Shannon L. Harvey. Who Benefits from Lending in Low-income Neighborhoods? An Investigation of Geography as a Proxy for Borrower Income by Type of Financial Institution Using 2022 Home Mortgage Disclosure Act Data. A Master's Paper for the M.S. in I.S. degree. December, 2023. 63 pages. Advisor: Yue Wang

This study investigates the usefulness of common geographic proxies for low-to-moderate (LMI) income borrowers used by various federal agencies, including Community Reinvestment Act (CRA) examiners and the Community Development Financial Institutions (CDFI) Fund. I also examine the impact of varying definitions of low-to-moderate income on our view of the lower income population. Using 2022 Home Mortgage Disclosure Act (HMDA) data, I find that financial institutions, grouped by type—bank, credit union, CDFI, or non-bank—all lend to low-to-moderate income borrowers at similar rates and that loans to LMI census tracts and CDFI investment areas more frequently go to higher income borrowers than lower income across institution types. Further, seventy percent of LMI borrowers live outside of LMI tracts. The low precision and recall of geographic proxies for LMI borrowers raises questions about using these proxy assessments as measures for meeting the financial needs of LMI communities, particularly in the home lending sector.

Headings:

Community Development Financial Institution (CDFI)

Community Reinvestment Act (CRA)

Low-income population

Home lending

WHO BENEFITS FROM LENDING IN LOW-INCOME NEIGHBORHOODS? AN INVESTIGATION OF GEOGRAPHY AS A PROXY FOR BORROWER INCOME BY TYPE OF FINANCIAL INSTITUTION USING 2022 HOME MORTGAGE DISCLOSURE ACT DATA

Shannon L. Harvey

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Approved by:

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Yue Wang

For Mars and Matt, with deep gratitude for your love, support, and patience.

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LIST OF ABBREVIATIONS

ACR	Annual Certification and Data Collection Report, CDFI Fund
ACS	American Community Survey, administered by U.S. Census Bureau
AMI	area median income
AMFI	area median family income
AMHI	area median household income
CDFI	Community Development Financial Institution
CDFI Fund	Community Development Financial Institutions Fund
CFPB	Consumer Financial Protection Bureau
CRA	Community Reinvestment Act
FDIC	Federal Deposit Insurance Corporation
FHA	Federal Housing Administration
FFIEC	Federal Financial Institutions Examination Council
FRB	Federal Reserve or Federal Reserve Board of Governors
HMDA	Home Mortgage Disclosure Act
HMDA LAR or LAR	Home Mortgage Disclosure Act loan/application register
HUD	U.S. Department of Housing and Urban Development
LEI	legal entity identifier
LITP	low-income targeted population
LMI	low-to-moderate income
MD	metropolitan division
MFI	median family income
MHI	median household income
MSA	metropolitan statistical area; can also denote micropolitan statistical area
MSA/MD	metropolitan statistical area/metropolitan division
NCUA	National Credit Union Association
NIC	FFIEC National Information Center
OCC	Office of the Comptroller of the Currency
RSSD	research, statistics, supervision, and discount number; identifier for financial institutions assigned by the Federal Reserve
TLR	transaction level register, CDFI Fund

INTRODUCTION

How often do loans in lower income areas go to lower income borrowers? A study in 2018 by the Urban Institute found that most loans to low-to-moderate (LMI) income census tracts in the 2016 Home Mortgage Disclosure Act (HMDA) loan/application register (LAR) went to higher income borrowers. Several different assessment standards used by federal agencies to measure if financial institutions are meeting the needs of low-income communities use or permit some kind of geographic proxy for lower income borrowers. The Urban Institute study suggests that LMI tracts may not be a suitable proxy for lower income borrowers.

This study revisits this same question about the usefulness of geographic proxies for LMI borrowers, using HMDA LAR data from 2022. The Urban Institute study was one of several they did to provide data-informed perspectives on proposed revisions to the Community Reinvestment Act of 1977 (CRA) announced in 2019. Most federally insured banks are subject to CRA, so they identified banks, non-banks, and credit unions in their analysis. In this study, I additionally identify Community Development Financial Institutions (CDFIs), certified by the CDFI Fund, in the HMDA LAR.

CDFIs have an explicit mission to serve economically distressed communities, and they can apply for federal funding to support that work. CDFIs often apply to serve low-income populations or investment areas, a designation that includes LMI tracts and other areas assessed as needing additional support. Banks may also work with CDFIs to meet their own Community Reinvestment Act obligations.

CDFI Fund, the body that certifies CDFIs, is currently overhauling its certification process and establishing new standards for assessing target populations, including lower income persons.

I find that, like the prior Urban Institute study, most loans and loan dollars to LMI tracts go to higher income borrowers, regardless of type of institution. Non-banks, which are not subject to CRA or CDFI Fund certification standards, slightly outperform other kinds of institutions in number and dollar volume of loans to LMI borrowers in LMI tracts.

I also investigate the rate of lending to LMI borrowers in CDFI investment areas. I find that while CDFIs do more lending in these areas than banks and credit unions, an even smaller proportion of borrowers are lower income in these tracts. I also look at the impact of proposed redefinition of LMI borrowers for CDFIs, which has the potential to substantially lower the number of borrowers who appear LMI by CDFI Fund standards.

BACKGROUND AND LITERATURE REVIEW

Community Reinvestment Act of 1977 and Bank Lending

The Community Reinvestment Act, signed into law in 1977, was passed to ensure that federally insured banking institutions meet the needs of all members of the communities in which they are chartered and serve, including low-to-moderate income neighborhoods.

The CRA was part of series of legal reforms in the 1960s and 70s intended to address discrimination in the financial and real estate industries, along with the Fair Housing Act (1968), the Equal Opportunity Act (1974), and the Home Mortgage Disclosure Act (1975). By mandating that institutions report on their home lending annually, HMDA made public data that could be used to determine if financial institutions were meeting the public’s housing needs and detect discrimination in home lending.

Banks subject to CRA are assessed by their regulators, either the Office of the Comptroller of the Currency (OCC), Federal Deposit Insurance Corporation (FDIC), or the Federal Reserve Board (FRB) to ensure they are meeting local needs. Their performance on those exams is considered when they apply for charters, branches, mergers, and similar regulated activities (Getter, 2015, p. 1). The CRA was designed to prevent financial sector disinvestment in lower income communities, as well as redlining of financial services and other discriminatory behavior on the part of banks (Getter, 2015, p. 1-2).

Large banks subject to CRA are subject to three tests on lending, investments, and service, while smaller banks are only subject to a lending test. The tests do not include specific quota or target requirements, and as Getter explains, exams are somewhat subjective and vary by regulator. Many activities can count toward CRA exams, including lending to LMI communities or borrowers, and activities that do not involve direct lending, such as financial education services or investing in community development entities. Banks are evaluated in relation to their service areas, or assessment areas, (Getter, 2015, p. 3-8).

In 2019, the Office of the Comptroller of the Currency (OCC) and the Federal Deposit Insurance Corporation (FDIC), two of the three regulators who administer CRA exams, announced a proposed overhaul of the regulations underlying CRA administration. In May 2020, OCC alone issued a final rule (Goodman et al., “The OCC’s Final CRA Rule,” 2020, p. 1).

In anticipation of the overhaul of CRA regulations, the Urban Institute published several studies using publicly available data to inform decision making and public debate about changes to CRA. This included “The Community Reinvestment Act Lending Data Highlights,” by Goodman, Zhu, and Walsh, an examination of HMDA 2016 LAR and CRA files from the Federal Financial Institutions Examination Council (FFIEC). In that study, they found that 60% of CRA-qualifying loans in LMI tracts go to higher income borrowers. They ask whether LMI tracts and LMI borrowers should continue being treated interchangeably by CRA examiners, suggesting a possible adjustment wherein banks get less CRA “credit” for loans to higher income borrower in LMI tracts (Goodman et al., 2019).

The CDFI Industry

Overview

The CDFI Fund, an agency of the U.S. Department of Treasury, was created in 1994 as part of the Riegle Community Development Regulatory Improvement Act to promote economic development in distressed communities (Getter, 2023, p. 1). CDFI Fund can authorize banks, holding companies, credit unions, loan funds, and venture capital as CDFIs. Certification makes them eligible for financial and other assistance from the CDFI Fund, as well as attractive partners for private funding.

Darryl Getter with the Congressional Research Service explains the difference between CDFIs and financial institutions with some legal obligation to serve lower income communities:

> Congress usually encourages covered financial intermediaries—even if they predominantly serve more creditworthy borrowers—to provide financial services and products to underserved populations and markets when feasible to do so and in a prudent manner. The CDFI Fund and designated CDFIs, however, were established to focus predominantly on financially distressed borrowers and areas (2023, p. 1).

These communities may have a higher risk of default, and consequently require more manual and individually tailored underwriting, financial counseling, and other services than prime borrowers (2023, p. 1).

CDFIs are often subsidized, either through federal funding or private partnerships, which helps mitigate the risks associated with serving these markets. The CDFI industry is relatively small, estimated in 2020 to hold around 13% of the assets held by the credit union industry. In 2020, consumer finance products comprised the largest category of products offered by CDFIs, at 83% of the products offered and 37% of the dollar amount. Residential real estate financing, which includes the kind of loans found in the HMDA LAR, made up 37% of the dollar amount but just 6% of the products offered. For loan funds that are CDFIs, small business lending is an important line of business (Getter, 2023, p. 4).

CDFIs must serve one or more target markets, where at least 60% by count and dollar volume of their activity is deployed. Those target markets can either be an investment area or a targeted population. Targeted populations are geographically bound, and can include low-income persons, people with disabilities, African Americans, Hispanics, Native Americans, Native Alaskans, Native Hawaiians and Pacific Islanders, or other populations the CDFI has applied to serve and been certified for (“Proposed Pre-Approved Target Market Assessment Methodologies,” 2022).

CDFI investment areas are either located in an Empowerment Zone or Enterprise Community, as designated under section 1391 of the Internal Revenue Code 1986, or have a poverty rate greater than 20%, median family income (MFI) at 80% or below other MFI benchmarks, or an unemployment rate 1.5 times the national average ("CDFI Certification Application Supplemental Guidance and Tips," 2018, p. 27). Investment areas therefore always include LMI census tracts.

CDFI Fund additionally manages or jointly manages other programs that CDFIs and sometimes other institutions are eligible to apply for, which target other communities or needs. An example is the Healthy Food Financing Initiative, intended to reduce the number of food deserts (Getter, 2023, p. 6).

Growth in the CDFI Industry and Certification Changes

Though relatively small, the CDFI industry has expanded rapidly over the past few years. According to a recent study by the Federal Reserve Bank of New York, CDFI assets have tripled since 2018 to $452 billion, and the number of certified CDFIs has grown by 40% (Scott et. al, 2023, p. 2).

This growth, to 1,487 certified CDFIs in May 2023, was driven by the certification of credit unions, with most gains in California, Puerto Rico, Mississippi, and the U.S. Southeast. Loan funds make up the largest number of CDFIs, followed by credit unions and banks, though loan funds generally have the smallest assets, followed by credit unions and then banks. The largest CDFIs, three banks or thrifts and seven credit unions, hold assets ranging from $4.7 to $16.9 billion (Scott et al., 2023, p. 2, 5, & 10).

Scott et. al speculate that this rapid growth may be due to outreach and assistance provided by groups like Inclusiv, a trade association for community development credit unions, and Emergency Capital Investment Program (ECIP). ECIP funding was established by the Consolidated Appropriations Act of 2021 during the COVID recession to fund CDFIs and minority depository institutions to expand lending to LMI communities (p. 12).

In 2022, CDFI Fund announced upcoming changes to its certification process and annual data collection, in the form of the Annual Certification and Data Collection Report (ACR) and transaction level data (TLR). That certification overhaul includes more evaluation of products, terms, rates, and fees ("Reforms to CDFI Certification Are Welcome and Necessary," 2023). CDFI

Fund has also released proposed pre-approved target market assessment standards. Prior, assessment standards were submitted by the applicant CDFI and either approved or denied by the Fund.

Until these changes are finalized, certification of new CDFIs is on hold. Among CDFI Fund's objectives for making these changes are protecting the CDFI Fund brand, supporting the growth, reach, and diversity of CDFIs, and improving data quality and collection, in part to improve the efficiency of certification determinations ("CDFI Fund Advance Look," 2022). Those changes have not been finalized as of this writing in November 2023.

CDFIs and CRA

The FDIC, OCC, and Federal Reserve Board recognize loans and investments in CDFIs as examples of community development loans and qualified investments that can be used by banks to meet their CRA obligations ("Affordable Mortgage Lending Guide," p. 81). Generally, examiners look for the CDFI's activities to be in the bank's assessment area or nearby geographies. Consequently, CDFIs' activities may be indirectly contributing the CRA requirements of supporting banks, as well as meeting their own Fund certification requirements.

Defining "Low Income"

CRA examiners use the following definitions for low- and moderate-income individuals and geographies:

> **Low-income:** Individual income that is less than 50 percent of the area median income, or a median family income that is less than 50 percent, in the case of a geography.
>
> **Moderate-income:** Individual income that is at least 50 percent and less than 80 percent of the area median income, or a median family income that is at least 50 percent and less than 80 percent, in the case of a geography ("Community Reinvestment Act Resources," n.d.).

Middle income ranges from 80 to <120% of AMI, and upper income is anything at or above 120%. These definitions are in current use for establishing loans to LMI borrowers for CRA purposes. This 80% or less of AMI standard is also what is currently used to define LMI (sometimes described as simply "low-income") lending for most CDFI programs, including the low-income population target market for CDFI certification.

