The Effects of the Community Reinvestment Act (CRA) on Mortgage Lending in the Philadelphia Market

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Lei Ding
Leonard Nakamura

Federal Reserve Bank of Philadelphia

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Background

The Community Reinvestment Act (CRA)

- Enacted in 1977, to prevent redlining and discrimination
- Requires depository institutions meet the credit needs of lower-income communities and households
- Periodically assesses institution's performance in lending, investment, and services (large institutions) or lending alone (smaller institutions)
- CRA rating will be considered when reviewing applications for mergers, acquisitions, or branch opening
- Covers commercial banks and thrifts (IMC and credit unions not covered)

Lending eligible for CRA credit

- Lending in low- and moderate-income (LMI, <80% area MFI) neighborhoods
- Lending to LMI borrowers (<80% area MFI)
- Only lending within an institution's assessment areas will be evaluated

Background

Possible effects of CRA on mortgage lending

- Have little/no effect on lending (volume, sources, or pricing of credit); well served even without CRA
- Alter the sources of credit only (no net changes at the market level) ; lenders increase capacity and outreach/marketing and no change in pricing or underwriting
- Increase mortgage lending and alter the sources of credit; through lowered interest rates and/or more flexible underwriting (Avery and Brevoort, 2015)

Background

Evidence on the significance, magnitude, and the mechanisms of the CRA impact is still inconclusive (Getter, 2015)

- Some studies suggest CRA has expanded access to credit in LMI communities (Belsky, Schill, and Yezer, 2001; Bostic and Robinson, 2003; Avery, Bostic, and Canner, 2005; Gabriel and Rosenthal, 2009)
- Others failed to find a consistent, significant, and positive CRA effect (Dahl, Evanoff, and Spivey, 2002; Berry and Lee, 2008; Bhutta, 2011)

Generally consistent evidence on the performance of CRA-induced lending

- Loans induced by CRA performed no worse, and often better than, their non-CRA counterparts such as subprime loans (Laderman and Reid, 2008; Ding et al, 2011; Ghent, Hernández-Murillo, and Owyang, 2015; and Avery and Brevoort, 2015)

Overview of This Study

Take advantage of an exogenous policy shock in 2014 which caused abrupt changes in neighborhoods' income designations

Empirical analysis: difference-in-differences regressions; tract-level purchase lending activities as outcomes; 2012-2015

Contributions

- New evidence on CRA effects post-crisis
- Better identification strategy: large movement in income threshold (not only the highest income LMI neighborhoods)
- Comprehensive examination of the CRA effects on lending (volume, sources, underwriting, and product composition)

Background

- Philadelphia MD (Philadelphia and Delaware): number of LMI tracts decreased by one-third after 2014; purchase originations to LMI borrowers decreased by over 41%
- MBC MD (Montgomery–Bucks–Chester): number of LMI tracts tripled; purchase originations to LMI borrowers increased by over 40%

Unintended consequences of the 2013 MSA/MD definitions:

