

Color and Credit

Race, Regulation, and the Quality of Financial Services

Taylor Begley¹ Amiyatosh Purnanandam²

¹Washington University in St. Louis

²University of Michigan

October 2017

5th Annual Community Banking Research and Policy Conference
Federal Reserve Bank of St. Louis

Motivation

Consumer protection is important and is a focus of regulators across many areas in the economy.

- ▶ e.g., FTC, FDA, DoJ.

Banking and financial services have drawn a great deal of attention.

- ▶ debates on the fiduciary rule for financial advisors.
- ▶ recent Wells Fargo scandal.

Little is known about who bears the brunt of this misbehavior.

Motivation

Consumer protection is important and is a focus of regulators across many areas in the economy.

- ▶ e.g., FTC, FDA, DoJ.

Banking and financial services have drawn a great deal of attention.

- ▶ debates on the fiduciary rule for financial advisors.
- ▶ recent Wells Fargo scandal.

Little is known about who bears the brunt of this misbehavior.

Motivation

Consumer protection is important and is a focus of regulators across many areas in the economy.

- ▶ e.g., FTC, FDA, DoJ.

Banking and financial services have drawn a great deal of attention.

- ▶ debates on the fiduciary rule for financial advisors.
- ▶ recent Wells Fargo scandal.

Little is known about who bears the brunt of this misbehavior.

Motivation

Our setting: mortgage lending.

Benchmark case: a frictionless world (e.g., no market power, no info asymmetry, no regulatory distortions)

In a world with frictions, distortions will be present.

- ▶ products may have restricted *quantities*, higher *prices*.
- ▶ populations may receive differential treatment.

We provide a first step to focus on product *quality* in banking.

Motivation

Our setting: mortgage lending.

Benchmark case: a frictionless world (e.g., no market power, no info asymmetry, no regulatory distortions)

In a world with frictions, distortions will be present.

- ▶ products may have restricted *quantities*, higher *prices*.
- ▶ populations may receive differential treatment.

We provide a first step to focus on product *quality* in banking.

Motivation

Our setting: mortgage lending.

Benchmark case: a frictionless world (e.g., no market power, no info asymmetry, no regulatory distortions)

In a world with frictions, distortions will be present.

- ▶ products may have restricted *quantities*, higher *prices*.
- ▶ populations may receive differential treatment.

We provide a first step to focus on product *quality* in banking.

Plan of attack

Examining mortgage quality dilution (complaints):

1. Data & Research Design

- ▶ “protect consumers from unfair, deceptive, or abusive practices and take action against companies that break the law.”
- ▶ We study mortgage complaints from 2012-2016:
 - ▶ about 175k complaints
 - ▶ 16k zip codes (covers \sim 282m people as of 2010 census)

2. Income, Education, & Race

3. The Role of Regulation

Example Complaint Narrative

Date	8/9/2016
Product	Mortgage; Conventional fixed mortgage
Narrative	I contacted Wells Fargo Home Mortgage to refinance my current mortgage. I informed them that I was behind and I filed bankruptcy about 6 years ago. They said no problem they could do it. My credit score was XXXX which they said was good.

Company	Wells Fargo & Company
State & Zip	ND, 580XX
Response	Closed with monetary relief

Example Complaint Narrative

Date	8/9/2016
Product	Mortgage; Conventional fixed mortgage
Narrative	I contacted Wells Fargo Home Mortgage to refinance my current mortgage. I informed them that I was behind and I filed bankruptcy about 6 years ago. They said no problem they could do it. My credit score was XXXX which they said was good. I applied and then they said that I had to pay {\$11.00} for the credit report and {\$530.00} for the appraisal in order to continue on with the application process. So I paid them the {\$540.00}.

Company	Wells Fargo & Company
State & Zip	ND, 580XX
Response	Closed with monetary relief

Example Complaint Narrative

Date	8/9/2016
Product	Mortgage; Conventional fixed mortgage
Narrative	I contacted Wells Fargo Home Mortgage to refinance my current mortgage. I informed them that I was behind and I filed bankruptcy about 6 years ago. They said no problem they could do it. My credit score was XXXX which they said was good. I applied and then they said that I had to pay {\$11.00} for the credit report and {\$530.00} for the appraisal in order to continue on with the application process. So I paid them the {\$540.00}. I never received the appraisal on my home. They never contacted the appraisal company to schedule a date or time.
Company	Wells Fargo & Company
State & Zip	ND, 580XX
Response	Closed with monetary relief

Example Complaint Narrative

Date	8/9/2016
Product	Mortgage; Conventional fixed mortgage
Narrative	I contacted Wells Fargo Home Mortgage to refinance my current mortgage. I informed them that I was behind and I filed bankruptcy about 6 years ago. They said no problem they could do it. My credit score was XXXX which they said was good. I applied and then they said that I had to pay {\$11.00} for the credit report and {\$530.00} for the appraisal in order to continue on with the application process. So I paid them the {\$540.00}. I never received the appraisal on my home. They never contacted the appraisal company to schedule a date or time. They denied my application based on behind on mortgage and bankruptcy.