Income tiers are consequently always relative to geography, accommodating, to some degree, the variability in the cost of living across different regions. In the case of residents located in metropolitan statistical areas or metropolitan divisions (MSAs or MDs), the point of comparison is the median income for that MSA/MD. So, for example, if the MSA median income is $100,000, a person would need to earn $80,000 or less to be considered LMI for their area, or under 80% of AMI. A resident of a lower-income MSA with $64,000 AMI and the same $80,000 income would be considered upper-income at 125% of AMI.

Census tract income tiers are similarly established: the median income for that tract is compared to the AMI. Residents and tracts outside of MSA/MDs are compared to the state non-metropolitan median income.[1]

Median income estimates are determined by the American Community Survey and updated annually for geographical units (tract, MSA/MD, state, national). Area median income could be determined using a few different estimates that are meaningfully distinct. ACS calculates both median family income (MFI) and median household income (MHI). The former includes all income for persons 15 and older in a family unit related by marriage, birth, or adoption that reside together. The latter is all income for persons 15 and older living together, regardless of family relationship.[2] Families are always households, but households are not always families. Households also include people living alone.

Predictably, given the inclusion of single-person households and other household arrangements such as roommates, median household income is typically lower than median family income. In 2022, the national median household income was $74,755, while median family income was $92,148, fully 23% higher than household income (U.S. Census Bureau, 2022b).

Median family income is typically the reference point for federal programs assessing relative individual or geography income: This is true of CRA (see above) and CDFI Fund guidance. The Department of Housing and Urban Development (HUD) uses income limits that are informed but

[1] The MSA/MD versus outside an MSA/MD distinction is essentially an urban/rural distinction. The Census Bureau defines “rural” as simply not in a metropolitan area.
[2] Persons living in institutions, such as prisons, are excluded from all estimates.

not defined fully by ACS's area median family income statistics and the 80% threshold, incorporating other information, such as market rent definitions (HUD Office of Policy Development and Research, n.d.-b).

While current CRA guidance and CDFI Fund guidance prior to 2022 recommended assessing borrower income as 80% or less than AMFI, HUD also factors in family size, adjusting the income up or down before comparison against HUD's definition of AMFI (HUD Office of Policy Development and Research, n.d.-a). A family of four is used as the default: 100% of a family of four's income can be compared against AMFI.

In its October 2022 proposed pre-approved target market assessment methodologies for determining if activity can be counted toward the low-income targeted population (LITP), CDFI Fund proposes moving to a version of this stricter HUD standard, instructing the financial entity to "assess Low-Income status via a comparison of the entire family income to HUD's Income Limits for the relevant family size and local geography," (p.15). They go on to explain that "if the family size is unknown, then the default family size is one. If the family size is known, income data must be collected on all members of the family," (p. 16).

This is different than prior guidance in two important ways: Family size must be accounted for, and income data must be collected on members of the family age 15 and above. This is information that is not normally collected during the loan underwriting process. Lenders can ask about the borrower's number of dependents, but they are restricted in what they can ask about marital status. The income of other family members, including spouses, is not normally collected unless those persons are beneficiaries of the loan or their income is relied upon for repayment of the loan.[3] The number of dependents plus the borrower does not necessarily add up to family

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[3] The proposed guidance on how to determine eligibility for LITP is overly burdensome and has high potential for introducing errors when we consider how lenders record information for underwriting purposes, which is for the goal of assessing and documenting ability to repay the loan. For instance, CDFI Fund says that a loan can be counted as LITP if 50% or more borrowers on the loan are low-income. The guidance elaborates that this means that all individuals named as recipients will be counted as separate individuals when determining the overall percentage of those that qualify for the target market, even if they are related. It's unclear how, then, to factor in all family members' income. The implication seems to be that the entire family income would be recorded for each related family member on the loan, to avoid assessing, for instance, a non-

size, nor do the number of borrowers on the loan, who could be unrelated or live in separate households.

Adjusting income to an assumed family size of one will deflate the number of borrowers that appear as low-to-moderate income.

The use of family size of four as the baseline size *also* artificially deflates the number of people who appear LMI relative to their area median income. In 2022, the average U.S. family size was 3.11 persons, while the average household size was 2.5 (U.S. Census Bureau, 2022a). Assumed average family size of three would be more accurate. Using three would also lead to less severe undercounts of LMI borrowers if a default size of one is used when actual size is unknown.

On the other hand, if income is family-size adjusted without income information for all family members, this could lead to instances where the borrower appears LMI but is not.[4]

On both counts, requiring reporting of family size and all family member incomes would put the CDFI assessment standard for determining LMI borrowers out of sync with CRA standard for assessing the same population.

As previously discussed, lending and services to LMI tracts are on the list of qualifying CRA activities and are treated interchangeably by CRA examiners (Goodman et al., 2019). CDFI Fund similarly has CDFI investment areas, which CDFIs can apply to serve as one of their target markets. Investment areas are inclusive of LMI tracts and then some, based on other assessments of community need.[5] Unlike CRA examinations, investment areas are not

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income earning partner as low-income when the other is assessed as middle or high. If two borrowers are unrelated, then two truly distinct total family incomes would be recorded. In the case of spouses on the same loan, this would lead to a double count of a single all-family income. Identifying the double count to avoid inflating income values for actual underwriting purposes gets into questions of family relationship that are both limited by anti-discrimination law and not of substantive interest to the lender. It would also be a recordkeeping nightmare, as income for each borrower and only that borrower is recorded for underwriting purposes.

[4] Income used for underwriting may not match actual income. Since the goal is to establish future ability to repay, income of some kinds may be intentionally undercounted, such as income from overtime, if the income source is not expected to recur reliably in the future.

[5] Investment areas currently in use may not match current LMI tracts perfectly, as CDFI Fund only updates their list every five years. We see this in the 2022 HMDA dataset; 511 LMI tracts are not in the investment area list, likely because of use of different statistical years.

interchangeable with LITP, as each institution needs to apply to serve particular target markets.[6] The motivation for these related target markets is similar, though: to promote investment in historically underserved communities and populations.

In their October 2022 notice and request for comment on the proposed target market assessment methodologies, CDFI Fund asked for feedback on the possibility of using a geographic proxy for LITP. Their proposed proxy would set a 70% threshold for LMI households in a census tract block group, that is, 70% or more of households in the block group would need to have an income of 80% of AMI or lower.[7] They estimate that this would capture 34 million of the 134 million low-income persons in the U.S., as well as 8 million higher-income persons. They go on to note that 32 million low-income individuals captured by this threshold are already located in a CDFI investment area, along with 7.5 million higher-income individuals.

RESEARCH QUESTIONS

This study seeks to answer a few related questions on two general subjects.

Geography as a Proxy for Lower Income Borrowers

How often do home loans in low-to-moderate income tracts go to low-to-moderate income borrowers? What does this tell us about the utility of the relative tract income as a proxy for LMI borrowers? Does lending to LMI borrowers and in LMI tracts vary by type of institution, as was found by Goodman, Walsh, and Zhu? Do CDFIs, with their explicit mission to serve economically distressed communities, do a better job of lending to LMI borrowers in LMI tracts? For CDFIs, how is lending to investment areas distributed by borrower income?

[6] To my knowledge, the target markets for each CDFI are not published anywhere, other than that Native CDFIs are labeled as such in the list of CDFIs that are published periodically.
[7] Block groups are subdivisions of census tracts. The HUD dataset associated with the map they point to in order to illustrate these geographies only drills down to the tract level, so I am not certain if the “block group” designation is intended.

Variability in Income Definitions

How do different definitions of low or LMI income status change our picture of lending to lower income borrowers? This study considers a few currently used and proposed standards: a flat 80% of AMI and 80% of AMI for different household sizes.

AUTHOR POSITIONALITY

At the time of this writing, I have worked for six months as a business analyst on a team that supports the three CDFIs in the Self-Help family: Self-Help Credit Union, Self-Help Federal Credit Union, and Self-Help Ventures Fund. I joined Self-Help during ongoing conversations about how best to revise and standardize CDFI Fund certification standards, efforts largely motivated by a desire to protect the CDFI Fund brand and ensure that federal and private funding that be pursued with the CDFI brand is used as intended. While this study was not requested or recommended by anyone at Self-Help, and it was not done for work purposes, it is informed by my area of focus there and my recent introduction to the CDFI world. Though this project relies entirely on public data, Self-Help's credit unions have records in the HMDA dataset, and they are included in this analysis.

My goal is not to shed CDFIs or Self-Help in a more favorable light than other types of financial institutions. I do believe, however, that rampant income and wealth inequality are serious social injustices, and that economic inequality both reinforces and is precipitated by racial inequality in the United States. Our country's financial institutions have historically (and arguably currently) played a large role in perpetuating those inequalities, through redlining and other discriminatory and exploitative financial practices. I am interested in understanding if and how federal programs like the CDFI Fund address those inequities.

METHODOLOGY

Overview

This study combines publicly available datasets, maintained by the Consumer Financial Protection Bureau (CFPB), Federal Financial Institutions Examination Council (FFIEC), and the Census Bureau. Those datasets, and how they were manipulated and used are described in detail below. This analysis is descriptive in nature and does not use statistical modeling to establish estimates of relationships between variables that can be assessed for statistical significance. Further, while I am attempting to answer questions about the rates of lending to lower-income communities and borrowers, activities that could fulfill CRA obligations or CDFI target market requirements, I look at all institutions and all activity, and not just activity in assessment areas for contributing CRA-obligated institutions or CDFIs with investment area or low-income target populations as their target markets.

The use of HMDA data as the core dataset merits further discussion here. While home lending is an important part of meeting CRA requirements and can be a core part of meeting CDFI target market goals, home lending is just one of many kinds of financing and services that can count toward these goals. Smaller institutions not subject to HMDA reporting will not appear here at all. The work of CDFIs that primarily act as home lending brokers but not the actual underwriters will also not be reflected here (Getter, 2023, p. 16).

Banks subject to CRA examination submit annual information that is published by the FFIEC, and examination overviews are also published.[8] These are rich datasets that show a wider range of lending and activities, aggregated to the county or, less frequently, the census tract level. This data has a few shortcomings for this study's purposes. The loan terms, such as interest rate, and borrower information, other than income ranges and type of borrower (small business, etc.), are missing. These datasets also only report on activity that relates to CRA examination, so there is no line-level point of comparison to lending of the same kind that the institution does that would not count toward CRA. When described at the county level, estimation of how many low-income areas were served is difficult.

Somewhat similarly, CDFIs submits transaction level reports every year to CDFI Fund, and these are made publicly available. These are not restricted to target market eligible activity, so comparison of target market activity against non-target market for the same CDFI activity is

[8] Published files can be found at: https://www.ffiec.gov/cra/craflatfiles.htm
Example exam reports can be found at: https://www.occ.gov/topics/consumers-and-communities/cra/perfomance-evaluations-by-month/2023/cra-performance-evaluations-oct-2023.html

possible. Some borrower demographic information (aggregated to one value) and loan terms are made available. Census tracts are provided, as well as income relative to AMI expressed as ranges for individuals. Race, ethnicity, and gender data is irregularly submitted for individuals ("CDFI Transactional Level Report Data Point Guidance," 2022).[9]

Both CRA data and CDFI TLRs provide borrower income as precalculated ranges relative to area income, and consequently, end users of that data don't have access to the borrower's reported income or the standard the institution used to calculate these ranges. For CRA, these calculations may be reasonably assumed to always reference MFI. CDFI Fund has not previously published assessment standards for target markets that apply to all participating institutions, though Fund guidance does often refer to the 80% of area median family income.[10]

While these transaction reports are more detailed than CRA data, HMDA loan application record (LAR) datasets provide yet more details about loans and borrowers, more reliably reported and across all borrowers, with numeric income values rather than precomputed ranges. And importantly, all institutions who meet HMDA reporting requirements are included in the dataset, allowing comparison across institutions of all kinds ("Home Mortgage Disclosure Act FAQs," n.d.).[11]

Data Sources

1. **2022 HMDA LAR (loan/application record):** Transaction level record of all mortgage lending, including originated mortgages, accepted but reject offers, denied applications, inter-institutional purchases, refinances, and certain types of home equity loans submitted in 2022, totaling over 16 million records. All institutions meeting transaction thresholds are required to report to HMDA; institutions that do not meet the thresholds can opt to submit data. HMDA LAR data is collected and maintained by the FFIEC.

[9] See, for example, "2021 CDFI Program Awardee Data Release, Documentation and Instructions" at: https://www.cdfifund.gov/documents/data-releases
[10] See, for instance, page 27 of "CDFI Certification Application Supplemental Guidance and Tips," 2018.
[11] CFPB has set the HMDA reporting requirement as of January 1, 2022, at loan-volume thresholds of 100 closed-end mortgage loans in each of the two preceding calendar years and 200 open-end lines of credit in each of the two preceding calendar years. See ""Home Mortgage Disclosure Act FAQs."