- The 2013 MSA/MD definitions: Philadelphia MD was split into the new, relatively poor, Philadelphia MD and the MBC MD
- Change in area median family income (MFI): a decline of $22,000 in the new Philadelphia MD; an increase of $19,000 in the MBC MD
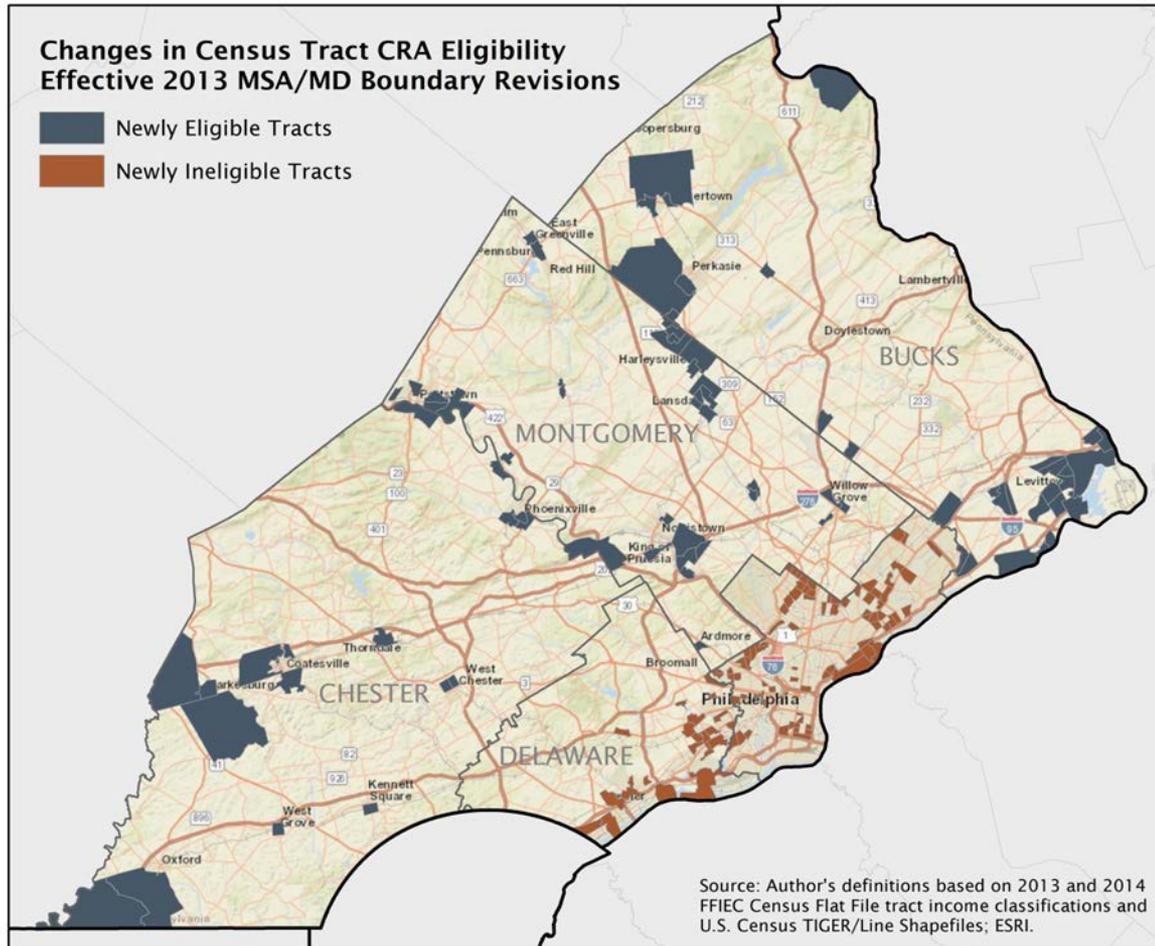
Background

Two illustrating examples: changes in income levels for two tracts from 2013 to 2014

	Philadelphia MD		MBC MD	
Tract	42101031900		42091201302	
Year	2013	2014	2013	2014
Median Family Income (MFI)	44,320	43,447	76,247	75,996
Area MFI	76,400	54,200	76,400	95,400
Tract to area MFI ratio (%)	58.0%	80.2%	99.8%	79.7%
Income level	Moderate	Middle	Middle	Moderate
Eligibility for CRA credit	Eligible	Ineligible	Ineligible	Eligible

Source: Authors' calculations based on 2013 and 2014 Federal Financial Institutions Examination Council (FFIEC) Census data.

Background

Changes in Census Tract CRA Eligibility Effective 2013 MSA/MD Boundary Revisions

- Newly Eligible Tracts
- Newly Ineligible Tracts

Source: Author's definitions based on 2013 and 2014 FFIEC Census Flat File tract income classifications and U.S. Census TIGER/Line Shapefiles; ESRI.
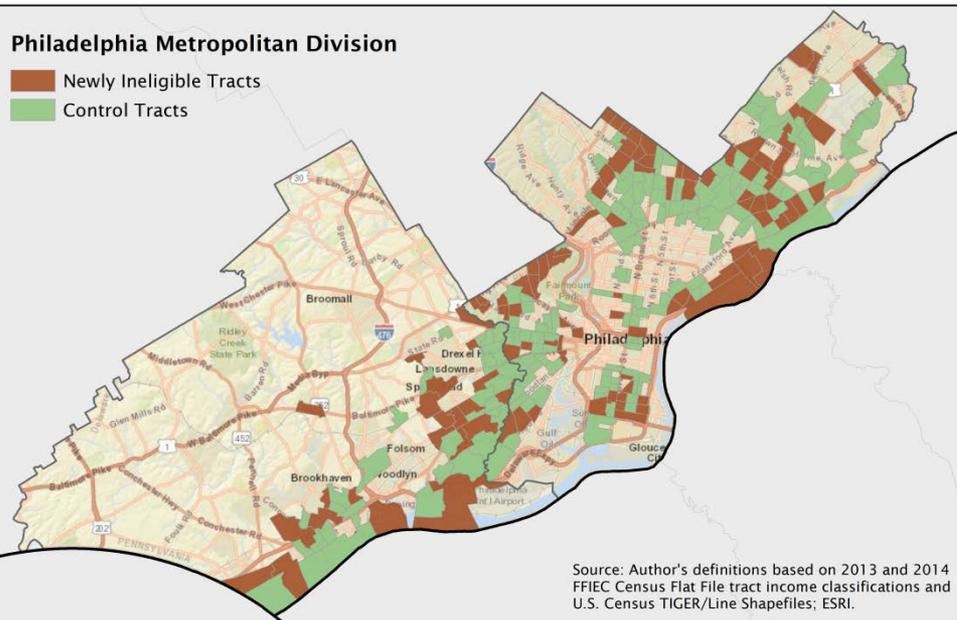
Methodology and Data
Constructing A Counterfactual