Company	Wells Fargo & Company
State & Zip	ND, 580XX
Response	Closed with monetary relief

Example Complaint Narrative

Date	8/9/2016
Product	Mortgage; Conventional fixed mortgage
Narrative	I contacted Wells Fargo Home Mortgage to refinance my current mortgage. I informed them that I was behind and I filed bankruptcy about 6 years ago. They said no problem they could do it. My credit score was XXXX which they said was good. I applied and then they said that I had to pay {\$11.00} for the credit report and {\$530.00} for the appraisal in order to continue on with the application process. So I paid them the {\$540.00}. I never received the appraisal on my home. They never contacted the appraisal company to schedule a date or time. They denied my application based on behind on mortgage and bankruptcy. I would like my {\$530.00} back for the appraisal the I never received. I have called several times and left messages and no one has returned my calls.
Company	Wells Fargo & Company
State & Zip	ND, 580XX
Response	Closed with monetary relief

Example Complaint Narrative

Date	8/9/2016
Product	Mortgage; Conventional fixed mortgage
Narrative	<p>I contacted Wells Fargo Home Mortgage to refinance my current mortgage. I informed them that I was behind and I filed bankruptcy about 6 years ago. They said no problem they could do it. My credit score was XXXX which they said was good. I applied and then they said that I had to pay {\$11.00} for the credit report and {\$530.00} for the appraisal in order to continue on with the application process. So I paid them the {\$540.00}. I never received the appraisal on my home. They never contacted the appraisal company to schedule a date or time. They denied my application based on behind on mortgage and bankruptcy. I would like my {\$530.00} back for the appraisal the I never received. I have called several times and left messages and no one has returned my calls. What does Wells Fargo do with all the money they get from people that don't qualify for refinance?</p>
Company	Wells Fargo & Company
State & Zip	ND, 580XX
Response	Closed with monetary relief

Income, Education, & Race: Regression

$$\ln \text{Complaints}_i = \rho(\text{IER}_i) + \sum_{b=1}^{50} (\text{Mort}_{b,i} + \text{Pop}_{b,i}) + \zeta_{\text{zip3}} + v_i$$

Income, Education, & Race: Regression

$$\ln \text{Complaints}_i = \rho(\text{IER}_i) + \sum_{b=1}^{50} (\text{Mort}_{b,i} + \text{Pop}_{b,i}) + \zeta_{\text{zip3}} + \nu_i$$

	(1)	(2)	(3)
lnAGI			-0.10*** (<0.01)
CollEd			
NonWhite			
MortBucket50 FE	No	Yes	Yes
PopBucket50 FE	No	No	Yes
zip3 FE	Yes	Yes	Yes
Observations	16309	16309	16309
R^2	0.47	0.80	0.81

p -values in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Income, Education, & Race: Regression

$$\ln \text{Complaints}_i = \rho(\text{IER}_i) + \sum_{b=1}^{50} (\text{Mort}_{b,i} + \text{Pop}_{b,i}) + \zeta_{\text{zip3}} + v_i$$

	(1)	(2)	(3)	(4)
lnAGI			-0.10*** (<0.01)	
CollEd				-0.08*** (<0.01)
NonWhite				
MortBucket50 FE	No	Yes	Yes	Yes
PopBucket50 FE	No	No	Yes	Yes
zip3 FE	Yes	Yes	Yes	Yes
Observations	16309	16309	16309	16309
R^2	0.47	0.80	0.81	0.81

p -values in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Income, Education, & Race: Regression

$$\ln \text{Complaints}_i = \rho(\text{IER}_i) + \sum_{b=1}^{50} (\text{Mort}_{b,i} + \text{Pop}_{b,i}) + \zeta_{\text{zip3}} + v_i$$

