

# Documentation for HMDA Analysis Summarized in ‘Mortgage Lending by Applicant and Neighborhood Income’

Community Development Studies and Education Department  
Federal Reserve Bank of Philadelphia

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## Data

Data collected under the auspices of the Home Mortgage Disclosure Act (HMDA) are the main source for this work. HMDA data come in the form of annual databases of mortgage applications that cover the majority of the U.S. mortgage market; only some small and nonprofit lenders, as well as those with branches located exclusively in nonmetropolitan areas, are exempt from reporting.<sup>1</sup> The HMDA files used in this analysis are publicly available and have been supplemented with income data from the U.S. Census Bureau in order to analyze mortgage lending patterns by applicant and neighborhood income. The study period is from 2004 to 2012, and the study universe is all completed applications for first-lien loans associated with single-family properties (i.e., one- to four-family dwellings) intended for owner occupancy in the United States. Included in the HMDA databases, but excluded from this analysis, are all withdrawn or incomplete applications, applications for subordinate-lien loans, multifamily property loans, manufactured home loans, investment (i.e., not owner-occupied) property loans, and loans for properties in Puerto Rico, as well

as institutional loan purchases and requests for preapproval.

## Methods and Definitions

*Income categories:* This analysis uses definitions of low, moderate, middle, and upper income as defined by the Community Reinvestment Act (CRA) regulations.<sup>2</sup> In this system, the income of the mortgage applicant is compared with the median family income of the broader local area and is assigned to an income group based on the proportion of the area income that the applicant reports: If applicants earn less than 50 percent of the local area median family income, they are considered low income; if they earn between 50 percent and less than 80 percent, they are moderate income; between 80 percent and less than 120 percent is middle income; and equal to or greater than 120 percent is upper income.<sup>3</sup> The local area with which the applicant’s income is compared is the metropolitan area, the metropolitan division, or the nonmetropolitan portion of the state, depending on the location of the property associated with the loan. A similar approach is used for categorizing census tracts, which are used to approximate neighborhoods in this analysis.

The census tract median family income as a proportion of the area median family income determines the assignment of the tract to one of the four income categories described previously.

The 2004–2011 HMDA data used in this analysis are distributed by the Federal Financial Institutions Examination Council (FFIEC), and the files include annually updated information from the 2000 decennial census for assigning neighborhoods and applicants to income categories; however, this study instead uses five-year American Community Survey (ACS) estimates (2005–2009) for those classifications. This provides income estimates that are closer in time to the study years. Because applicant income is reported in nominal dollars, the 2005–2009 ACS estimates (reported in 2009 dollars) are adjusted for each year of HMDA data using the Bureau of Labor Statistics’ consumer price index research series (CPI-U-RS) using current methods to account for inflation.

Using ACS instead of decennial census data is consistent with the FFIEC’s new approach, starting with the 2012 data, whereby HMDA data

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<sup>1</sup> See [“A Guide to HMDA Reporting: Getting It Right!”](#) Federal Financial Institutions Examination Council (2013) for more information.

<sup>2</sup> See [12 C.F.R. §228.12\(m\)](#) (2012).

<sup>3</sup> It is worth noting that other than applicant income, the HMDA data set does not include much information on the creditworthiness of the borrower or his or her ability to repay the loan (e.g., debt-to-income ratio, credit score). Observed differences in lending across the income categories used in this analysis do not necessarily suggest unfair lending practices because they do not control for these or other relevant factors.

are distributed with 2006–2010 ACS five-year income estimates that are adjusted to the reporting year. Those data are used to classify applicants and neighborhoods into income categories in 2012.<sup>4</sup>

It is important to note that the 2005–2009 ACS estimates are based on the tract definitions created for the 2000 decennial census, whereas the 2006–2010 ACS estimates are based on the tract definitions created for the 2010 decennial census. Similarly, the 2005–2009 and 2006–2010 ACS estimates use different definitions of metropolitan areas (see footnote 4). As a result, the estimates in this analysis for years up to and including 2011 should not be directly compared with the estimates for 2012 because any changes between those time periods may partly reflect changing definitions rather than changes in lending patterns.

*Rejection rates:* Rejection rates are calculated as rejected applications divided by the sum of rejected applications, originated loans, and applications that were accepted but not originated. Applications that were incomplete or withdrawn before a decision had been rendered are excluded from this calculation.