2. **2022 HMDA public transmittal sheet:** List of institutions with records in the 2022 LAR, uniquely identified with legal entity identifiers (LEIs), along with their name, address, tax ID, agency code, and number of LAR records submitted. This data is collected and maintained by the FFIEC.
3. **2022 HMDA public panel data:** List of institutions with records in the 2022 LAR, uniquely identified by LEI, along with information about parent and topholder companies, identified with RSSDs. RSSDs are unique identifiers assigned by the Federal Reserve. This file also includes a variable that distinguishes depository institutions from non-depository institutions. Collected and maintained by the FFIEC.
4. **Lists of certified CDFIs for 2021, 2022, and 2023**: Published irregularly by the CDFI Fund, these lists of currently certified CDFIs include organization name, financial institution type, address, website, and whether the CDFI is a Native CDFI. These do not include identifiers.
5. **2016-2020 CDFI Fund investment areas**: Created by CDFI Fund and updated every 5 years, this file identifies CDFI Fund investment areas by census tract, and includes certain other characteristics of those tracts, such as median family income and poverty rates.[12] Based on ACS data for 2016-2020, but the dataset appears to use Census 2020 geography.
6. **2021 DP04 Selected Housing Characteristics:** Variables from the American Community Survey's (ACS) table DP04 related to the number of owner-occupied units and rental units at the census tract level. 2022 ACS estimates at the tract level are not yet available.[13]
7. **2022 FFIEC Census Flat File:** FFIEC compiles a few variables about tract and area income for all U.S. census tracts using ACS data. This same information is merged onto the HMDA LAR by FFIEC. This complete national list was used to compare tracts represented in HMDA LAR against national values.

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[12] CDFI investment areas can also be located on a map using the CDFI Public Viewer at: https://cimsprodprep.cdfifund.gov/CIMS4/apps/pn-cdfi/index.aspx#?center=-98.299891,38.724&level=4&tool=result&visible=CT_2015_CDFI_ALL

[13] Available from the U.S. Census Bureau at: https://data.census.gov/all?q=dp04

Data Preparation

Identifying CDFIs in the HMDA Public Transmittal Sheet

A diagram showing the high-level steps for identifying CDFIs in the HMDA transmittal sheet and defining all contributing institutions by type can be found in Appendix A.

In 2022, the HMDA institution dataset included 4,460 institutions. Contributing institutions to the HMDA to the loan/application register (LAR) are identified using legal entity identifiers (LEIs), issued by LEIRegister.[14] The Consumer Finance Protection Bureau (CFPB) publishes a dataset of the names of all contributing institutions in a given year with their LEIs, along with their city, state, zip code, tax ID number, and number of LAR records for the institution for that year. LEIRegister provides overlapping and additional information, such as legal and headquarters addresses, as well as serving as a single place where institutions can be searched by LEI or name. LEIs confirm the uniqueness of institutions that might otherwise be conflated, as with banks with the same name and state that are nonetheless distinct institutions. There are, for example, two institutions named “Guaranty Bank and Trust Company” in the state of Louisiana (and one in nearby Mississippi). All three are found in both HMDA data and the CDFI Fund list of certified CDFIs.

The CDFI Fund publishes a list of certified CDFIs each year, but institutions are not paired with unique identifiers. This makes it difficult to distinguish between similar institutions and to track whether the same institution appears on multiple lists over time. CDFI Fund does not publish these lists at routine intervals, and they do not include the date an institution first became certified or the date of their recertification. Consequently, it’s difficult to determine which CDFIs were certified at an exact point in time, or in this scenario, during the calendar year 2022.

To address the lack of information about date of certification, I compiled three lists published by CDFI Fund in and around 2022, on April 4, 2021, (1,264 institutions), November 14, 2022, (1,376 institutions), and September 14, 2023, (1,469 institutions), and then merged that consolidated list on the 2022 HMDA public transmittal sheet. This approach runs the risk of including institutions

[14] https://www.lei-identifier.com/

that were not CDFIs when they made the loans found in the 2022 HMDA LAR. This means that if an institution was not recertified in 2022, but was included on the 2021 list, they may be incorrectly identified as a CDFI in my analysis. It also means that CDFIs who did not gain certification until 2023 could be included.

In the latter case, CDFIs must first demonstrate an established track record to lending to the communities that they are seeking CDFI certification for ("CDFI Certification Application Supplemental Guidance and Tips," p. 42).[15] Consequently, we can assume 2023 additions were behaving as if they were CDFIs while they worked toward certification. 2021-only institutions may have dropped certification for any number of reasons, but present more of risk of not lending in accordance with CDFI Fund guidance. In the compiled list of CDFIs, 158 were only present on the 2021 list, and 165 were only present on the 2023 list. The vast majority, 1,376, were published on the 2022 list.

CDFI Fund provides much of the same information as the HMDA transmittal sheet, but without identifiers and tax ID numbers.[16] It does include websites for most institutions, as well as street addresses.

To consolidate the three Fund lists with minimal duplication, the following data cleaning steps were taken: All text was lowercased, punctuation was removed, two or more space characters were reduced to one, and leading and trailing whitespaces were deleted. Additionally, certain common terms that had a high degree of variability in their usage but do not add much meaning to institution names were removed: "llc," "inc," "the," "de," "del," "y," and "and." Instances of "é" were changed to "e", and similarly "ñ" to "n." To eliminate variation in abbreviation choices, all instances of "company" were changed to "co," and "federal credit union" and "credit union" were changed to "fcu" and "cu." "Doing business as" names that followed formal names, indicated by

[15] The guidance explains that "in order to designate a particular Target Market, the Applicant must already be providing Financial Products to the Target Market."
[16] CDFI Fund could make public data about certified CDFIs more accessible and examination of that data more accurate by publishing CDFIs' identifiers. This could be LEIs, as HMDA submission requires, or a Dun and Bradstreet D-U-N-S number, which is already required for application as a CDFI and can be publicly accessed online, or RSSDs, unique identifiers assigned to financial institutions by the Federal Reserve ("CDFI Certification Application Supplemental Guidance and Tips," p. 6).

the abbreviation “dba,” were cut and moved to a new column. Instances of “ac,” an abbreviation common in Puerto Rican institution names, were changed to “ahorro credito.” These steps were all applied to the HMDA institution list as well.

The shift to abbreviated versions of common but meaningful terms like “credit union” also facilitated better similarity scoring at later stages, described later in this study. Identifiers were added to every list in the format YYYY_# (such as 2021_1 or 2022_135) to facilitate tracking of institutions across lists and to check for unintended duplication in the final merge on HMDA LEIs.

The 2023 list included an error where two cells of information, the street address and website for Florida Community Loan Fund, were deleted. This led to the addresses and websites for Florida Community Loan Fund and all institutions listed thereafter being offset by one row. These values were added after an online search, and the addresses and websites below were shifted down to their correct rows.[17] The HMDA institution list included one institution where the LEI was submitted in place of the institution name.[18]

In the CDFI lists, institution name, scrubbed as described, combined with the institution’s five-digit zip code proved to be the most reliable way to match institutions across years while preserving distinct institutions with the same name (as indicated by address and website). Zip codes encode some information about geographic proximity: 78230 adjoins 78231 in San Antonio, TX, for instance. Zip codes were similarly standardized before being joined on name by removing the last four digits on nine-digit codes, when present, and adding zeroes to the front of three- and four-digits codes.[19]

The consolidated list included 1,699 institutions. When an institution appeared on the 2022 list, 2022 information for the business was saved in the consolidated list. This list of 1,699 institutions includes some known duplicates, such as when five-digit zip codes shifted slightly or an institution

[17] Address and website added were 800 N Magnolia Ave., Suite 106 and https://fclf.org.
[18] I used the LEI to look up the name and replace it in the dataset, replacing errantly used LEI 549300tvlfc2sslvop06 in the name field with “Metroplex Mortgage Services.” This organization is not a CDFI.
[19] Three- and four-digit zip codes are common in the Northeast and Puerto Rico.

name was listed as “federal credit union” one year and “credit union” another.[20] These duplicates were left in to facilitate matching on the HMDA list, where the zip code and exact listing of name may also vary slightly, and was preferable to excluding truly distinct institutions through stricter matching.

The number of unique CDFIs in this list is likely no more than 1,642, the number produced when unique combinations of names and websites are counted.[21] Even this number is likely slightly high, as some institutions rebranded over the years, for instance, Allegan Community Federal Credit Union (2022) has rebranded to Allegan Credit Union (2023) based on older marketing online that nonetheless redirects to the current name and website. Further, this list only includes 1,299 unique websites, and 249 institutions do not have a website listed. Website duplication occurs when institutions are repeated over years because name and zip combinations are not identical, and when closely related institutions share a website, for instance, when both the bank holding company and the bank(s) they own are all certified CDFIs.

I then merged this CDFI list on the 2022 HMDA institution list, where names and zip codes had been similarly cleaned and combined. Two-hundred and ten institutions matched exactly, without duplication of either LEIs or assigned CDFI identifiers.

Institution names on both lists were also compared using a string similarity function, using the Python library difflib’s SequenceMatcher. SequenceMatcher builds on the Ratcliff-Obershelp pattern recognition algorithm, also called Gestalt pattern matching, to compare sequences and produce a similarity score between 0 and 1, where 1 indicates a perfect match. SequenceMatcher downgrades “junk” sequences, such as whitespaces, and finds the longest contiguous matching subsequence (“difflib — Helpers for computing deltas,” n.d.). Abbreviating all instances of “federal credit union” and “credit union” facilitated better matching by reducing the length of substrings

[20] For instance, when an organization used their headquarters address one year and a registered address another. Names that vary by inclusion of “federal” are sometimes actually distinct, as with Self-Help Federal Credit Union and Self-Help Credit Union, which are both separately certified CDFIs and organizationally related.
[21] Websites were not used for matching because the HMDA transmittal sheet doesn’t provide websites and not all CDFIs have listed websites.

that are common and thus not particularly informative in this context, giving more weight to name elements that are meaningfully different to produce more useable scores.

Looking at name alone, scores that were below ~0.95 were not found to reliably produce meaningful matches.[22] However, when that list was further filtered to only those rows where city and state also matched with similarity scores above 0.7, I was left with a list of about 350 comparisons where the string similarity function caught misspellings and other variations of the institution name for the same institution, such as using “federal credit union” rather than “credit union.”

I manually reviewed this abbreviated list to collect and hardcode corrections to both the list of CDFIs and HMDA institutions to solve one of two varieties of problems: 1) duplication of institution in the CDFI combined list, leading to double matching on a single LEI, or 2) correction of errors in bona fide matches that led to similarity scores below 0.9. Examples of the first included changing zip codes where they varied across years (often by the last digit) in the CDFI list to resolve institution duplication on a single LEI. Examples of the second included expanding meaningful abbreviations to align with public names, such as changing “jea” to “jeanerette.” Driving true matches to scores above 0.9 was desirable to produce a list that could be truncated at 0.9 where city and state also matched, as scores below 0.9, absent misspellings and abbreviation variations, were infrequently true matches.

When HMDA institution names were adjusted or corrected to facilitate replicable matching on CDFI Fund lists, LEIs were checked online to ensure that the change reflected their registered name. In all instances, the HMDA list displayed a misspelled, truncated, or otherwise abbreviated version of their registered name. When CDFI Fund list institutions were changed to align with a probable HMDA institution, their websites and street addresses were checked and compared against information available in the HMDA institution dataset and at LEIRegister to confirm the institution was a match.

In total, 10 zip codes and 23 names were adjusted, and 4 kinds of misspellings were corrected.

[22] The number of name comparisons made is equal to 1,699 multiplied by 4,460, or 7,577,540.

Three duplicate rows were dropped from this list of institutions with similarity scores above 0.9, instances where the real name of the institution caused duplicates on a single LEI.[23] This list of 284 institutions with similarity scores above 0.9 was then merged on the original list with identical matches on name and zip code; this added five institutions where name and zip matched but city did not. Names with similarity scores above 0.9 and matching zip codes, but not matching city names, yielded three more institutional matches. Combined, this resulted in a list of 292 CDFIs in the HMDA transmittal sheet, where no assigned CDFI IDs or LEIs were duplicated. These CDFIs had a total of 283,348 records in the 2022 LAR.

No CDFI bank or depository institution holding companies were identified in the HMDA through the processes described above. This was expected, as these CDFIs' affiliates or controlled companies would report directly to HMDA under their own names and identifiers. FFIEC also publishes a panel dataset that includes parent and topholder company information for HMDA contributors, including their RSSD numbers, a unique identifier assigned to financial institutions by the Federal Reserve. These numbers are searchable via the FFIEC's National Information Center (NIC) tool, which maps relationships between depository institutions and their affiliate institutions.[24]

To match potential CDFIs on parent or topholders institutions, I first searched the NIC for the 160 bank and depository institution holding companies on the combined CDFI list, finding all but 9, and recorded their RSSDs. These were then merged on the panel data, first on the parent RSSD field, then on the topholder RSSD field.[25] This yielded an additional 16 CDFI affiliate matches in the HMDA transmittal sheet, for a total of 308 and 293,603 records.[26]

[23] These were duplicate instances of Self-Help Credit Union and Self-Help Federal Credit Union, matching on each other errantly in the HMDA list, as well as South Georgia Bank Holding Company, which matched on South Georgia Bank Company above the 0.9 similarity cutoff.
[24] The NIC can be found here: https://www.ffiec.gov/npw
[25] Topholder here indicates further organizational nesting; a parent directly controls an institution, but may be controlled by yet another institution or topholder. Only one topholder RSSD matched on a CDFI that had not already been identified through other processes.
[26] Holding companies report the activities of their affiliates to CDFI Fund.