	(1)	(2)	(3)	(4)	(5)
lnAGI			-0.10*** (<0.01)		
CollEd				-0.08*** (<0.01)	
NonWhite					0.17*** (<0.01)
MortBucket50 FE	No	Yes	Yes	Yes	Yes
PopBucket50 FE	No	No	Yes	Yes	Yes
zip3 FE	Yes	Yes	Yes	Yes	Yes
Observations	16309	16309	16309	16309	16309
R^2	0.47	0.80	0.81	0.81	0.82

p -values in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Income, Education, & Race: Regression

$$\ln \text{Complaints}_i = \rho(\text{IER}_i) + \sum_{b=1}^{50} (\text{Mort}_{b,i} + \text{Pop}_{b,i}) + \zeta_{\text{zip3}} + v_i$$

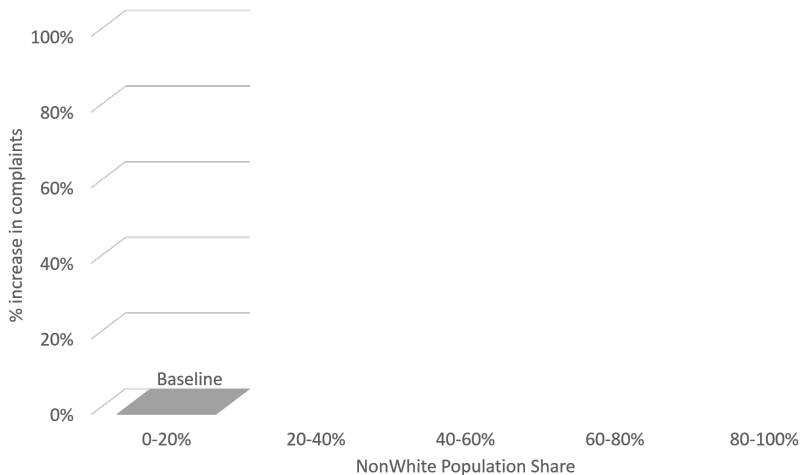
	(1)	(2)	(3)	(4)	(5)	(6)
lnAGI			-0.10*** (<0.01)			-0.02* (0.10)
CollEd				-0.08*** (<0.01)		-0.06*** (<0.01)
NonWhite					0.17*** (<0.01)	0.16*** (<0.01)
MortBucket50 FE	No	Yes	Yes	Yes	Yes	Yes
PopBucket50 FE	No	No	Yes	Yes	Yes	Yes
zip3 FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	16309	16309	16309	16309	16309	16309
R^2	0.47	0.80	0.81	0.81	0.82	0.82

p -values in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

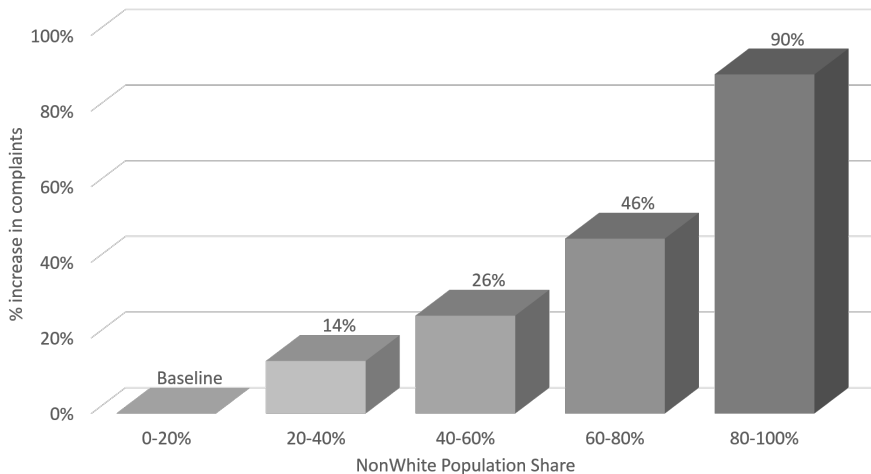
Race controlling for income and education

$$\ln \text{Complaints}_i = \sum_{r=2}^5 \psi_r \text{NonWhite}_{b,i} + \sum_{b=2}^{50} (\text{Inc}_{b,i}; \text{CollEd}_{b,i}; \text{Mort}_{b,i}; \text{Pop}_{b,i}) + \zeta_{\text{zip}3} + \nu_i$$



Race controlling for income and education

$$\ln \text{Complaints}_i = \sum_{r=2}^5 \psi_r \text{NonWhite}_{b,i} + \sum_{b=2}^{50} (\text{Inc}_{b,i}; \text{CollEd}_{b,i}; \text{Mort}_{b,i}; \text{Pop}_{b,i}) + \zeta_{\text{zip}3} + v_i$$



Summary so far

Lower quality (i.e., more complaints) in areas with

- ▶ lower income
- ▶ lower education
- ▶ higher minority population

Challenges for interpreting these results:

- ▶ true quality is unobserved.
- ▶ consumer preferences are unobserved.
- ▶ **Are minority areas simply “complainers,”** regardless of the quality provided to them?

