Targeted Business Incentives and the Debt Behavior of Households

Wenhua Di[1] Daniel L. Millimet[2]

[1]Federal Reserve Bank of Dallas

[2]Southern Methodist University, IZA, & Federal Reserve Bank of Dallas

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Motivation

- Within wealthy countries – such as the US – there exist significant regional variation in economic outcomes
- Within US states, there is also considerable variation

TEXAS

County	UR (Sept 2015)	County	Ave Wages (2014:Q3)
McMullen	1.6%	Delta	$375/*wk*
⋮		⋮	
Starr	12.3%	Irion	$1514/*wk*

- As a result, *placed-based policies* are a significant component regional economic development programs
  - Goal is to foster economic growth in lagging regions and reduce spatial inequality
  - Such policies may profoundly affect the spatial distribution of economic activity, wages, and employment

Motivation

- **Key attribute:** place-based policies transfer resources to *places* rather than *persons* (with various elgibility rules, generosity, and features)
- **Examples:** tax subsidies, public investment, special rules/regulations

- Place-based policies are fairly commonplace
  - **Tennessee Valley Authority:** created in 1933 to facilitate regional development in the Tennessee Valley
  - **UK Enterprise Zones:** created in 1980 by Thatcher to revitalize declining urban industrial areas
  - **US State-level Enterprise Zones:** *ad hoc* creations since 1980s
  - **US Federal Enterprise Zones:** Empowerment Zone (EZ), Enterprise Community (EC), and Renewal Community (RC) program started in 1994; no new zones added since 2003; benefits expired on 12/31/14
  - **EU Regional Development Fund:** created in 1975 and now subsidizes investment or undertakes public investment in lagging regions
  - **Chinese Special Economic Zones:** created in 1980 and provides tax incentives and stronger property rights to encourage foreign investment in designated regions

Motivation

- Despite the popularity of place-based policies, their economic benefit has been heavily scrutinized
- Theoretically
  - Question of *additionality* ... Would investments have occurred even in the absence of any policy?
  - Question of *new* economic activity or *relocated* economic activity ... Do policies just alter the spatial distribution of economic activity?
  - Question of *who* benefits ... Are benefits passed on to landowners?
- Empirically
  - Economic activity in *designated* regions ... Changes in investment, employment, wages? Existing vs new plants?
  - Economic activity in *non-designated* regions ... Negative (or positive) spillovers?
  - Cost of policies ... Best use of public expenditures? Increase in land values? Individuals better off being given public money directly?

What This Paper Does

- **Question:** Does the Texas Enterprise Zone Program (TEZP) impact the financial well-being of residents?

- Comparison to existing studies
  - Focus on other outcomes than employment and wages
  - Examine impacts on financial well-being of residents
    - ★ Equifax credit risk score
    - ★ Personal bankruptcy
    - ★ Types and amounts of debt: auto, bank card, mortgage, retail credit
    - ★ Delinquency rates and severity by debt type
  - Consumer debt behavior is of particular policy relevance following the Great Recession

What This Paper Finds

- Not much
  - Little evidence of a beneficial effect of the TEZP on the financial well-being of residents
  - At best, modest positive effect on bank card and retail loan repayment
- Possible explanations
  1. Little change in labor market outcome of EZ residents, or
  2. Little change in financial well-being of EZ residents due to pass through of benefits to land owners

Outline

Outline

(Brief) Literature Review

- Empirical evidence is mixed
  - Average effects tend to be statistically insignificant
    - ★ Reviews provided in Lynch & Zax (2011), Ham et al. (2011), Busso et al. (2013), Neumark & Simpson (2014)
    - ★ Literature has examined place-based policies in US states, federal US, UK, Italy, France, etc.
  - Allowing for heterogeneity along various dimensions has led to a more detailed understanding of effects
    - ★ Positive employment effects confined to spatially-integrated locations
    - ★ Positive wage effects confined to spatially-isolated locations
    - ★ Positive effects depend on initial industrial composition
    - ★ Positive effects depend on local institutional details
    - ★ Positive effects on new and continuing business may be offset by exits
    - ★ Positive effects may be offset by internal migration, changes in land values
- TEZP (Freedman 2013)
  - Positive effects on low-wage employment
  - Positive effects on housing costs