*High-cost loans:* The definition of high-cost loans used in the HMDA data set changed during the study period. From 2004 to 2008, loans were considered high cost if the difference between

the annual percentage rate (APR) of the loan and the yield from Treasury securities with a similar maturity was at least 3 percent for a first-lien loan and 5 percent for a subordinate-lien loan. In 2009, a new definition was introduced, whereby a loan is considered high cost if the difference between loan APR and a survey-based estimate of APRs currently offered on prime mortgage loans of a comparable type is equal to or greater than 1.5 percentage points for a first-lien loan or 3.5 percentage points for a subordinate-lien loan.<sup>5</sup> This came into effect for reporting in the fourth quarter of 2009. As a result, the 2009 data for high-cost loans are reported using two different definitions, which is why this year is excluded from the high-cost loan charts. For all years, information on high-cost lending is only reported for applications that led to loan originations, so no data on rejection rates for high-cost loans are available.

*Regulatory status:* Not all lending organizations were regulated by one of the primary federal government banking institution regulators during the study period, but HMDA reporting requirements are not predicated on that distinction. Those that were not regulated by these entities during the study period, primarily independent mortgage banks, reported their data to the Department of Housing and Urban Development (HUD). Thus, in this analysis, nonregulated loans are

defined as loans from lenders that reported their data to HUD.<sup>6</sup>

*Lender size:* In addressing lender size, the lender is considered to be the overarching lending organization, and the data are compiled by aggregating all of an organization's subsidiaries into a single entity. For example, originations made by all of the subsidiaries of a large lending institution in any given year would be summed to create a total for that institution, and the subsequent total would be used to categorize the lender.

The lenders are ranked according to the number of originations made nationwide in each year and grouped into three categories: the bottom 89 percent, 90 percent to 99 percent, and the top 1 percent. In recent years, the top 1 percent has included the 68 most active lenders in the mortgage market.

*Reasons for rejection:* The data on reasons for rejection are partial, and the reasons are not mutually exclusive. Not all lending institutions are required to report the reasons for rejecting an application, so the data are not necessarily a representative sample of the HMDA universe. Furthermore, among those lenders that do report reasons for rejection, up to three reasons may be listed, but they are not prioritized. Therefore, the percentages reported are the percentage of rejected

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<sup>4</sup> Census tracts are assigned a neighborhood income category for 2004–2011 and a category for 2012, based on the comparison of their income with the local area income reported in the relevant ACS data. Local area income from 2004–2011 reflects the metropolitan area definitions adopted for the release of the 2005–2009 ACS data, as defined in the November 2008 [OMB Bulletin No. 09-01](#), while the 2012 data use the definitions adopted for the release of the 2006–2010 ACS data, as defined in the December 2009 [OMB Bulletin No. 10-02](#). There are no substantive differences in these two sets of metropolitan area definitions.

<sup>5</sup> See R. Avery, N. Bhutta, K. Brevoort, G. Canner, and C. Gibbs, "[The 2008 HMDA Data: The Mortgage Market During a Turbulent Year](#)" (2010), for more information.

<sup>6</sup> All loans are subject to certain regulations regardless of whether the lender is supervised by a federal or state authority. For example, the Truth in Lending Act and the fair lending rules (the Equal Credit Opportunity Act and the Fair Housing Act) apply to all lenders.

applications with that reason cited, among all applications with any reason reported. There are nine reasons that institutions can report, of which we chart four:

- **Credit history:** The applicant's record of credit usage was too limited or too poor for the requested loan to be issued.
- **Collateral:** The value or type of collateral offered was not acceptable to the lender.
- **Debt-to-income ratio:** Given existing debt obligations, the

applicant's income was not considered sufficient to cover the requested mortgage.

- **Insufficient cash:** The applicant lacked enough cash to provide the necessary down payment or closing costs.

#### **Additional Resources**

Neil Bhutta and Glenn B. Canner. "[Mortgage Market Conditions and Borrower Outcomes: Evidence from the 2012 HMDA Data and Matched HMDA-Credit Record Data](#)," *Federal Reserve Bulletin* (November 2013).

Federal Financial Institutions Examination Council. "[HMDA Data Products](#)" (2013).

Federal Financial Institutions Examination Council. "[A Guide to HMDA Reporting: Getting It Right!](#)" (2013).