Summary so far

Lower quality (i.e., more complaints) in areas with

- ▶ lower income
- ▶ lower education
- ▶ higher minority population

Challenges for interpreting these results:

- ▶ true quality is unobserved.
- ▶ consumer preferences are unobserved.
- ▶ **Are minority areas simply “complainers,”** regardless of the quality provided to them?

Summary so far

Lower quality (i.e., more complaints) in areas with

- ▶ lower income
- ▶ lower education
- ▶ higher minority population

Challenges for interpreting these results:

- ▶ true quality is unobserved.
- ▶ consumer preferences are unobserved.
- ▶ **Are minority areas simply “complainers,”** regardless of the quality provided to them?

Alternative Channels

The results are not likely driven by

- ▶ regional economic conditions (zip3)
- ▶ baseline propensity to complain (lnFCC)
- ▶ house price changes
- ▶ foreclosure rates

What might be the underlying drivers? What can be done?

- ▶ Regulation

Alternative Channels

The results are not likely driven by

- ▶ regional economic conditions (zip3)
- ▶ baseline propensity to complain (lnFCC)
- ▶ house price changes
- ▶ foreclosure rates

What might be the underlying drivers? What can be done?

- ▶ Regulation

Regulation: The Community Reinvestment Act

The CRA regulations establish the framework and criteria by which the Agencies assess an institution's record of helping to meet the credit needs of its community, including low- and moderate-income neighborhoods.

- ▶ Goals include
 - ▶ “promote the availability of credit and other banking services in low- and moderate-income communities.”
- ▶ Low-to-moderate-income (LMI) tract (CRA focus areas):
 - ▶ median family income (MFI) \leq 80% of MSA-level MFI.
- ▶ Observably *identical* areas, including on income, can have *different* regulation-induced pressures to lend.

Regulation: The Community Reinvestment Act

The CRA regulations establish the framework and criteria by which the Agencies assess an institution's record of helping to meet the credit needs of its community, including low- and moderate-income neighborhoods.

- ▶ Goals include
 - ▶ “promote the availability of credit and other banking services in low- and moderate-income communities.”
- ▶ Low-to-moderate-income (LMI) tract (CRA focus areas):
 - ▶ median family income (MFI) \leq 80% of MSA-level MFI.
- ▶ Observably *identical* areas, including on income, can have *different* regulation-induced pressures to lend.

Regulation: The Community Reinvestment Act

The CRA regulations establish the framework and criteria by which the Agencies assess an institution's record of helping to meet the credit needs of its community, including low- and moderate-income neighborhoods.

- ▶ Goals include
 - ▶ “promote the availability of credit and other banking services in low- and moderate-income communities.”
- ▶ Low-to-moderate-income (LMI) tract (CRA focus areas):
 - ▶ median family income (MFI) \leq 80% of MSA-level MFI.
- ▶ Observably *identical* areas, including on income, can have *different* regulation-induced pressures to lend.

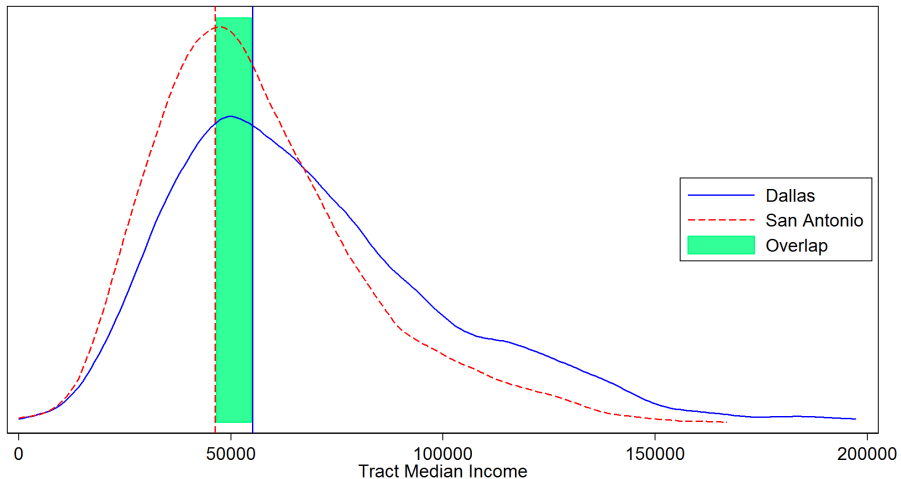
Regulation: The Community Reinvestment Act