Tracts in the control group:
- within ½-mile radius,
- with unchanged CRA eligibility status, and
- with similar income (roughly between 50 percent and 90 percent of area MFI)
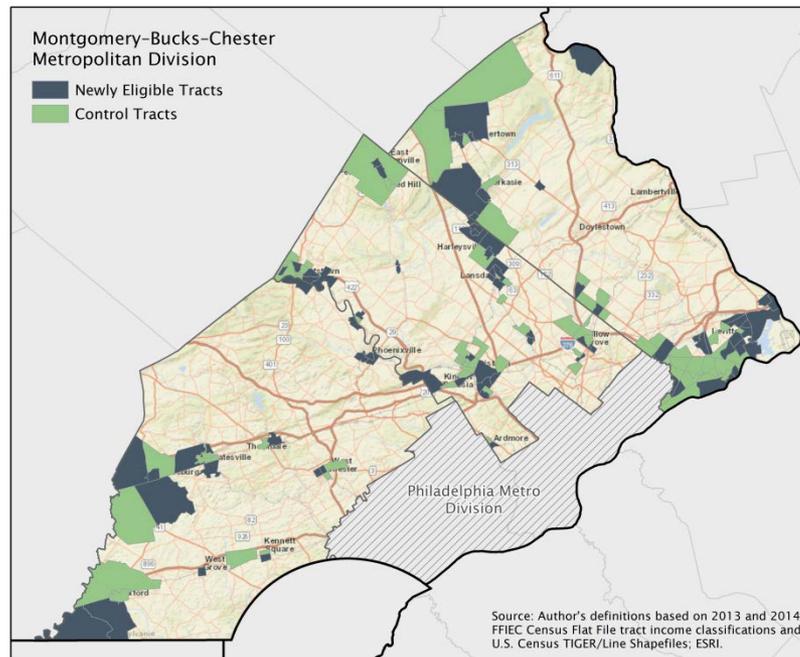

Philadelphia Metropolitan Division
- Newly Ineligible Tracts
- Control Tracts

Source: Author's definitions based on 2013 and 2014 FFIEC Census Flat File tract income classifications and U.S. Census TIGER/Line Shapefiles; ESRI.

Montgomery–Bucks–Chester Metropolitan Division
- Newly Eligible Tracts
- Control Tracts

Philadelphia Metro Division

Source: Author's definitions based on 2013 and 2014 FFIEC Census Flat File tract income classifications and U.S. Census TIGER/Line Shapefiles; ESRI.

Methodology and Data

Two-way difference-in-differences model

$$Y_{it} = \beta_0 + \beta_1 TREAT_i + \beta_2 POST_t + \beta_3 TREAT_i * POST_t + \gamma N_i + \varepsilon_{it}$$

- Y_{it} is the outcome measure Y for the tract i in the year t *(volume of applications/originations, denial rate, share of FHA)*
- $TREAT_i$ is the dummy that represents whether tract i is one that became newly eligible/ineligible after 2014
- $POST_t$ is the time dummy for the post-2014 period
- N_i represents the fixed effect of tract i
- β_3 is expected to capture the CRA effect
- Run regression separately for different MD

Three-way difference-in-differences model in which nondepository institutions serve as another control

Methodology and Data

- Home Mortgage Disclosure Act (HMDA) data: The disposition, loan, and borrower characteristics; the census-tract location of the properties securing the loan; and information about the institution that processes the application

- Federal Deposit Insurance Corporation(FDIC) Summary of Deposits (SODs) data: An annual enumeration of all branches belonging to FDIC-insured depository institutions