CDFI bank or depository institution holding company affiliate contributors to the 2022 HMDA LAR are available in appendix C. All other CDFI contributors are listed in appendix B.[27]

Defining Contributing Institutions by Type

In addition to identifying CDFIs, I used the agency codes for institutions available in the public transmittal sheet as a starting point to further describe contributing institutions by type ("Public Transmittal Sheet"). These six codes represent the agencies that have regulatory authority over the institution. Institutions reporting to the National Credit Union Administration (NCUA) were coded as credit unions, while institutions reporting to either the Office of the Comptroller of the Currency (OCC), Federal Deposit Insurance Corporation (FDIC), or Federal Reserve System (FRB) were coded as banking institutions that could be subject to the Community Reinvestment Act (CRA) ("Community Reinvestment Act," 2014).[28]

Institutions reporting to the Consumer Financial Protection Bureau (CFPB) and Department of Housing and Urban Development (HUD) are more mixed in terms of their institutional composition and CRA obligations. CFPB has regulatory authority over many types of non-bank and non-traditional financial institutions as well as supervisory authority over banks, thrifts, and credit unions with assets over $10 billion and their affiliates. This large-asset institution list comprised over 200 institutions per June 2023 call report data, and many are present in the HMDA institution list ("Institutions subject to CFPB supervisory authority"). Institutions reporting to the Department of Housing and Urban Development (HUD) are typically non-depository institutions and often, but not exclusively, non-bank mortgage originators.

Both HUD and CFPB reporting codes were reviewed manually in the HMDA transmittal sheet to identify and code credit unions that report to HUD or CFPB. The panel dataset was then used to distinguish non-banks that report to either HUD or CFPB, using the "other lending code" field.

[27] Only identifiers and names are included due to space constraints. CDFI RSSDs were found on the NIC website. CDFI identifiers were assigned by me and show the list year and row number in the published files. For example, 2022_1 is the first institution listed on the 2022 list of CDFIs.
[28] Smaller institutions in this dataset coded as subject to CRA may be exempt from CRA in practice if they do not meet CRA size and asset thresholds. See "A Guide to CRA Data Collection and Reporting," p. 4.

This field is 0 for all depository institutions. Assignment of institution type was then determined as follows:

1. Bank: Reports to FDIC, FBR, or the OCC, or is a depository institution but not a credit union.
2. Credit union: Reports to NCUA, or is a credit union that reports to either CFPB or HUD.
3. Non-bank: Does not meet any of the above criteria for bank or credit union.[29]

CDFIs comprise a cross-section of these different institutions, but for this analysis were always coded as a CDFI, regardless of reporting agency. Of the 308 CDFIs with records in the LAR used for this study, 67% reported to NCUA, 17% reported to the FDIC, 7% reported to the CFPB, and the remaining 9% reported to either the OCC, FRB, or HUD.

Preparing the 2022 HMDA LAR

The 2022 HMDA LAR includes just over 16 million rows. For this study, the LAR was narrowed in a few ways. The analyzed dataset was limited to originated loans, 8.4 million in total. This excluded approved but not accepted loans (0.4 million), denials (2.5 million), withdrawn applications and otherwise closed applications (3.2 million), as well as inter-institutional purchases (1.6 million).

Borrowers with missing income were also excluded in this study. In a prior analysis by the Urban Institute, researchers estimated that missing income values in the 2016 HMDA LAR skewed middle and high income, and so excluding missing incomes may undercount lending to middle- and higher-income borrowers (Goodman et al., 2019). In total, 409,706 originated loans with missing income values were excluded. Outliers, such as a negative income values and incomes over 1,000% of AMI, were left in.

Tract to MSA income, expressed as a percentage, was also sometimes reported as 0, indicating that there were too few observations to calculate the tract's median income ("2020 Based Census Information," 2023). These were excluded; 47,303 in total, resulting in a final dataset of 7,937,269 rows.

[29] Goodman, Walsh, and Zhu similarly group institutions by type: banks, credit unions, and non-banks, but do not describe their process for making these determinations in any detail. See Goodman, Walsh, and Zhu, "The Community Reinvestment Act Lending Data Highlights," 2018.

Unlike similar studies by the Urban Institute, I did not limit my analysis to home purchases. All loan purposes were included, including home improvement loans and refinances. These non-home purchase loans account for 48% of the final dataset. Since my interest here is in establishing the utility of relative tract income as a proxy for low- to moderate-income borrowers, and comparing CDFIs track record of lending to LMI borrowers compared to other institutions, and not in home lending per se, there was no reason to exclude these loans.

These non-purchase loans may also show different lending patterns in low-income areas than home purchases, as a borrower’s income tier is always relative to the area median income. HMDA LAR does not capture prior residence information that would allow us to determine how the borrower’s income compared to the area of their residence prior to home purchase. This could change our view of our population of LMI borrowers, if, for instance, home buyers tend on average to move between areas of different relative income.[30] Including loans for other purposes avoids this movement problem, though LMI borrowers who are homeowners are likely different than LMI borrowers who are not.

The revised transmittal sheet information, with agency codes and institution types, was merged on the LAR using LEIs. In addition, CDFI program investment areas were merged onto the LAR by census tract. Investment areas are based on American Community Survey data, in this instance, for the years 2016 to 2020. These or prior investment areas (based on 2011 to 2015 data) were both permissible for use by CDFIs in 2022 (“CDFI Fund to Release Updated Program Eligibility Information,” 2022).

This combined dataset was used to calculate additional variables of interest, mostly related to tract and applicant income, including applicant income as a percentage of AMI, applicant income as a percentage of AMI adjusted for an assumed household size of one, and binary and tiered income variables using CRA and FFIEC cut-offs to describe applicants and tracts by relative

[30] CDFI Fund proposed target market assessments directs CDFIs to use the location of the purchased property as the reference location when determining income status for borrowers.

income (“Community Reinvestment Act Resources,” n.d.).[31] Those tiers, for both borrowers and tracts, are as follows:

- Low-income: <= 50% of MSA/MD median income
- Moderate-income: > 50% and <= 80% of MSA/MD median income
- Middle-income: > 80% and <= 120% of MSA/MD median income
- High-income: > 120% of MSA/MD median income[32]

Binary variables collapse these bands to low-to-moderate income (LMI; <= 80%) and middle-to-high income (MHI, > 80%).

To estimate how treating all borrowers as one-person households would change the number of LMI borrowers in this dataset compared to a flat 80% standard, income was divided by 0.7 and then divided by MSD/MD median income. This is based on CDFI Fund’s interim guidance, released in October 2022, for low-income population target market assessment, which dictates that “if the family size is unknown, then the default family size is one,” (“Proposed Pre-Approved Target Market Assessment Methodologies,” p. 16).[33] Household size adjustments are made using HUD formulas for income tier determination.

FINDINGS

Composition of CDFIs in HMDA 2022

Of the 308 CDFIs found in the HMDA 2022 institution list, 226 (73%) are credit unions, 63 (21%) are banks or thrifts, 16 (5%) are affiliates of bank or depository institution holding companies, and 3 (1%) are loan funds.

[31] Goodman, Walsh, and Zhu use different percentage tiers to describe borrowers by income in their 2018 study, but what I have used here is standard across federal agencies, though the particulars of whose income is counted and whether household size is accounted for varies across agencies. That variability changes the dollar value of the income being used for comparison, but not the percentage thresholds used for banding. It is, that said, common to see agencies describe low to moderate income as simply “low-income” when describing any income <= 80%. See Goodman, Walsh, and Zhu, 2018, p. 4.

[32] When a tract is not in a metropolitan statistical area (MSA) or metropolitan division (MD), income is compared to state median income. The HMDA LAR includes the FFIEC compiled comparison income values in the variable “ffiec_msa_md_median_family_income.”

[33] The HUD income calculator can be downloaded here: https://www.cdfifund.gov/sites/cdfi/files/2022-10/Low_Income_Calculator.xlsb. HUD uses a four-person household as their baseline, i.e., a four-person household can count 100% of their income against AMI. The Pew Research Center estimates that the average American household size is either 2.6 or 3.4 people, depending on how this number is assessed. See Fry, 2019.

The kinds of CDFIs found in the HMDA dataset are different proportionately than those found in the CDFI list overall. While loan funds make up the largest group of CDFIs by institution type, 41% in the 2022 list, only three are found in the HMDA CDFI list. Credit unions comprise 34% of all institutions on the 2022 CDFI list, but they make up 73% of the HMDA CDFIs. Banks or thrifts, like credit unions, are somewhat more represented in the HMDA list at 21% though they comprise only 13% of CDFIs in 2022. Holding companies make up 10% of the 2022 CDFI list, while their affiliates are 5% of our HMDA contributors.

Venture capital and venture capital funds are not represented in the HMDA CDFI list at all. HMDA data only includes home lending, and so these omissions are not entirely surprising, as banks and credit unions are more likely to do home lending.

Forty-three states and territories are represented in the headquarters of the CDFIs found in the HMDA data set, but they are unevenly distributed; 40 are in Louisiana alone, followed by 23 in both Mississippi and California, then 21 in both Puerto Rico and Florida. This is shy of the 53 states and territories in the full CDFI list, which also shows a heavy concentration of CDFIs headquartered in states in the U.S. South; populous states such as California, New York, Texas, and Florida; and in Puerto Rico.

High numbers of CDFIs do not necessarily translate into high numbers of records in the LAR. This is in part because some CDFIs work nationally, regardless of where they are headquartered. This is true for Self-Help Federal Credit Union and Self-Help Credit Union, who are both headquartered in North Carolina—a state with 6 CDFIs in the 2022 LAR—but work nationally. North Carolina has 25,934 records for its 6 institutions, while Louisiana's 40 institutions only contribute 8,476.

HMDA LAR Overview

The final HMDA LAR dataset used in this analysis has 7,937,269 records. The median loan amount is $235,000 (mean $297,580), and borrowers have a median income of $102,000 (mean $155,000). The median income of borrowers as a percentage of AMI is 111% (mean 167%), while the median tract income as a percentage of AMI is 108% (mean 114%).

Of these records, 52% are for home purchases. Ninety-two percent of home purchase loans are for principal residences, while 3% are for secondary residences, and 5% are for investment properties.

Most loans went to borrowers of more than one gender, 39%, followed by male borrowers, 33%. Where derived race is known, a large majority of loans are to white borrowers, 69%, ten times as many as the next largest known racial group, black or African American, with 7%.[34] Ethnicity is frequently not available, but 10% of loans are to Hispanics or Latinos.

The distribution of loans by state is predictably distributed, with the largest states by population, California (9%), Florida (8%), and Texas (8%), with the largest numbers of loans. Loans to urban areas far outnumber those in rural tracts, almost 9 to 1.

The number of records by institution type in the final dataset is shown in Table 1.

Table 1: Record and Dollar Volume by Institution Type

Institution Type	# Records	% Records	$ Volume (millions)	% Loan Volume
CDFIs	164,444	2%	$28,072.5	1%
Credit Unions	1,014,751	13%	$187,465.9	8%
Banks	2,255,591	28%	$705,580.1	30%
Non-Banks	4,502,483	57%	$1,439,856.7	61%

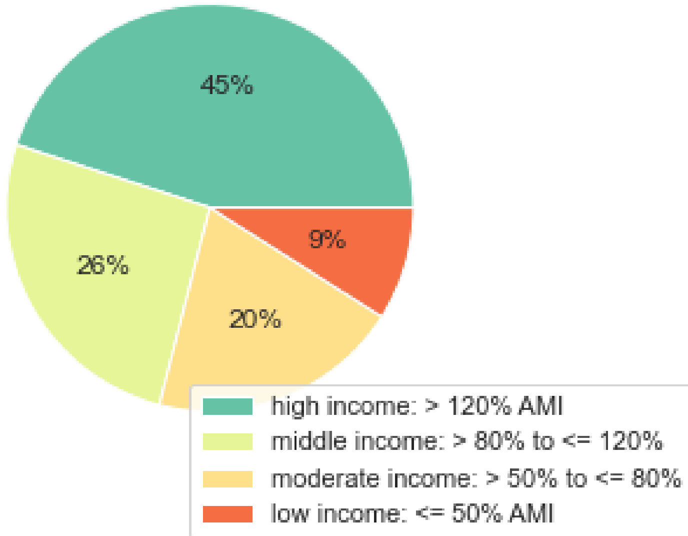
Relative Measures of Income

Borrower Income

Using an 80% of AMFI standard, 71% of borrowers are middle- or high-income, while 29% are LMI. Unsurprisingly, low-income borrowers make up our smallest group, at 9%, while moderate and middle-income borrowers are more similar in terms of numbers (20% and 26%, respectively), while high-income are 45% of borrowers.

[34] If this were proportionate to the population, there would be about one loan to an African American for every five loans to a white person.

Figure 1: Percentage of Borrowers by Income Tier



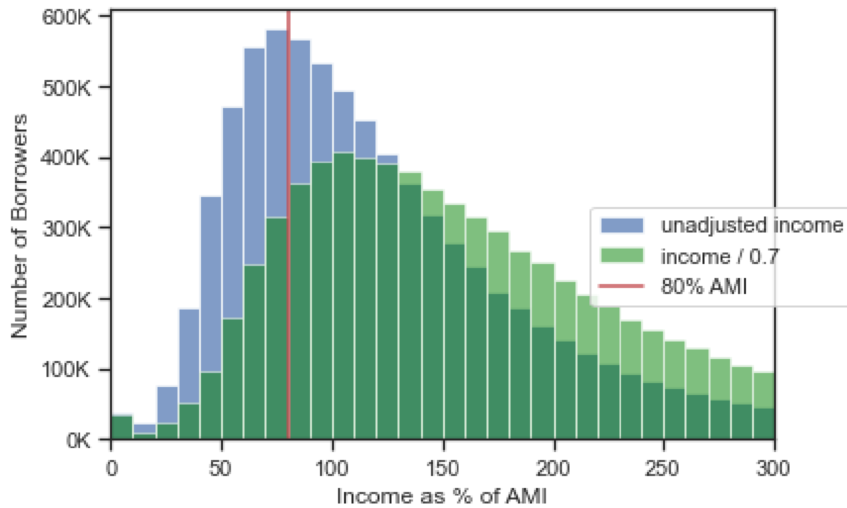
When income values are divided by 0.7 and then compared to AMFI, to mimic the CDFI Fund proposed assessment standard of assuming a household size of one when it is not known, these numbers shift to 87% and 12%, respectively, a 42% drop in the number of borrowers who could be considered LMI, or 1.35 million fewer borrowers.