The CRA regulations establish the framework and criteria by which the Agencies assess an institution's record of helping to meet the credit needs of its community, including low- and moderate-income neighborhoods.

- ▶ Goals include
 - ▶ “promote the availability of credit and other banking services in low- and moderate-income communities.”
- ▶ Low-to-moderate-income (LMI) tract (CRA focus areas):
 - ▶ median family income (MFI) \leq 80% of MSA-level MFI.
- ▶ Observably *identical* areas, including on income, can have *different* regulation-induced pressures to lend.

LMI Designation: Dallas and San Antonio

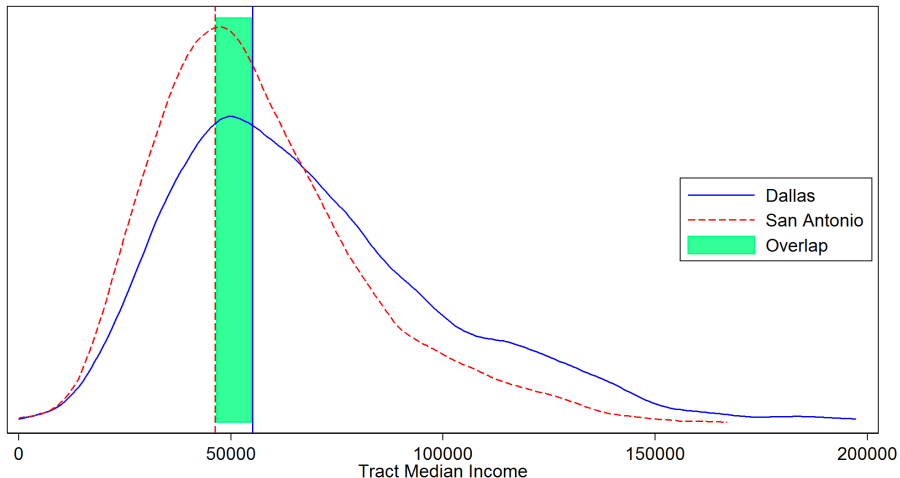
Dallas median income: \$68,900 → LMI for tracts below \$55,120.



LMI Designation: Dallas and San Antonio

Dallas median income: \$68,900 → LMI for tracts below \$55,120.

San Antonio median income: \$57,800 → LMI for tracts below \$46,240.

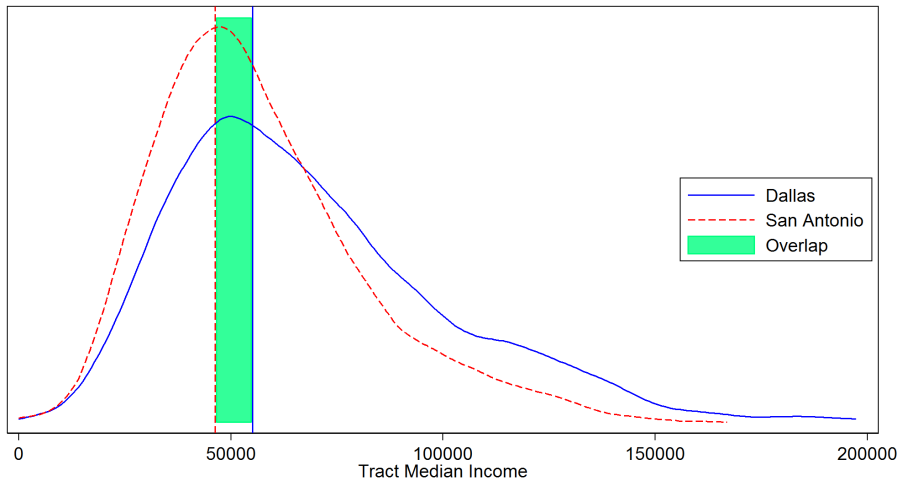


LMI Designation: Dallas and San Antonio

Dallas median income: \$68,900 → LMI for tracts below \$55,120.