- Proxy of CRA-regulated lenders: Depository institutions with at least one branch in the same county

Descriptive Results
Trends in Purchase Mortgage Originations by Depository Institutions
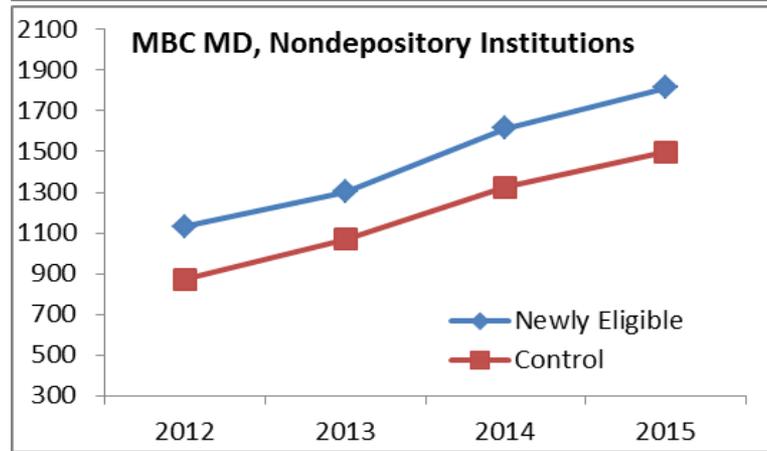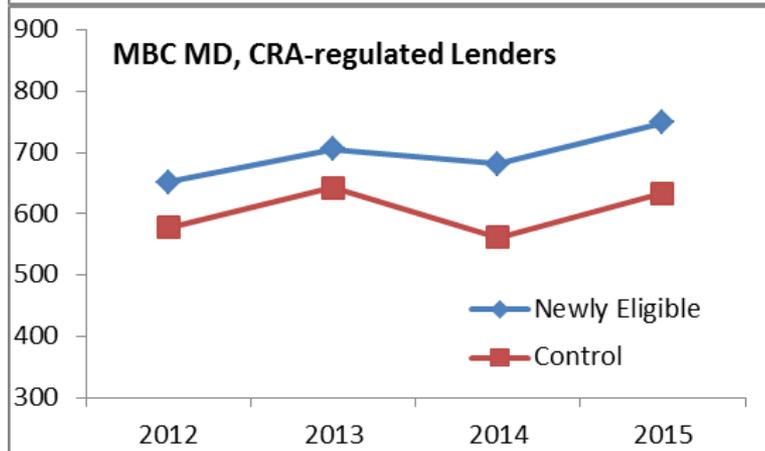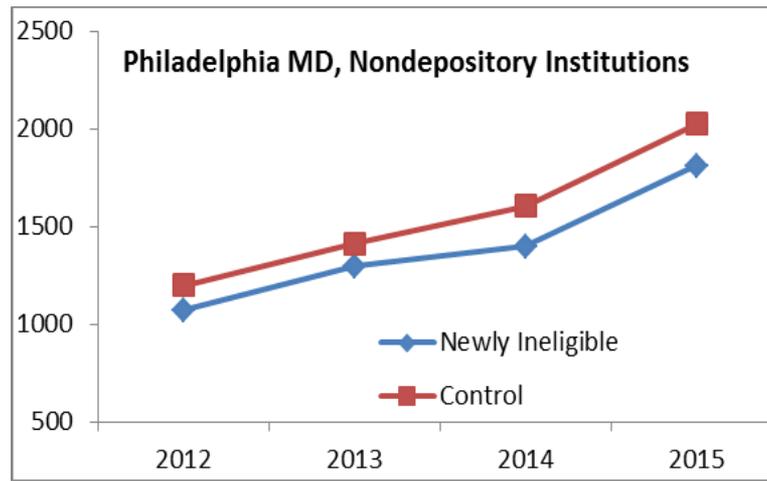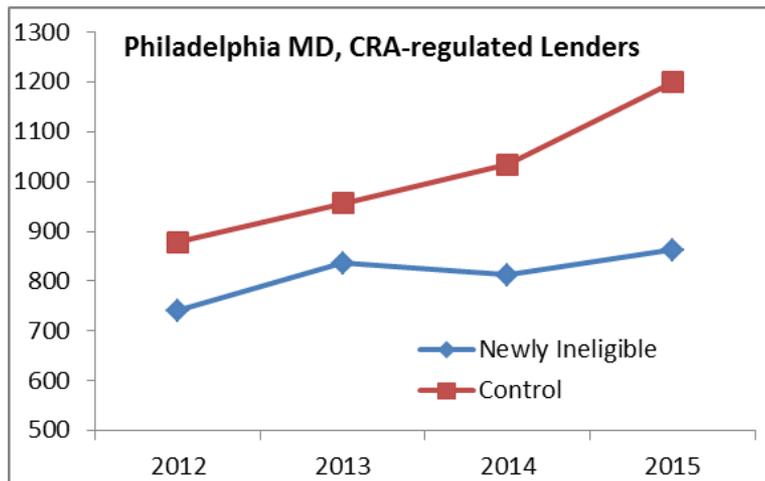
Source: Authors' calculation based on HMDA data and FDIC SOD data