Outline

Texas Enterprise Zone Program (TEZP)

- In the 2000 Census, Texas is divided into
  - 254 counties
  - 4,338 census tracts
  - 14,463 block groups
- Beginning in 2003, block groups are classified as an EZ following a deterministic set of rules
  - The block group is classified as a federal EZ/RC/EC
  - The block group has a poverty rate above 20% in the 2000 Census
- Beginning in 2005, block groups are additionally classified as an EZ on an annual basis if it is located in a 'distressed' county
  - Poverty rate above 15.4% in the 2000 Census
  - Percent of population with less than a HS education is above 25.4%
  - The unemployment rate exceeds 4.9% in each of the prior five years

Texas Enterprise Zone Program (TEZP)

- Once an area becomes an EZ, it may nominate businesses as Enterprise Projects
- Projects must then be approved by the state
  - Must generate *new* employment, typically through *large* capital investment
    - At least 1820 hrs/yr
    - Job must last throughout the benefit window
    - Maximum of 105 projects approved each biennium
  - If project is located *inside* an EZ, 25% of new jobs must be filled by 'economically disadvantaged' individuals or EZ residents
  - If project is located *outside* an EZ, 35% of new jobs must be filled by 'economically disadvantaged' individuals or EZ residents
- Businesses with approved projects are entitled to sales and use tax refunds for five years

"The Texas Enterprise Zone Program is an economic development tool for local communities to partner with the State of Texas to promote job creation and significant private investment that will assist economically distressed areas of the state. Approved projects are eligible to apply for state sales and use tax refunds on qualified expenditures. The level and amount of refund is related to the capital investment and jobs created at the qualified business site."

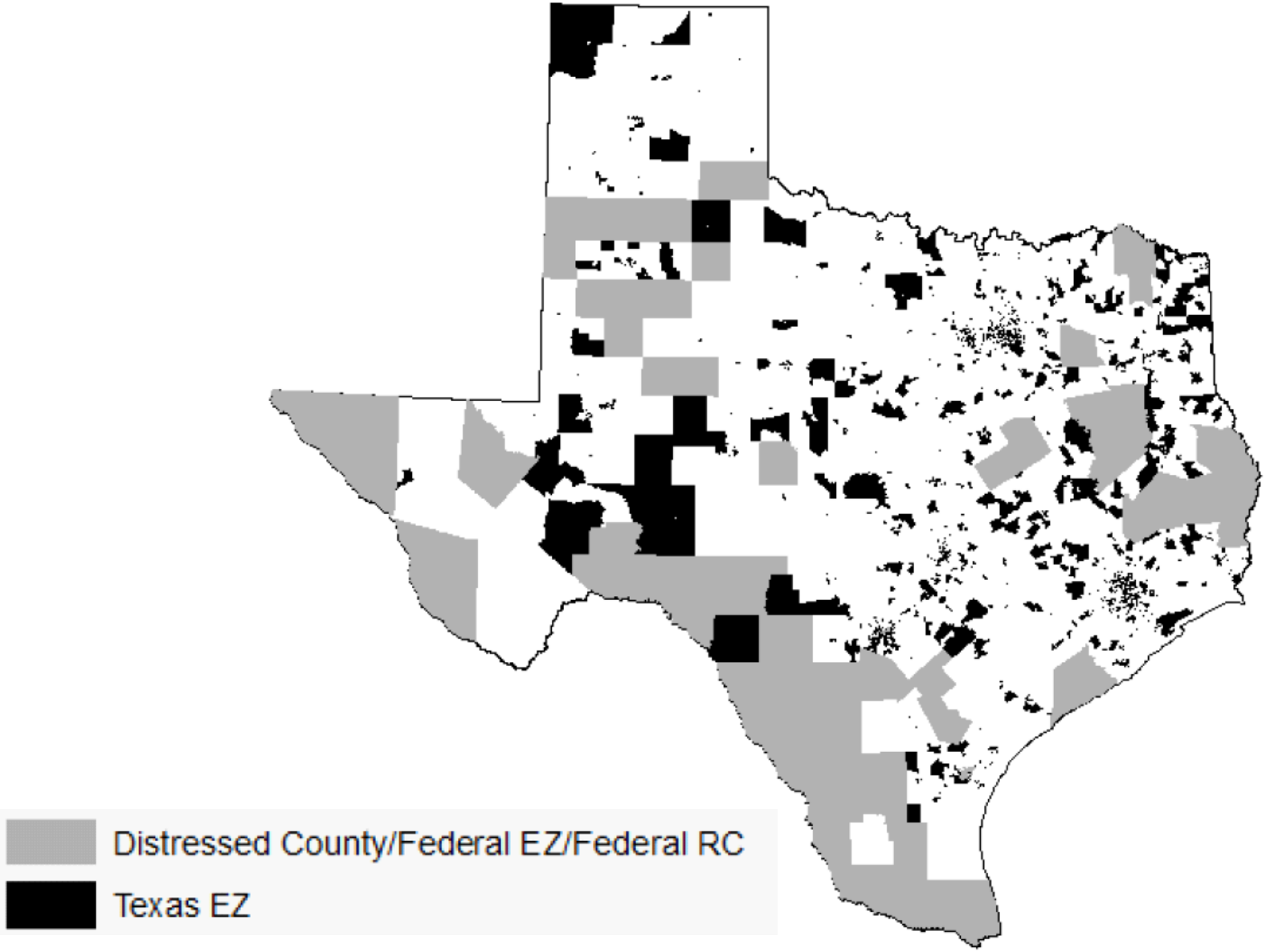
– https://texaswideopenforbusiness.com/services/tax-incentives