San Antonio median income: \$57,800 → LMI for tracts below \$46,240.

⇒ \$50,000 tract is LMI for Dallas, but not LMI for San Antonio.



Matching: Regulation-targeted Tracts

Match CRA-focus areas to non-focus areas using

- ▶ number of mortgages, population (size of the market)
- ▶ education, income (information and sophistication)
- ▶ house price changes (wealth and home equity change)
- ▶ state (regulation)

Assumption:

- ▶ After the matching on observables, the LMI regulatory designation is not systematically related to other unobserved factors that drive complaints.

Matching: Regulation-targeted Tracts

Match CRA-focus areas to non-focus areas using

- ▶ number of mortgages, population (size of the market)
- ▶ education, income (information and sophistication)
- ▶ house price changes (wealth and home equity change)
- ▶ state (regulation)

Assumption:

- ▶ After the matching on observables, the LMI regulatory designation is not systematically related to other unobserved factors that drive complaints.

Results: Regulation-targeted Areas

Baseline Result:

- ▶ 28% more complaints in CRA-targeted areas.

Results: Regulation-targeted Areas

Baseline Result:

- ▶ 28% more complaints in CRA-targeted areas.

Further matching on MSA income or ZIP income strata:

- ▶ Still, 20-30% more complaints.

Results: Regulation-targeted Areas

Baseline Result:

- ▶ 28% more complaints in CRA-targeted areas.

Further matching on MSA income or ZIP income strata:

- ▶ Still, 20-30% more complaints.

Baseline, but also matching on Race:

- ▶ 18% more complaints in CRA-targeted areas.

Results: Regulation-targeted Areas

Baseline Result:

- ▶ 28% more complaints in CRA-targeted areas.

Further matching on MSA income or ZIP income strata:

- ▶ Still, 20-30% more complaints.

Baseline, but also matching on Race:

- ▶ 18% more complaints in CRA-targeted areas.

Is the CRA effect different for high-minority areas?

Results: Regulation-targeted Areas

Baseline Result:

- ▶ 28% more complaints in CRA-targeted areas.

Further matching on MSA income or ZIP income strata:

- ▶ Still, 20-30% more complaints.

Baseline, but also matching on Race:

- ▶ 18% more complaints in CRA-targeted areas.

Is the CRA effect different for high-minority areas?

- ▶ *Low-Minority*: 0-5% higher.

Results: Regulation-targeted Areas

Baseline Result:

- ▶ 28% more complaints in CRA-targeted areas.

Further matching on MSA income or ZIP income strata:

- ▶ Still, 20-30% more complaints.

Baseline, but also matching on Race:

- ▶ 18% more complaints in CRA-targeted areas.

Is the CRA effect different for high-minority areas?

- ▶ *Low-Minority*: 0-5% higher.
- ▶ *High-Minority*: 40-50% higher.

Summary and Main Findings

Consumer protection and equality is a paramount concern for policy-makers and regulators.

1. What are the key characteristics of areas that receive poor-quality financial products and services?

Summary and Main Findings

Consumer protection and equality is a paramount concern for policy-makers and regulators.

1. What are the key characteristics of areas that receive poor-quality financial products and services?
 - ▶ Low income.
 - ▶ Low education.
 - ▶ High-minority areas, even after controlling for income and education.

Summary and Main Findings

Consumer protection and equality is a paramount concern for policy-makers and regulators.

1. What are the key characteristics of areas that receive poor-quality financial products and services?
 - ▶ Low income.
 - ▶ Low education.
 - ▶ High-minority areas, even after controlling for income and education.
2. Does current regulation dampen this relationship?

Summary and Main Findings

Consumer protection and equality is a paramount concern for policy-makers and regulators.

1. What are the key characteristics of areas that receive poor-quality financial products and services?
 - ▶ Low income.
 - ▶ Low education.
 - ▶ High-minority areas, even after controlling for income and education.
2. Does current regulation dampen this relationship?
 - ▶ No – just the opposite.
 - ▶ CRA-designated focus areas report *lower* quality.
 - ▶ The effect is substantially larger for high-minority areas.

Color and Credit

Race, Regulation, and the Quality of Financial Services

Taylor Begley¹ Amiyatosh Purnanandam²

¹Washington University in St. Louis

²University of Michigan

October 2017

5th Annual Community Banking Research and Policy Conference
Federal Reserve Bank of St. Louis