Regression Results
Summary of CRA Effects from Two-way DID

	Philadelphia MD		MBC MD	
	Coefficient	Std. Err.	Coefficient	Std. Err.
Depository Institutions with Local Branches				
Purchase Applications	−1.490***	0.539	0.59	0.699
Purchase Originations	−0.821**	0.419	0.634	0.566
Purchase Originations ($)	−94.6	89.8	98.4	124.6
Denial Rate (%)	−1.006	2.383	1.193	2.221
Share of FHA (%)	4.523	3.23	1.285	2.726
Nondepository Institutions				
Purchase Applications	0.751	0.848	0.414	1.277
Purchase Originations	0.829	0.655	0.165	0.991
Purchase Originations ($)	85.7	148.7	−81.0	239.7
Denial Rate (%)	−1.605	2.288	0.277	1.595
Share of FHA (%)	7.276**	2.832	1.605	2.557
All Lenders				
Purchase Applications	−1.789	1.294	0.679	1.609
Purchase Originations	−0.751	0.988	0.621	1.253
Purchase Originations ($)	−83.6	251.2	−26.8	310.5
Denial Rate (%)	−0.962	1.424	0.744	1.16
Share of FHA (%)	4.936**	2.073	1.647	1.779

Notes: ***, **, * represent significant at 0.01, 0.05, or 0.1 level. Coefficients can be interpreted as the change in mortgage lending activity in tracts with changed CRA eligibility status relative to that of the control group. Tract fixed effect is controlled in the model. Estimation is based on HMDA data and FDIC SOD data.

Regression Results
Summary of CRA Effects from Three-way DID

|	Philadelphia MD		MBC MD	
	Coefficient	Std. Err.	Coefficient	Std. Err.
Depository Institutions with Local Branches				
Purchase Applications	−2.282*	1.260	0.119	1.822
Purchase Originations	−1.683*	1.003	0.431	1.413
Purchase Originations ($)	−183.6	218.4	171.1	326
Denial Rate (%)	−1.124	2.891	−1.528	2.529
Share of FHA (%)	−7.425**	3.590	−2.162	3.142
All Lending Institutions				
Purchase Applications	−2.387	1.922	0.331	2.403
Purchase Originations	−1.469	1.476	0.510	1.844
Purchase Originations ($)	−145.8	349.9	68.6	440.3
Denial Rate (%)	0.933	2.193	−1.023	1.761
Share of FHA (%)	−2.148	3.357	−0.563	3.041

Notes: ***, **, * represent significant at 0.01, 0.05, or 0.1 level. Coefficients can be interpreted as the change in mortgage lending activity in tracts with changed CRA eligibility status relative to that of the control group. Tract fixed effect is controlled in the model. Estimation is based on HMDA data and FDIC SOD data.

Impact of Community Reinvestment Act

Whether CRA has encouraged new lending?

- About half, but not all, of the decrease in purchase originations by CRA lenders can be substituted by nondepository institutions (in the short run)