I also calculated this number assuming a shift to an assumed baseline average family size of three, which would, if calculations remain the same, require a less severe income adjustment of income divided by 0.8 when family size is unknown.[35] This produces an estimate of 18% LMI borrowers and 82% higher income borrowers.

The histograms in Figure 2 show the distribution of incomes as a percentage of AMI. The blue histogram shows this distribution when income is unadjusted, while the green distribution shows those same incomes divided by 0.7 to assume an unknown household size.

[35] The income calculator instructs CDFIs to divide households of 3 people's income by 0.9, 2 by 0.8, and 1 by 0.7.

Figure 2: Borrower Income, Flat and Adjusted for Unknown Household Size



Lending by Tract Type

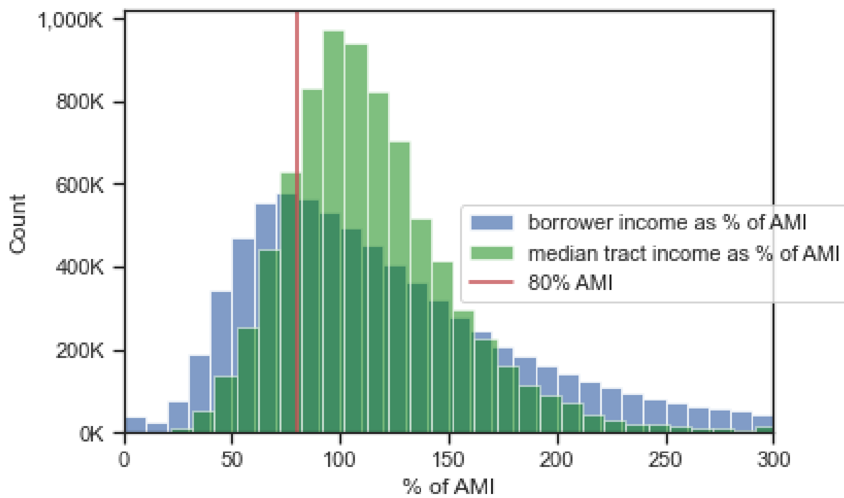
Eighteen percent of borrowers are located or purchasing homes in low-to-moderate income tracts, where median tract income is 80% or less of area median income, while 82% are in higher income tracts. CDFI investment area purchases are more common, with 33% of borrowers located or purchasing in investment areas.

There are 82,360 census tracts represented in the final dataset, shy of the 87,142 total nationally. Of these, 30% are LMI tracts, while 47% are CDFI investment areas. These percentages are close to the proportion of LMI tracts and investment areas nationally, at 29% LMI tracts and 47% investment areas. Home lending is consequently skewed toward higher income tracts and non-investment areas.

Five-hundred and eleven LMI tracts are not investment areas in this dataset, but this is due to the difference in ACS reference year. CDFI investment areas are determined using ACS five-year estimates for 2016-2020, while 2022 ACS tract income estimates are used to determine LMI tracts. Definitionally, investment areas include LMI tracts.

The histograms in Figure 3 plot relative borrower and tract income against each other. Relative borrower income has a wider distribution compared to relative tract income, and borrower income as a percentage of AMI skews lower than the median tract income as a percentage of AMI.

Figure 3: Borrower and Tract Income Relative to AMI



Borrower Type by Tract Type

Most loans to LMI tracts go to higher income borrowers, 53% middle-to-high income compared to 47% LMI. These ratios are similar regardless of whether the loan purpose is home purchase or non-purchase, with 45% going to LMI borrowers for purchases and 49% for non-purchases. This is somewhat worse than we'd expect by pure chance, as definitionally at least 50% of persons living in LMI tracts must be at or below 80% of AMI.

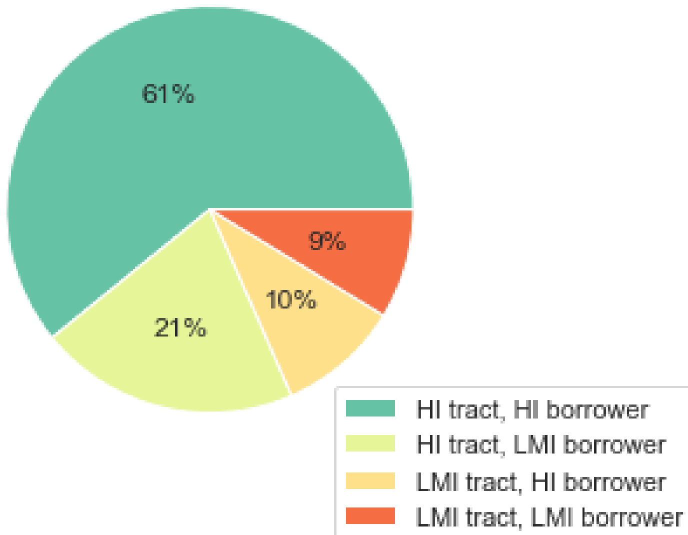
The total number of each kind of loan to LMI borrowers is very similar, with 1.18 million in non-purchases and 1.15 million in home purchases.

LMI borrowers in this dataset, however, do not predominantly live or purchase homes in LMI tracts. Only 30% of LMI borrowers are located in LMI tracts, while 70% are in higher income tracts. They are more likely to live or buy in LMI tracts than higher income borrowers, for whom the split is 86% higher income tract and 14% LMI tract.

The distribution of all four possibilities is shown in Figure 4.

Figure 4: Borrower Type by Tract Type

HI = higher income, LMI = low-to-moderate income

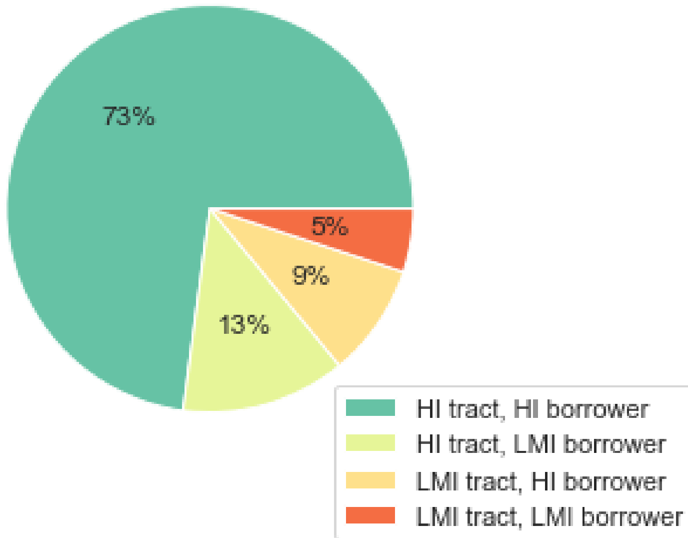


The total loan amount by relative tract and borrower income is more unevenly distributed, with 64% of loan dollars to LMI tracts going to higher income borrowers. In total, only 5% of loan dollars go to LMI borrowers in LMI tracts, while higher income borrowers in higher income tracts receive 73% of loan dollars. The average loan to a higher income borrower in a higher income tract is $356K, while the average loan amount to an LMI borrower in an LMI tract is $172K, or less than half that. Average loans to LMI borrowers in higher income areas are somewhat higher at $188K. Their opposite, higher income borrowers in LMI tracts, have average loans of $275K.

Figure 5 shows the percentage of loan dollars going to borrowers by tract type.

Figure 5: Loan Volume by Borrower and Tract Type

HI = higher income, LMI = low-to-moderate income



Looking at income relative to AMI only, LMI borrowers are similar regardless of type of tract. Those in higher income tracts have a slightly higher average income as a percentage of AMI, 57% versus 55%, than their LMI tract counterparts, and the median split is 61% (higher income tract) to 57% (LMI tract).

Higher income borrowers show more evidence of differentiation by tract type. The average income as percentage of AMI for borrowers in higher income tracts is 219% (145% median). In LMI tracts, the average is 179% (121% median), suggesting, in combination with the lower loan amounts, that higher income borrowers who are comparatively lower income may be seeking more affordable housing in LMI tracts.

Of course, income is not bound on the upper end, though we would expect the highest income homebuyers to not necessarily need loans. LMI borrowers are constrained by both upper and lower bounds.

Investment Areas

Investment areas are only a geography of concern for CDFIs, who comprise a small minority of HMDA contributors. Investment areas also include nearly half of all census tracts in the United States. As with LMI tracts, more borrowers in investment areas are higher income, 61%. Seventy-one percent of higher income borrowers live or purchase homes outside of investment areas, while 56% of LMI borrowers do.

Investigating the Preponderance of LMI Borrowers in Higher Income Tracts

I did not expect the large majority of LMI borrowers to live and buy in higher income tracts. This may be due to several factors, but I investigated one possibility here: Availability of housing for purchase, estimated by percentage of renter-occupied versus owner-occupied units in a census tract.

In 2021, nationwide 52% of housing units in LMI tracts were renter-occupied, with a median value of 51% and standard deviation of 23%. In contrast, housing units in higher income tracts were renter-occupied just 28% of the time, with a lower median value of 23% and standard deviation of 19%.

The percentage of renter-occupied units in tracts found in the 2022 HMDA LAR are lower, but still show this lower and higher income tract divide. Borrowers live or purchase in LMI tracts where 43% of units are rentals (42% median, standard deviation of 19%), nearly twice that of borrowers living or purchasing in higher income tracts, with 23% rental units (20% median, 16% standard deviation).[36]

Lending by Tract and Borrower Type by Type of Institution

Lending patterns vary little across institution types.

All institution types more frequently lend to higher income borrowers in LMI tracts, at rates very similar to the overall average of 57% to higher income borrowers and 43% to LMI borrowers. The divide is least pronounced for non-banks, who also do the bulk of lending in this dataset (57% of all loans).

[36] Numbers for the LAR are for all observations in the final set, not distinct census tracts.

Table 2 shows this breakdown.

Table 2: Lending to LMI Tracts by Type of Institution

Institution Type	# LMI Tract, HI Borrower	# LMI Tract, LMI Borrower	% loans in LMI tracts to LMI borrowers	% of $ in LMI tracts to LMI borrowers
CDFI	16,835	13,969	45%	35%
Credit Union	85,623	72,295	46%	34%
Bank	191,625	158,170	45%	31%
Non-Bank	475,315	448,417	49%	38%
All Institutions	769,398	692,851	47%	36%

Lending to LMI borrowers, regardless of location, is similarly consistent across institutions, with non-banks doing a few percentage points better than other lenders.

Table 3: Lending by Borrower Income by Type of Institution

Institution Type	# Higher Income Borrower	# LMI Borrower	% LMI Borrower
CDFI	117,210	47,234	29%
Credit Union	742,395	272,356	27%
Bank	1,668,159	587,432	26%
Non-Bank	3,073,121	1,429,362	32%
All Institutions	5,600,885	2,336,384	29%

Across all institution types, 9 to 10% of loans are made to the lowest income borrowers, those at or under 50% of AMI. At the other end of the spectrum, there is more range in percentage of loans to borrowers over 120% of AMI, with 41% from non-banks, 46% from CDFIs, 48% from credit unions, and 52% from banks.

Lending by dollar volume to LMI borrowers is highest by percent of all activity for non-banks, followed by CDFIs, but still lower than the share of LMI borrowers might imply. These values, along with average loan size for home purchases is in Table 4 below by institution type. Purchase loan sizes are predictably larger for higher income borrowers, but also significantly larger when originated by banks and non-banks.

Home purchases were broken out, as while the number of home loans in the entire dataset is not considerably more than non-purchase loans, this ratio varies by institution type: Purchases are 62% of non-banks' total lending, 46% of banks', 30% of CDFIs', and 25% of credit unions' total lending.

Table 4: Loan Volume by Type of Institution

Institution Type	Mean Home Purchase Loan, Higher Income Borrower	Mean Home Purchase Loan, LMI Borrower	% All $ to LMI Borrowers
CDFI	$334,939	$160,054	18%
Credit Union	$378,836	$167,865	16%
Bank	$485,854	$187,636	12%
Non-Bank	$400,152	$219,376	21%
All Institutions	$420,417	$208,327	18%

Investment Areas and CDFIs

CDFIs lend more often in CDFI investment areas than do banks or credit unions, but only slightly more often than non-banks. Lending to LMI borrowers in investment areas is relatively similar across institutions, however, close to the 39% average across all types.

Table 5: Lending in CDFI Investment Areas by Type of Institution

Institution Type	% of Loans to Investment Areas	% Investment Area Loans to LMI borrower
CDFI	38%	36%
Credit Union	27%	38%
Bank	29%	36%
Non-Bank	36%	40%
All Institutions	33%	39%

DISCUSSION

Geographic Proxies for LMI Borrowers

Like the 2018 study by Goodman, Walsh, and Zhu, this study also finds that most loans to LMI tracts go to higher income borrowers, though the gap found here is smaller.[37] Effectively, using LMI tract to predict whether a borrower is LMI is slightly worse than a coin toss. This is true across institution types; no type of institution does a substantially better job of lending to LMI borrowers in LMI tracts.

Loan volume by dollar amount is even worse than this 53/47 split by count, with only 36% of loan dollars to LMI tracts going to LMI borrowers.