Sample of Texas Enterprise Zone Program Sales Tax Refunds

Level of Capital Investment ($)	Maximum Number of Jobs Allocated	Maximum Total Refund ($)	Maximum Refund per Job Allocation ($)
40,000 – 399,999	10	25,000	2,500
400,000 – 999,999	25	62,000	2,500
1,000,000 – 4,999,999	125	312,500	2,500
5,000,000 – 149,999,999	500	1,250,000	2,500
Double Jumbo Project 150,000,000 –249,999,999	500	2,500,000	5,000
Triple Jumbo Project 250,000,000 or more	500	3,750,000	7,500

Texas Enterprise Zone Program (TEZP)

2015 Texas EZs



Texas Enterprise Zone Program (TEZP)

Approved TEZP Projects 2003-2014

Year	Total No. of Projects	No. of New Projects		Number of Announced New Jobs	Capital Investment		Estimated Max Tax Refund	
		Total	In an EZ		Total ($Mil)	In an EZ ($Mil)	Total ($Mil)	In an EZ ($Mil)
2003	19	19	14	3,244	1,135	1,002	7.8	6.6
2004	64	45	24	6,491	4,778	2,245	18.9	9.4
2005	96	32	14	7,644	2,949	542	15.9	8.6
2006	116	20	12	3,086	1,104	312	6.4	5.4
2007	136	20	10	3,056	1,355	648	7.4	2.2
2008	163	46	16	7,835	3,407	474	15.8	5.0
2009	174	56	22	3,975	11,634	1,321	8.8	4.2
2010	224	82	38	8,926	8,678	2,306	22.5	10.7
2011	228	24	6	1,528	5,252	1,547	7.5	3.8
2012	253	45	20	2,028	4,603	918	5.2	2.0
2013	255	48	21	2,072	3,701	977	22.4	6.2
2014	248	49	29	5,032	11,857	6,085	23.5	13.6

Texas Enterprise Zone Program (TEZP)

- Possible mechanisms by which TEZP may impact debt behavior of residents
  1. Via changes in demand for borrowing
     - ★ *Expected* improvement in labor market prospects $\rightarrow \uparrow$ demand for credit to smooth consumption
     - ★ Higher land prices $\rightarrow \uparrow$ demand for credit through mortgages or rents
     - ★ Additional commuting $\rightarrow \uparrow$ demand for (auto) credit
  2. Via changes in repayment
     - ★ *Realized* improvement in labor market prospects $\rightarrow \uparrow$ repayment due to higher wages, employment

