFMC counseling's effect with a dummy variable that equals 1 for period observed after a client enters counseling (*postEC*).

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<sup>37</sup> Nearly all loans that enter REO are in a troubled status (90+ days delinquent or in foreclosure) prior to this transition.



As shown in table 18, NFMC counseling increases the odds for a transition to REO status by 16 percent for a client who was unable to cure a troubled loan.<sup>38</sup> This is consistent with our expectations that counselors help clients unable to cure troubled loans to resolve their problem more quickly than non-NFMC owners.

**Table 18: Odds Ratios of NFMC Program's Effect on REO Transitions for Non-Cured Owners**

	<i>Point Estimate</i>	<i>95 Percent Confidence Interval</i>	
<i>postEC</i> odds ratio	1.16	1.12	1.19

Source: LOGIT results using NFMC program data for July 2009 to June 2012 and CoreLogic loan performance data through June 2013.

Note: An odds ratio of greater than 1 indicates increased relative odds of an owner transitioning to REO status.

Note that this outcome does not mean that counselors help to increase the number of transitions to REO, as these troubled loans that did not cure and could not be sold in a short sale *eventually* would have ended up in REO. Rather, the LOGIT model results indicate that counselors help to reduce the time that owners with troubled loans remain in their homes despite being unable to pay the mortgage, and so the transition to REO takes place during our July 2009-June 2013 observation period. By reducing the time to REO transition, NFMC counselors help to improve the overall efficiency of the market, as servicers and borrowers do not have to continue to spend resources on resolving cases that have little chance of avoiding REO, and new buyers can purchase homes that are now occupied by owners who may no longer finance the upkeep and general maintenance of their properties.

We also estimated a LOGIT model in which the dependent variable equals 1 for a loan that enters REO *after* being cured. This is a variant on the sustainability models, but rather than estimate separate models for modification and non-modification cures we examine cures as one group of loans, and use transition to REO (rather than troubled status) as the dependent variable. To the extent that NFMC counseling delays transition to REO, it is an offset to the effect of NFMC counseling accelerating transition to REO for uncured troubled loans, explaining why there was no overall NFMC program effect on transition to REO.

Consistent with our sustainability findings, we find that cures completed after NFMC counseling were much less likely to enter REO post-cure than cures of non-NFMC owner troubled loans and also than NFMC clients who cured their troubled loan before entering

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<sup>38</sup> Full model results are in appendices J-L.



counseling. After taking into account the higher odds for transition to REO for NFMC clients who cured prior to entry, the net odds for NFMC clients who cured their troubled loan post-entry were 56 percent lower than for non-NFMC owners (table 19).

**Table 19: Odds Ratios of NFMC Program's Effect on REO Transitions for Cured Owners**

	<i>Point Estimate</i>	<i>95 Percent Confidence Interval</i>	
<b>Modification Cures</b>			
<i>preEC</i> cure odds ratio	1.91	1.70	2.14
<i>postEC</i> cure odds ratio	0.83	0.75	0.93
Net odds ratio	0.44	0.39	0.49

Source: LOGIT results using NFMC program data for July 2009 to June 2013 and CoreLogic loan performance data through June 2013.

Note: An odds ratio of greater than 1 indicates increased relative odds of an owner transitioning to REO status. An odds ratio of less than 1 indicates decreased relative odds on an owner transitioning to REO status.

This finding is consistent with the hypothesis that NFMC counselors help to identify clients who are good candidates to remain in their home, even if these clients have loans in a troubled status. Such clients, post-cure were much less likely to either re-enter a troubled loan status post-cure, or have their mortgage transition to REO. On the other hand, for clients unable to cure, NFMC clients help owners to resolve their case more quickly, either through a short sale or, if that is not feasible, to allow the foreclosure process to complete, thereby allowing the client to seek out more affordable housing options. Thus, while the overall transition to REO model shows that NFMC counseling has no net effect on the number of such transitions, those results obscure the impact that counseling has for two different sets of clients: those that were good candidates to remain in their homes and another group that was unlikely to be able to keep current on a cured mortgage.



## CONCLUSION

The National Foreclosure Mitigation Counseling program started in 2008 at the beginning of the nation's foreclosure crisis. The purpose of the counseling funded by the program is to help clients determine and implement the most appropriate solution, given their financial and personal circumstances. As reported in the evaluation of rounds 1 and 2, the program had very positive effects for clients who received counseling in the early period of the initiative. Similar analyses for rounds 3 through 5, looking at clients who received counseling between July 2009 and June 2012, indicate that the program continues to help its clients.

NFMC clients with a troubled loan were more likely to cure this problem, both with and without loan modifications, than were owners in the comparison group. These findings were consistent with the results of the first NFMC evaluation. And, as with the previous study's findings, cures of these troubled loans were more sustainable over time—owners who cure their troubled loans with the help of an NFMC counselor were less likely to have their mortgages return to a troubled status than comparison group owners. Moreover, NFMC clients received loan modifications with larger payment reductions than did borrowers in the comparison group who received loan modifications without the assistance of NFMC counselors. In addition, our analyses indicate that NFMC counselors help their clients receive more loan modifications than do other borrowers, which provide significant (an average of \$4,800 per year) savings.

Remaining in the home may not always be the best outcome; some clients may not be able to sustain even reduced mortgage payments. Counselors also helped in these situations. NFMC clients were more likely to complete a short sale than were non-NFMC owners. For clients who could not cure a troubled mortgage, NFMC helped them resolve their cases more quickly, thereby reducing the time spent in an unresolved status.

The findings showing the positive effects of NFMC counseling are especially compelling, because since 2008 when the NFMC program started, lenders and servicers have expanded their capacity to serve borrowers who face hurdles in keeping up on their mortgage payments. This change to the industry potentially made counseling relatively less important, because owners without counselors presumably also benefited from an improved ability of lenders and servicers to process and evaluate appropriate loan workout solutions. Given this potentially offsetting impact, the continued positive effects of NFMC counseling, even for owners who received such services as late as mid-2012 (more than four years after the crisis started) is an impressive finding.



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## **APPENDICES**

Appendices are provided as a separate document to this report.