[37] Their exclusion criteria at the record line level was different than mine, in addition to being a different year.

Similarly, CDFI Fund investment areas are not particularly predictive of LMI borrowers, even when only records for CDFIs are considered. Only 36-40% of loans in these areas go to LMI borrowers, making it an even worse proxy for LMI borrowers.

However, most LMI borrowers in this dataset lived or purchased homes in higher income tracts, though they did so at lower rates than their higher income counterparts. Fully 70% of LMI borrowers are located in these tracts. It's possible that high rates of renter-occupied units in LMI tracts partially explains this phenomenon, suggesting that housing for purchase may simply be less available in LMI tracts.

There may be other explanations that were not explored here. Perhaps home buyers seek out neighborhoods that have amenities and services that often come with higher income and higher wealth neighborhoods. In this way, home lending, and particularly home purchases, may be fundamentally different than other kinds of lending in its geographical dimensions. If that's the case, while home lending is an important form of credit to LMI borrowers, it may be insufficient on its own for assessing the utility of geographic proxies for LMI borrowers. Other lines of credit and lending could show a stronger overlap between LMI borrowers and tracts.

Regardless, LMI tracts are an imprecise and low-recall proxy for LMI home lending borrowers.

It does appear that CDFIs are more likely to make loans in CDFI investment areas, with ~25% more of their lending occurring in these tracts than their bank and credit union peers. Credit unions are a particularly useful point of comparison, as much of the recent growth in the CDFI industry has been in the certification of existing credit unions. Credit unions are also the most common type of CDFI in the HMDA dataset. However, investment areas are only one possible target market for CDFIs, and absent information about which target markets particular CDFIs serve and their broader activities, we cannot know if this percentage approaches the 60% standard that CDFI Fund seeks from its institutions.

Defining and Lending to LMI Borrowers

Lending to LMI borrowers occurs at about the same rate across institutions, with non-banks lending to LMI borrowers somewhat more often than other institutions. This is somewhat surprising, as CDFIs have an explicit mission to serve economically distressed communities. Home lending is just one type of lending and financial service that CDFIs provide, and so this is not necessarily reflective of their broader activities. This study also did not look at other possible target markets that could be estimated here, such as those that are organized around race or ethnicity.

As Goodman, Zhu, and Walsh explain, non-banks do more lending to LMI families than banks, despite not being subject to CRA, because they do more Federal Housing Administration (FHA) loans, which skew LMI (2019, p. 89).

What is different across institutions is the dollar amount of loans, with a low of 12% of bank dollars and high of 21% of non-bank dollars going to LMI borrowers. CDFI Fund looks for a 60% minimum in lending activities by count and dollar volume for CDFIs to meet their target market requirements, so the gap between their 29% of borrowers who are LMI and 18% of dollars to LMI borrowers could matter for these institutions if that gap held across all activities.

Banks and non-banks also have higher average home purchase loan amounts for their LMI borrowers than CDFIs and credit unions. Exploring the terms of loans to LMI borrowers is outside the scope of this study, but the jump in purchase loan sizes between types of institutions—a non-bank home loan is on average 70% larger than a CDFI loan—raises questions about why loan sizes vary so much. Borrowers are not necessarily better served by larger loans, and simple counts of loans and dollar amounts do not say anything about interest rates or other loan terms.

Different Assessment Standards for Different Institutions

As previously discussed, CDFI Fund is proposing that CDFIs adjust borrower income to account for household size when determining their income status relative to AMI. At a flat 80% of AMI, the CRA standard, 26% of banks’ borrowers and 29% of CDFIs’ borrowers are LMI. Our number of CDFI LMI borrowers drops to 12%, if we adjust income to an assumed household size of one.

In the HMDA dataset, the presence of real income values allows for more direct comparison of institutions. But in the data that banks submit for CRA examination and in CDFI Fund transaction level registers, income tiers are precomputed and then submitted. If CDFI Fund's definition of LMI borrowers shifts to this stricter standard, we will lose the ability to compare lending to lower income populations across different types of institutions, potentially leading to very different estimates for the "same" population being served.

Directions for Further Investigation

Ideally this study would have also looked at the suggested CDFI Fund proxy for LMI persons of 70% or more LMI persons residing in a census tract as a point of comparison for LMI tracts calculated at 80% or less of AMFI and CDFI investment areas. However, the dataset published in 2023 by the HUD GIS Helpdesk with estimates of the number and percentages of persons under 80% AMI uses Census 2010 geographies. Since the HMDA dataset does not include census block level data, it's not possible to use the Census Bureau's tract relationship files to determine how those 2010 tracts map to 2020 tracts.[38] HUD does not provide detailed information about how this number is determined so that it can be recreated easily using 2020 geographies.[39]

Regardless, while a 70% or more LMI residents proxy assessment may screen out some number of higher income borrowers, and perhaps serve as a more precise proxy if income is not available, this study has shown that such a standard would not capture the majority of LMI home lending borrowers, who live in higher income tracts. CDFI Fund's own estimates that close to 75% of LMI persons live outside of these tracts indicate as much.

As previously discussed, other types of lending and financial services should be looked at to fully understand how often LMI borrowers are served in LMI tracts, as these services may not show the same skew towards higher income areas. It's possible that more years of HMDA data would

[38] Merging the 2010 tracts on corresponding 2020 tracts using the relationship file duplicates HMDA rows more than 50% of the time, and values for percentage of people at or under 80% for all possible 2010 matches vary too much to be reduced to a plausible guess at a "best" match.
[39] For instance, we can assume that 50% of families in a tract are at or below 80% of AMFI if the tract median income is 80% or less of AMFI. If we had the 70th percentile value for tract income, we could apply similar logic and establish if 70% of families in the tract were 80% or less of AMFI. However, this tract income value isn't in the ACS datasets, and it applies to families, not individuals.

provide a more reliable indication of the utility of geographic proxies for LMI borrowers. 2022 was a year of rapidly rising home prices and interest rates in many parts of the country; this could have led to more higher income borrowers seeking relatively cheaper homes in lower income tracts.

This study also did not perform any statistical modeling or significance testing of variables either at the borrower or institution level, to see if the seeming lack of variation in lending to LMI borrowers in LMI tracts holds when other factors are controlled for, or to understand if there is a relationship between institution type and tract and borrower income percentiles that is not obvious when relative income is flattened to a binary outcome.

While in one sense such statistical associations are not pertinent for federal examination or certification standards that simply look for counts and dollar amounts, they may be informative for understanding who and where LMI borrowers are served and provide insights on other possible proxies for identifying such borrowers. Statistical modeling may also be useful for estimating how subpopulations of LMI borrowers vary (or don’t) by lender type.

Having identified CDFIs in the 2022 LAR, I could also investigate other questions related to CDFI activities in the home lending sphere, for instance, looking at possible differences between CDFIs by institution type, size, or recency of certification. This study also completely ignores inter-institutional purchases, and CDFIs’ secondary market activities may look very different than their direct lending.

Implications

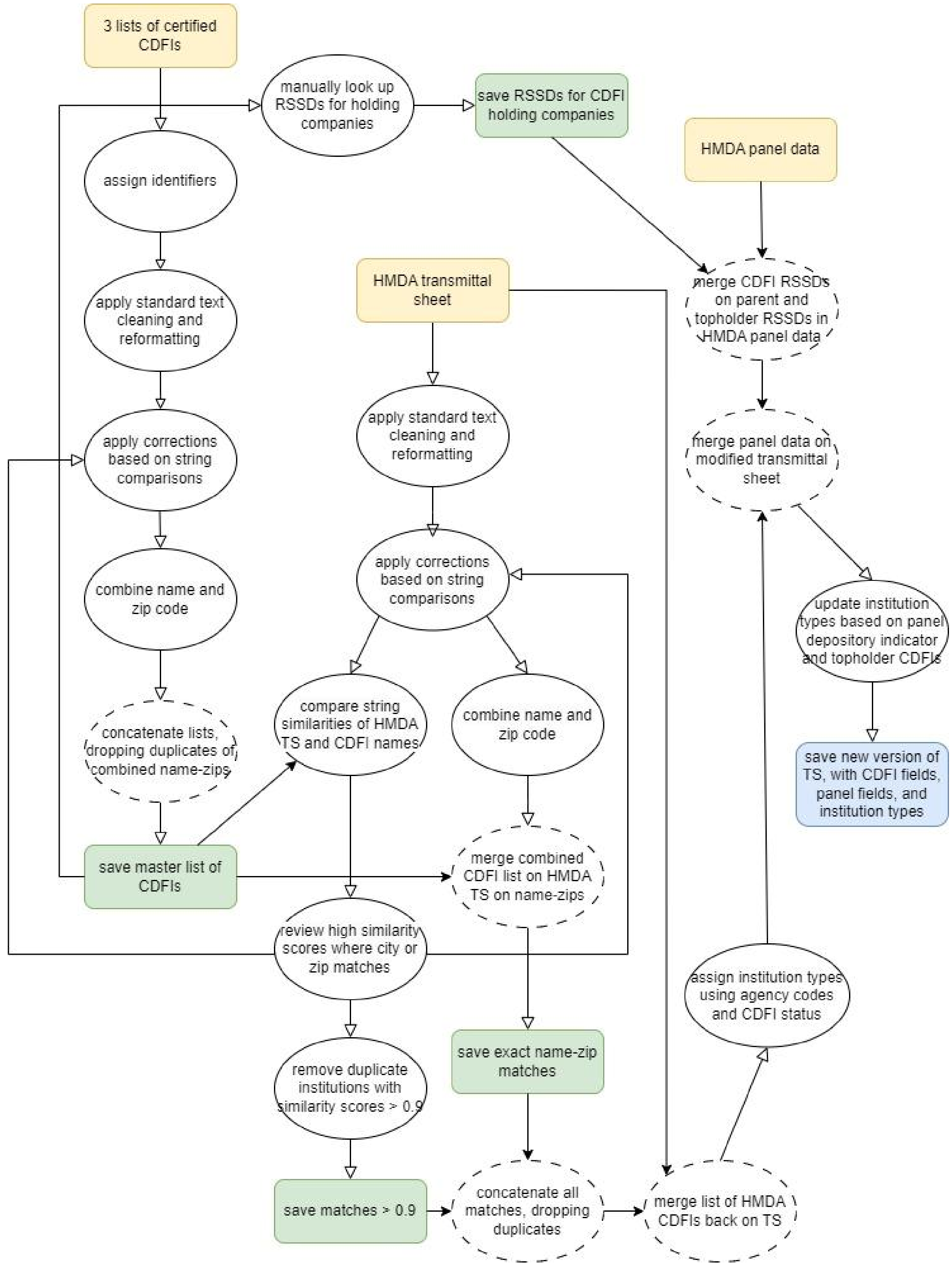
It’s unclear that a stricter standard for LITP for CDFI Fund will motivate more lending to lower income persons. The additional, thorny data collection requirements may instead motivate CDFIs to shift their target markets that are comparatively simpler to assess: investment areas, or race or ethnicity-based target populations. Tightening the standards may lead to less innovation in developing lending products for LMI borrowers, if a large percentage of borrowers who formerly met the standard can no longer be counted toward target market requirements.

Preserving an attainable assessment standard for LMI borrowers feels particularly important given that geographic proxies are also an option. While any definition of LMI borrowers is imperfect, preserving and encouraging direct lending to LMI borrowers, and having a way to track that lending, is important when so many activities that fulfill CRA and CDFI Fund requirements benefit these populations indirectly, in the form of small business investments, investment in community services, and so on. If most dollars going into LMI tracts are not going to LMI borrowers, particularly in the home lending sector, the standards as they exist may not encourage investment and revitalization of low-income communities, and but instead contribute to gentrification and displacement of lower income residents.

LMI tracts may not serve as a reliable proxy for LMI borrowers, and CDFI investment areas may be even worse, but it’s possible that location could be combined with other information that is easier to collect than all household member’s incomes and household size. One such possibility, implied by the finding that renter occupied units predominate in LMI tracts and the preponderance of higher income home buyers in LMI tracts, is renter status. National median income for renters is well below median income for homeowners, $41,000 as opposed to $78,000 (Thompson, 2023). Available Census data on the number of households in 5,000-dollar income ranges, grouped by occupancy type, could be used to estimate this hypothesis at the census tract level.

APPENDIX A: Finding CDFIs in the HMDA Transmittal Sheet and Defining Institution Types

Yellow rectangles indicate original, publicly available datasets. Green rectangles are datasets I created or modified. The blue rectangle is the final institution dataset that I merged on the HMDA LAR. Merges and concatenations are indicated with dashed ovals. Other steps are in solid ovals.



APPENDIX B: CDFI Contributors to 2022 HMDA

All letters have been lowercased, otherwise, the LEIs and names match what was available in the original CDFI Fund lists and HMDA transmittal sheet.