CRA Effects on Purchase Originations in Philadelphia MD
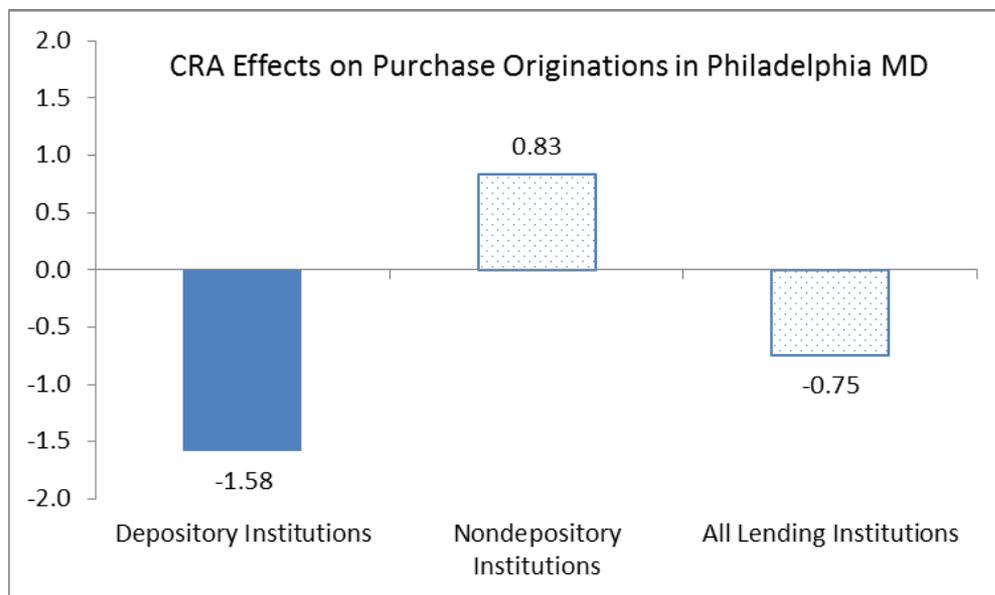
Note: CRA effects on nondepository institutions and all lending institutions are statically insignificant

Impact of Community Reinvestment Act

Whether the estimated CRA effects are due to a surge in lending activities in the neighborhoods that remained CRA eligible alone? The answer is *no*.

	Newly Ineligible vs. Remained Eligible		Newly Ineligible vs. Remained Ineligible		Remained Eligible vs. Remained Ineligible	
	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
Depository Institutions with Local Branches						
Purchase Applications	−1.627***	0.583	-1.307*	0.796	0.138	0.760
Purchase Originations	−0.983**	0.448	-0.655	0.625	0.151	0.611
Purchase Originations ($)	−121.8	95.8	-218.3	151.2	-133.0	1510.0
Denial rates (%)	−0.530	2.637	-2.040	3.096	-1.407	3.172
Share of FHA (%)	6.241*	3.510	0.229	4.284	-5.585	4.695
All Lending Insitutions						
Purchase Applications	-1.854	1.427	-2.427	1.841	-1.193	1.900
Purchase Originations	-0.947	1.088	-0.634	1.378	-0.180	1.428
Purchase Originations ($)	-82.4	278.6	-463.6	387.5	-496.2	405.8
Denial rates (%)	-0.428	1.561	-2.359	1.698	-2.084	2.245
Share of FHA (%)	6.169***	2.259	1.261	2.707	-5.974*	3.133

Notes: ***, **, * represent significant at 0.01, 0.05, or 0.1 level. Results are from a set of two-way difference-in-differences models. The "*Remained Eligible vs. Remained Ineligible*" comparison used tracts remaining CRA eligible (and above 50% AMFI) as the treatment and tracts that remained CRA ineligible and within 0.5 mile radium as the control.

Impact of Community Reinvestment Act

Heterogeneity in the CRA Effects

- More significant when a lower-income neighborhood loses its CRA eligibility status than when a higher-income neighborhood becomes eligible for CRA.

- More significant among minority borrowers than non-Hispanic white

- More significant among borrowers no longer targeted by CRA (e.g. borrowers with income above the 2013 LMI threshold in newly ineligible neighborhoods)

- More significant in 2015; generally insignificant in 2014

Summary & Implications

Losing CRA eligibility status for lower-income neighborhoods:

- about 10 percent or more decrease in purchase mortgage lending by CRA-regulated lenders (*significant*)
- nondepository institutions help offset about half, but not all, of the decreased lending by CRA lenders
- greater involvement in FHA lending by lenders not subject to CRA (*significant*)
- more consistent with the hypotheses of _altered sources of credit_ and _changed volume_

Gaining CRA eligibility status for previously middle-income neighborhoods:

- a larger increase in purchase mortgage lending by CRA-regulated lenders (*insignificant*)
- more consistent with the hypotheses of _little or no impact_ or _altered sources of credit_ only

Summary & Implications

CRA has significant impact on banks' mortgage lending to *lower-income communities;* banks were quite responsive

However, ***CRA now covers a smaller share of the market*** in which nondepository institutions play a more dominating role

And the use of MD median income to derive neighborhood income levels for CRA purposes has ***unintended consequences on the flow of capital*** to lower-income areas in the Philadelphia MD

Thanks!

Lei Ding: lei.ding@phil.frb.org