LEI	Assigned ID	Respondent Name (HMDA TS)	Organization Name (CDFI Fund)
549300xcp8kcutkgf379	2022_1	121 financial credit union	121 financial credit union
5493007m5rs51eytt434	2022_15	aea federal credit union	aea federal credit union
5493003tk1baohhl6s92	2022_29	alltru federal credit union	alltru federal credit union
254900hxpun0bqez4350	2022_33	alternatives federal credit union	alternatives federal credit union
89450088v2byquo61b62	2022_39	aneca federal credit union	aneca federal credit union
254900n59ticvy7k7t48	2022_42	aod federal credit union	aod federal credit union
5493004c6nm2vnoh2n94	2022_46	appalachian community federal credit union	appalachian community fcu
549300mtzqme2dhke115	2022_53	arlington community fcu	arlington community federal credit union
5493007oxxflnnhtw637	2022_60	assemblies of god credit union	assemblies of god credit union
549300yw2z3jikd72x32	2022_62	astera credit union	astera credit union
54930038b7d8n5zcsg62	2022_64	atomic credit union, inc	atomic credit union
2549001r901bouxdjq68	2022_84	bank of holly springs	bank of holly springs
254900j71ijlmjzjv608	2022_91	bank of zachary	bank of zachary
5493003qdhmw1w0geh16	2022_92	bank3	bank3
549300kzc4kkv3f7w494	2022_101	bay federal credit union	bay federal credit union
549300d7ob5w5cjhfo55	2022_131	brightstar credit union	brightstar credit union
5493004kgzvi015ko609	2022_159	canopy federal credit union	canopy federal credit union
549300kzvnu4ukzswd59	2022_160	canton school employees fcu	canton school employees federal credit union
549300zy6prwy54o6995	2022_166	capital plus financial	capital plus financial
549300by8dzpek4zr022	2022_167	cardinal credit union, inc	cardinal credit union
254900kmmjnl0ijnsm73	2022_169	caribe federal credit union	caribe federal credit union
549300qbv10sc3teu133	2022_173	carolina foothills fcu	carolina foothills fcu
549300rn1povrdd21477	2022_175	carroll bank and trust	carroll bank and trust
549300ckg3jgnhh34d61	2022_177	carter federal credit union	carter federal credit union
549300esnliwvn3tk065	2022_187	cbc federal credit union	cbc fcu

549300yr7u7tztq1gh77	2022_189	centennial bank	centennial bank
549300cpjh6jmu13eq37	2022_197	central willamette credit union	central willamette credit union
549300tcr1bzrvoo2a49	2022_198	centric federal credit union	centric federal credit union
984500u2f9a83n391a91	2022_204	champions funding, llc	champions funding, llc
549300lizh7vw4dfjk44	2022_214	chickasaw community bank	chickasaw community bank
549300v7i9azrm78qt92	2022_225	citizens bank	citizens bank
5493005ghhd2ll3us857	2022_226	citizens bank & trust	citizens bank & trust
549300s0km4fy7wgct56	2022_231	citizens progressive bank	citizens progressive bank
549300w2w119zbfows21	2022_242	clearwater federal credit union	clearwater federal credit union
254900p86cwa5dck0y27	2022_246	clinchfield federal credit union	clinchfield federal credit union
5493000kty8yq4sfht59	2022_249	coasthills credit union	coasthills credit union
549300mek4etdcvhfb89	2022_251	colfax banking company	colfax banking company
549300p3juy6qmz8dy86	2022_261	commercial bank & trust company	commercial bank and trust company
549300wow2hlrvn4o324	2022_270	community 1st credit union	community 1st credit union
54930030c6u0heriq090	2022_283	community credit union of florida	community credit union of florida
549300767f7cdujr8q67	2022_293	community first credit union	community first credit union
5493006crt5vj5l0n291	2022_294	community first federal credit	community first federal credit union
9845003edc545af61498	2022_316	community south credit union	community south credit union
254900b631b05uvlua59	2022_323	concordia bank & trust co.	concordia bank and trust co.
5493000pt0sxf8fbr107	2022_327	connections credit union	connections credit union
549300ca0j0z7ofqbg71	2022_328	connex credit union	connex credit union
549300kzvckcun23yy80	2022_329	consolidated community credit union	consolidated federal credit union
549300gxih93qaiawv16	2022_338	cooperativa ahorro y credito de maunabo	cooperativa de a/c de maunabo
549300uvfli1w4o27j10	2022_340	cooperativa de a\c lares	cooperativa de ahorro & credito de lares d/b/a larcoop
5493006q452t1fesho34	2022_344	cooperativa de a\c aiboniteÃ±a	cooperativa de ahorro y credito aibonitena
549300t69mhcqoic3f90	2022_356	cooperativa de a/c camuy	cooperativa de ahorro y credito de camuy
549300pibi14gdbld168	2022_357	cooperativa de a/c isabela	cooperativa de ahorro y credito de isabela
5493000l4jctdwd6wt73	2022_369	cooperativa ac manati	cooperativa de ahorro y credito de manati

549300lw8ub33s1zif68	2022_371	cooperativa de ac rincon	cooperativa de ahorro y credito de rincon
549300qhkpydss5w8t62	2022_373	cooperativa de ac santa isabel	cooperativa de ahorro y credito de santa isabel
5493004pu0pdr2nuyn54	2022_375	cooperativa de ac valenciano	cooperativa de ahorro y credito del valenciano
549300dkad285hdelr04	2022_379	cooperativa de ac hatillo	cooperativa de ahorro y credito hatillo
5493000dywseqxsq3736	2022_386	cooperativa de ac las piedras	cooperativa de ahorro y credito las piedras
549300j7dj7v4cszck98	2022_390	cooperativa a/c oriental	cooperativa de ahorro y credito oriental
549300hvrak6i8qgfr41	2022_393	cooperativa de ac san jose	cooperativa de ahorro y credito san jose
549300lm58v37xnhob58	2022_407	copiah bank	copiah bank
254900cieuzuo7chpg88	2022_415	covantage credit union	covantage credit union
5493008nqvb5zowynu83	2022_421	credit union one	credit union one
254900el5n0nk8m96118	2022_430	dade county federal credit union	dade county federal credit union
254900jpfvln18xndg98	2022_433	day air credit union	day air credit union
25490008z6ow7hhl6478	2022_440	democracy federal credit union	democracy fcu
5493002g1dpdokt55x37	2022_442	desco federal credit union	desco federal credit union
549300h88niq6005m718	2022_452	dupont community credit union	dupont community credit union
549300vemk0lxvcrzm49	2022_455	east idaho credit union	east idaho credit union
549300sloqgl2lemsd33	2022_466	el paso area teachers federal credit union	el paso area teachers federal credit union
549300yktme1u7z0un20	2022_472	empower federal credit union	empower federal credit union
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5493002abbxawqfikv03	2022_532	first financial credit union	first financial credit union
54930040ppd1ptcfi313	2022_535	first imperial credit union	first imperial credit union
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2549007uk2bzoosf6c76	2022_546	first security bank	first security bank
549300iom384rw3hwe57	2022_559	five star credit union	five star credit union
5493006zbgvxbamcrg16	2022_563	florida credit union	florida credit union
549300jhfxry8t6ln749	2022_566	fnb picayune bank	fnb picayune bank
549300ccqsh6zsqhns49	2022_568	fnbc bank	fnbc bank

549300kgmxcxmvc0bo47	2022_580	freedom first federal credit union	freedom first federal credit union
5493001b4u37vt2ml818	2022_594	gesa credit union	gesa credit union
549300gymdp10ggmlf50	2022_598	golden bank, n.a.	golden bank, na
549300kjae0jn2z6yv76	2022_610	great southern bank	great southern bank
549300muegvfz2155d91	2022_619	greater new orleans fcu	greater new orleans federal credit union
549300xlrd9qlljrcb89	2022_626	greylock federal credit union	greylock federal credit union
549300foceh0x0zor362	2022_628	grow financial fcu	grow financial federal credit union
549300ziq24v0c88ac41	2022_631	gte federal credit union	gte federal credit union
5493007b7mewkmdwuz73	2022_633	guaranty bank & trust company	guaranty bank & trust
549300mz53ggf2499g54	2022_634	guaranty bank & trust co	guaranty bank and trust company
5493007jvsqyt5y2v066	2022_635	guaranty bank & trust company of delhi, louisiana	guaranty bank and trust company of delhi
549300gldl4x3u4rfi74	2022_637	guardian credit union	guardian credit union
254900t8nvztd1q8u318	2022_638	guardians credit union	guardians credit union
254900r21ynptnww1l44	2022_639	gulf coast community federal credit union	gulf coast community fcu
549300x7eiyxz10ldj13	2022_663	heart of la fcu	heart of louisiana fcu
5493005zsv53k4m63m18	2022_665	heritage financial credit union	heritage financial cu
549300doqn3o7nl3ca31	2022_675	homeland federal savings bank	homeland federal savings bank
5493008q3xbc7o0q4x02	2022_682	hope federal credit union	hope federal credit union
5493008hxd04sbq82s85	2022_685	horizon credit union	horizon credit union
549300oj2jn8jfpqm182	2022_699	illiana financial credit union	illiana financial credit union
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549300iks3mmb5yk6t18	2022_742	kinecta federal credit union	kinecta federal credit union
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254900rqgxh1n2n6d695	2022_750	lake trust credit union	lake trust credit union

549300m63sgbhkkboe21	2022_754	landmark bank	landmark bank
254900fjricl380r4t46	2022_761	leaders credit union	leaders credit union
549300ojtk0ipsnda832	2022_768	liberty bank and trust co	liberty bank and trust company
549300itokvftrh0eq29	2022_781	louisiana federal credit union	louisiana federal credit union
549300op5dx4zl2e2s84	2022_795	marine federal credit union	marine federal credit union (inc)
549300jddz5ovop5e294	2022_801	mazuma credit union	mazuma credit union
549300zmsstp768usp32	2022_815	merchants & marine bank	merchants & marine bank
549300u5kjdugziwf098	2022_817	merco credit union	merco credit union
549300333jqwip8nlk67	2022_819	meritus federal credit union	meritus credit union
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549300dn6a0i2mkqyg08	2022_856	mountain credit union	mountain credit union
549300vtvp64bkeo3l58	2022_859	mountain valley bank	mountain valley bank
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5493006gfsnouccl1w91	2022_918	new orleans firemen's federal	new orleans firemen's federal credit union, the
549300vfh2ixm3i18p78	2022_939	north jersey federal credit union	north jersey federal credit union
549300rp7vach3gg5e95	2022_941	northeast community credit union	northeast community credit union
549300ctzwa68906q837	2022_953	northwest community credit union	northwest community credit union (nwcu)
549300xumml1smltvq62	2022_961	nutmeg state fcu	nutmeg state financial credit union
254900w66q12i4mv8x83	2022_974	omni community credit union	omni community credit union
254900zkvjdeyhv22276	2022_978	onpath federal credit union	onpath federal credit union
549300niqbrow7mlxi19	2022_982	opportunities credit union	opportunities credit union, inc.
549300kddwlc5i8k6c44	2022_987	orange county's credit union	orange county's credit union
254900u2zplwqtsd3158	2022_988	orion federal credit union	orion federal credit union
549300d6jk30qtsrhb52	2022_989	oswego county fcu	oswego county fcu
254900mihy4n3f840p17	2022_991	ouachita valley fcu	ouachita valley federal credit union
549300gnc55mztgkj811	2022_998	pacific cascade federal credit union	pacific cascade federal credit union

549300azbm8v8se0it33	2022_1004	park community credit union	park community credit union
549300ef3cm0uiois476	2022_1007	partners bank	partners bank
549300byovj9x6pkxv28	2022_1013	peach state federal credit union	peach state federal credit union
25490058tx0qv62wq461	2022_1014	pelican state credit union	pelican state credit union, inc.
549300tebv514klde180	2022_1015	peninsula community federal credit union	peninsula community federal credit union
54930032ocuor526ir93	2022_1022	peoples bank	peoples bank
549300tawk59h74pxz55	2022_1023	peoples community bank	peoples community bank
549300cyxw7ld00ycq70	2022_1031	pinal county federal credit union	pinal county federal credit union
549300uyf8oqlb7l7745	2022_1032	pine bluff cotton belt fcu	pine bluff cotton belt fcu
549300pgv74j5sphtg47	2022_1035	planters bank and trust company	planters bank & trust company
549300k0zdyg8yjz3l95	2022_1042	ponce bank	ponce bank
549300d9zodkn6cvv913	2022_1050	prime financial credit union	prime financial credit union
549300cyl5zw4isl7t55	2022_1056	priorityone bank	priorityone bank
549300ywkmud8j4ef956	2022_1060	progressive national bank	progressive national bank
254900mcb5qtuwuwq396	2022_1064	public service credit union	public service credit union
54930083fpg64s0cpc15	2022_1068	pyramid federal credit union	pyramid federal credit union
2549004xjqqpbyqsmt39	2022_1072	quontic bank	quontic bank
54930024qeew6ydtwz98	2022_1087	rev federal credit union	rev federal credit union
549300nva07uvmzs8e14	2022_1091	rio grande credit union	rio grande credit union
254900uqie22kbnlg837	2022_1097	river city federal credit union	river city federal credit union
254900t37kttxkck3416	2022_1102	rivermark community credit union	rivermark community credit union
5493003b20kz3dezgb43	2022_1110	royal business bank	royal business bank
549300wbmoz68l65gy91	2022_1125	san rafael coop	san rafael coop
5493001fmenbk31ggq69	2022_1128	sce federal credit union	sce federal credit union inc
5493007qeryqsq3qnh02	2022_1129	seattle metropolitan credit union	seattle metropolitan credit union
5493005es4j6h2vr7264	2022_1136	security federal bank	security federal bank
5493003wleygxgnti654	2022_1139	selco community credit union	selco community credit union
549300uheev73tkczy62	2022_1143	self-help federal credit union	self-help federal credit union
549300vlxw0ygtwft173	2022_1153	siu credit union	siu credit union

549300029hokg1dfpd77	2022_1155	skypoint fcu	skypoint federal credit union
549300jqef6v2rnwcc75	2022_1176	southern bancorp bank	southern bancorp bank
549300684i276injkk63	2022_1181	southern heritage bank	southern heritage bank
5493003cwpnx7ez46462	2022_1191	spc credit union	spc credit union
549300248r1mfwpwxa09	2022_1207	state employees credit union	state employees cu
549300167ez5p8b06r34	2022_1212	sunbelt federal credit union	sunbelt federal credit union
549300toooow36ex6r40	2022_1213	suncoast credit union	suncoast credit union
549300hwdy3n8uvjo697	2022_1214	sunrise banks, n.a.	sunrise banks, n.a.
549300ubl8b7c63dkz49	2022_1217	sycamore bank	sycamore bank
549300scf56k6yeg7x54	2022_1222	tampa bay federal credit union	tampa bay federal credit union
549300zjk68x6pqu2308	2022_1225	telhio credit union, inc.	telhio credit union, inc.
549300z4e78bsm0xm758	2022_1230	texas bay credit union	texas bay credit union
5493008oe5jxntgwd962	2022_1244	the first bank	the first bank
54930082vcny40xpob62	2022_1245	the first national bank of jea	the first national bank of jeanerette
254900r3gsq9sp0vju09	2022_1246	the focus federal credit union	the focus federal credit union
549300dqg9b47mv1mr51	2022_1254	the samson banking company, inc	the samson banking company, inc.
549300qbu5suxwzaxv90	2022_1255	the united federal credit union	the united federal credit union
5493008g8zyiepb4cz17	2022_1261	tidemark federal credit union	tidemark federal credit union
549300pzp3uhkyj5et63	2022_1264	tinker federal credit union	tinker federal credit union
549300gax7ikjukcje72	2022_1272	travis credit union	travis credit union
549300vxxdsmsh313g18	2022_1282	truliant federal credit union	truliant federal credit union
549300o2uk5fuzxqjo34	2022_1295	united community bank	united community bank
549300d5wzydjfzqj463	2022_1296	united consumers credit union	united consumers credit union
254900qh6q6rhdlhec77	2022_1300	university credit union	university credit union
254900xdig3076iqjs36	2022_1302	university of louisiana federal credit union	university of louisiana federal credit union
549300kb8nxvyd7bgs97	2022_1311	us community credit union	us community credit union
2549001el4xfdhgnjo24	2022_1312	usc credit union	usc credit union
254900nguh2o9fb6az22	2022_1319	valley first credit union	valley first credit union
549300ker3yvz3u5rk57	2022_1328	veridian credit union	veridian credit union

254900ukuyl6fd61sr25	2022_1339	vocality community credit union	vocality community credit union
54930036k3zfj4fokt69	2022_1341	vystar credit union	vystar credit union
549300knrt5ugncsxm31	2022_1345	washington state bank	washington state bank
254900xs6zeoad9q6n72	2022_1351	we florida financial	we florida financial
549300bwxupds3pdol40	2022_1352	west alabama bank & trust	west alabama bank & trust
549300dxf2fqc64h6g42	2022_1375	zeal cu	zeal cu
549300w45d2j6bt4lx65	2021_23	all credit considered mortgage, inc.	all credit considered mortgage, inc.
549300tn0hz349e7zh34	2021_25	alliance credit union	alliance credit union
549300ortz3cwxpnl693	2021_396	elga credit union	elga credit union
254900bqvrdmh5k9qs04	2021_493	frankenmuth credit union	frankenmuth credit union
5493003jbn8uevou8o42	2021_637	jefferson financial fcu	jefferson financial federal credit union
254900ye6jq826ruvb14	2021_990	regional fcu	regional federal credit union
549300hc0cltnvga0h76	2021_1009	river region credit union	river region credit union
254900kpci98xvku8u39	2023_10	acadia federal credit union	acadia federal credit union
549300fag4vh7yj66576	2023_45	anstaff bank	anstaff bank
5493000gjzztt2upgg82	2023_71	aventa credit union	aventa credit union
549300194lw0qmecah75	2023_108	baton rouge telco federal credit union	baton rouge telco federal credit union
549300xus39f2sni3007	2023_127	bloom credit union	bloom credit union
549300i0he5x0t5oi648	2023_169	california credit union	california credit union
549300fl5ganfx0hmu45	2023_511	erie federal credit union	erie federal credit union
5493009yuajw70sg7l54	2023_542	financial plus credit union	financial plus credit union
549300seirb4ck6dtc04	2023_575	first national bank of lawrence county	first national bank of lawrence county
254900sym73un2v4kp10	2023_676	greenville heritage fcu	greenville heritage federal credit union
549300u8r3gglse3hv47	2023_716	heart o' texas federal credit union	heart o' texas federal credit union
549300j1iqxj1csccu16	2023_740	hopewell federal cu	hopewell federal credit union
254900ki0cm65kpbm547	2023_775	international bank of chicago	international bank of chicago
54930029l79o0a2zxf27	2023_817	launch credit union	launch credit union
549300du662k57xbsh20	2023_869	memphis city employees credit union	memphis city employees credit union
549300ulzjk0nfbi8j68	2023_1056	orlando credit union	orlando credit union

5493004jgzvb2epi6w51	2023_1070	palmetto citizens federal credit union	palmetto citizens federal credit union
5493001f41hg4frukk25	2023_1152	relyon credit union	relyon credit union
549300hh0v8leclnpq26	2023_1179	rogue credit union	rogue credit union
549300md3d3oc2csgx39	2023_1198	santa clara county federal credit union	santa clara county federal credit union
549300shk8jzr89hef81	2023_1246	south lafourche bank	south lafourche bank & trust company
549300xop6yo0un0ty92	2023_1270	spero financial federal credit union	spero financial federal credit union
549300vzdek4qltwsl15	2023_1302	tapco credit union	tapco credit union
254900e8kw1vr97kfu45	2023_1347	tnconnect credit union	tnconnect credit union
254900tfs12pfbk5fd47	2023_1364	truecore federal credit union	truecore federal credit union
25490029yjhfababt680	2023_1378	united bay community cu	united bay community credit union
549300ldc5kwhwdxtw48	2023_1401	usf federal credit union	usf federal credit union
549300lvo8uxhrm8o957	2023_1438	wauna federal credit union	wauna federal credit union
549300aizh87cmsyx861	2022_31	altaone federal credit union	altaone federal credit union
549300hlf6r48z1v4f56	2022_56	ascension creditunion	ascension credit union
549300nsottgigciv712	2022_57	ascentra credit union	ascentra credit union
254900acgdt107sc5e82	2022_99	bay bank	bay bank
549300c5503ci7dsip33	2022_123	bossier federal credit union	bossier federal credit union
549300lyl7jc81i5dv55	2022_163	capital educators fed cu	capital educators federal credit union
549300xfntnqllw0hy87	2022_230	citizens national bank of meridian	citizens national bank of meridian
5493002hhkwzsfp7ai61	2022_275	community bank	community bank
54930076tymg3z3bo135	2022_337	cooperativa de a\c roosvelt r	cooperativa ahorro y credito roosevelt road
2549001fvj5mzi4yae11	2022_339	cooperativa de ahorro y crï¿½dito dr. manuel zeno gandï¿½a	cooperativa de a/c dr m zeno gandia
549300tdl15i36fdwz79	2022_343	cooperativa de a/c aguas buena	cooperativa de ahorro y credito aguas buenas d/b/a buenacoop
25490099xnqqu8t3wi97	2022_347	cooperativa de ahorro y credito del bo. quebrada de camuy	cooperativa de ahorro y credito bo. quebrada de camuy, p.r.
549300nc4wjqgk642g48	2022_383	coop. de a/c la puertorriqueÃ±a	cooperativa de ahorro y credito la puertorriquena
549300dp6numg3x4jq52	2022_385	cooperativa la sagrada familia	cooperativa de ahorro y credito la sagrada familia
549300uxtdelqs5slf91	2022_451	dupaco community credit union	dupaco community credit union
2549006rtcwynjpdx013	2022_480	envision credit union	envision credit union

549300dfcg6gf21kow34	2022_487	excite credit union	excite credit union
54930030s6j5kol5lj73	2022_490	fairwinds credit union	fairwinds credit union
549300b0hnwbv7rx2661	2022_511	financial partners credit unio	financial partners credit union
54930027h7cjf9gcdz36	2022_571	fort financial credit union	fort financial federal credit union
984500a4cd08ced38d66	2022_632	guadalupe credit union	guadalupe credit union
549300ar4bclqfu47165	2022_695	i h mississippi valley credit union	i.h. mississippi valley credit union
5493006mw6o2ce88bd43	2022_807	members 1st credit union	members 1st credit union
549300mpzcs4lf270327	2022_810	members first credit union	members first credit union
549300tegboidi6z5j56	2022_834	mid oregon federal credit unio	mid oregon federal credit union
5493007b1gauzgyhpr07	2022_960	nusenda federal credit union	nusenda federal credit union
549300f6nsbojbm9ed39	2022_962	nuvision federal credit union	nuvision federal credit union
549300ml3h1luvr1fp75	2022_965	o bee credit union	o bee credit union
549300z736feflwq4g83	2022_970	ohio valley community credit union	ohio valley community federal credit union
254900qc7dvgiyvgb494	2022_1086	resource one credit union	resource one credit union
549300oz550x4qd5pc74	2022_1111	royal credit union	royal credit union
549300w2voho3742h053	2022_1142	self-help credit union	self-help credit union
5493008p3pcrzrs39t50	2022_1168	south georgia banking company	south georgia banking company
549300jfkw9425kopi17	2022_1189	southwest louisiana credit union	southwest louisiana credit union
549300bg31wzxgjrh472	2022_1233	texas national bank	texas national bank
549300opkcv6blmdsl66	2022_1293	united bank	united bank
549300aqn2cy1mge3j02	2022_1303	university of michigan credit union	university of michigan credit union
549300z4hq7ydkuvew39	2022_1321	vantage west credit union	vantage west credit union
549300xhf3pmro08n352	2022_1329	verity credit union	verity credit union
5493004no7xcfvg4kd53	2022_1372	y 12 federal credit union	y-12 federal credit union
549300jx4xz2xqamu684	2021_55	associated credit union of tx	associated credit union of texas
54930001gyiwkbd35h65	2023_164	calhoun county banks inc	calhoun county bank, inc.
54930027gur70u427y19	2023_174	campus federal credit union	campus federal credit union inc
549300mrp46svqmwoe81	2023_269	coastal federal credit union	coastal federal credit union
549300xvx388nw99xe16	2023_512	essential federal credit union	essential credit union

549300p6fmuciyh31r36	2023_551	first bank	first bank
54930017iq4kpg7qw263	2023_563	first federal savings and loan association of pascagoula - moss point	first federal savings & loan association of pascagoula-moss point
254900wqcrck13a7dc81	2023_621	fortera federal credit union	fortera credit union
549300j2d35s72fe4k21	2023_1221	service one credit union	service one credit union, inc.
5493006ma7wp1wl8u431	2023_1409	valley strong credit union	valley strong credit union
549300ib375i8tz2fa87	2022_496	farmers-merchants bank and trust	farmers-merchants bank & trust company
549300bdhzav4zqhqv19	2022_599	goldenwest credit union	goldenwest federal credit union
5493002qi5qudx4rgw52	2022_714	inroads federal credit union	inroads credit union

APPENDIX C: CDFI Holding Companies' Affiliate Contributors to 2022 HMDA

HMDA and CDFI Fund provided names are directly below the ID fields.

HMDA Fields				CDFI Fields	
LEI	**Respondent RSSD**	**Parent RSSD**	**Topholder RSSD**	**RSSD**	**Assigned ID**
549300TG39MNZBTYXD82	3049907		1097306	1097306	2022_75
FBT MORTGAGE LLC				bancplus corporation	
549300SFG15JDKI5MD22	121642	1097306	1097306	1097306	2022_75
BANKPLUS				bancplus corporation	
549300BR7OTD25RTS027	914648	1247455	1247455	1247455	2022_94
BankFirst Financial Services				bankfirst capital corporation	
5493001WL16YUSR2TI47	755252	1132382	1132382	1132382	2022_134
Cross Keys Bank				bsj bancshares inc.	
254900UEITST3NEK8Y27	969639	1363784	1363784	1363784	2023_485
FNB BANK, INC				eastern bancshares, inc.	
54930094EUD08LZEJR51	734350	1136102	1136102	1136102	2022_595
Gibsland Bank & Trust				gibsland bancshares, inc.	
549300LDX1HCIL448282	684455	3203138	3203138	3203138	2022_602
BOM Bank				grant bancshares, inc.	
549300N968Y85YXDX139	134437	2349703	1080139	2349703	2023_719
Troy Bank and Trust				henderson bancshares, inc.	
254900E9OABDJHASZ507	473930	1081097	1081097	1081097	2022_793
The Cottonport Bank				mansura bancshares, inc.	
549300RDN1T32WR2WF91	397755	3157017	1095469	3157017	2022_996
LEGACY BANK & TRUST				ozarks heritage financial group	
5493008EBYLPD4MM3C30	3878705	5653018	5653018	5653018	2023_1112
Mortgage World Bankers, Inc				ponce financial group	
549300D3IKJ7KU3SH574	2059990	3832033	3832033	3832033	2022_1055
Priority Bank				priority one holding company	
5493006HAFES1LQ18W28	3437157	4422851	4422851	4422851	2022_1098
River Bank & Trust				river financial corporation	
984500ET710674536D72	118156	5473421	5473421	5473421	2022_1132
Security Bank and Trust Company				security bancshares, inc.	
549300NPHJJV4PURQK31	2716828	1248939	1248939	1248939	2022_1178
Premier Bank of Arkansas				southern bancorp, inc.	
5493007YWPQ2TU6YIG45	34434	1084016	1084016	1084016	2022_1250
Magnolia State Bank				the magnolia state corporation	

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