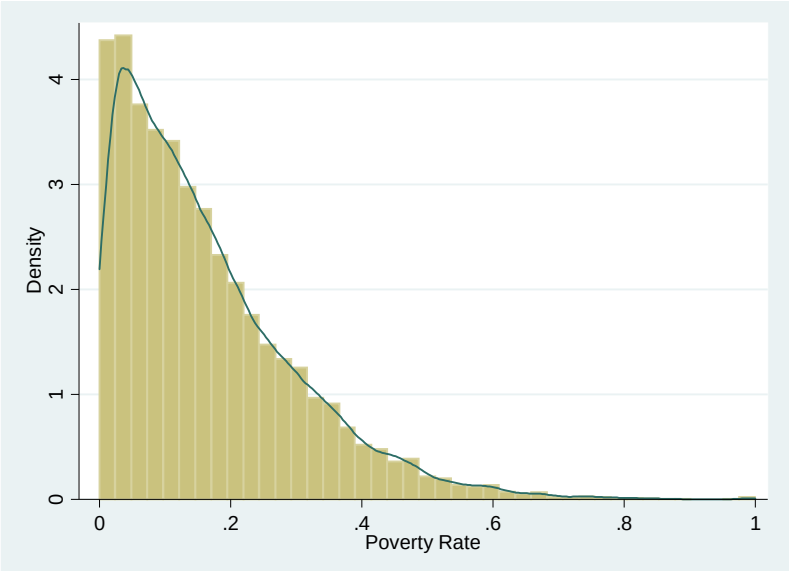
Outline

Empirical Model

- **Objective:** Identify the causal effect of the TEZP on the financial well-being of residents
- **Econometric Challenges:**
  1. Non-random selection: EZs are fundamentally different from non-EZs
  2. Definition of treatment group: eligible regions vs participating regions
  3. Definition of control group: spillovers $\rightarrow$ non-EZs may be affected

Empirical Model

- **Solutions:**
  - Define treatment as EZs (eligible regions) $\rightarrow$ intent-to-treat or policy effects
  - Control for non-random selection by exploiting the sharp cut-off in the definition of EZs in a regression discontinuity (RD) framework
  - Test for spillovers by altering the treatment and control groups
- **Identification**
  - Requires no manipulation in the score variable (poverty rate) determining treatment status around the threshold (0.20)
  - Not likely since current program rules began in 2003 and based on 2000 data



- **Baseline RD model**

$$\Delta y_i = \beta_0 + \beta_1 EZ_i + f(p_i) + x_i\beta_2 + \varepsilon_i,$$

where

$$f(p_i) = \sum_{k=1}^{K} \left[\theta_{1k}(p_i - 0.2)^k + \theta_{2k} EZ_i (p_i - 0.2)^k\right], \quad k = 1, 2, \text{ or } 3$$

and

- Δy_i = change in some measure of debt behavior of residents in location i (2003-2009)
- EZ_i = binary variable indicating EZ status
- p_i = poverty rate in 2000
- x_i = demographic, economic attributes in 2000

- To assess the importance of spillovers, we conduct two extensions
  1. Alternative control group ... exclude non-EZs that border an EZ from the control group
  2. Alternative treatment and control groups ... compare non-EZs bordering an EZ to non-EZs not bordering an EZ

$$\Delta y_i = \beta_0 + \beta_1 ADJ_i + f(\widetilde{p}_i) + x_i\beta_2 + \varepsilon_i,$$

where

$$f(\widetilde{p}_i) = \sum_{k=1}^{K} \left[\theta_{1k}(\widetilde{p}_i - 0.2)^k + \theta_{2k} ADJ_i (\widetilde{p}_i - 0.2)^k\right], \quad k = 1, 2, \text{ or } 3$$

and

- ★ ADJ_i = binary variable indicating adjacency to an EZ
- ★ $\widetilde{p}$ = maximum poverty rate among a locations contiguous neighbors

Outline

Data

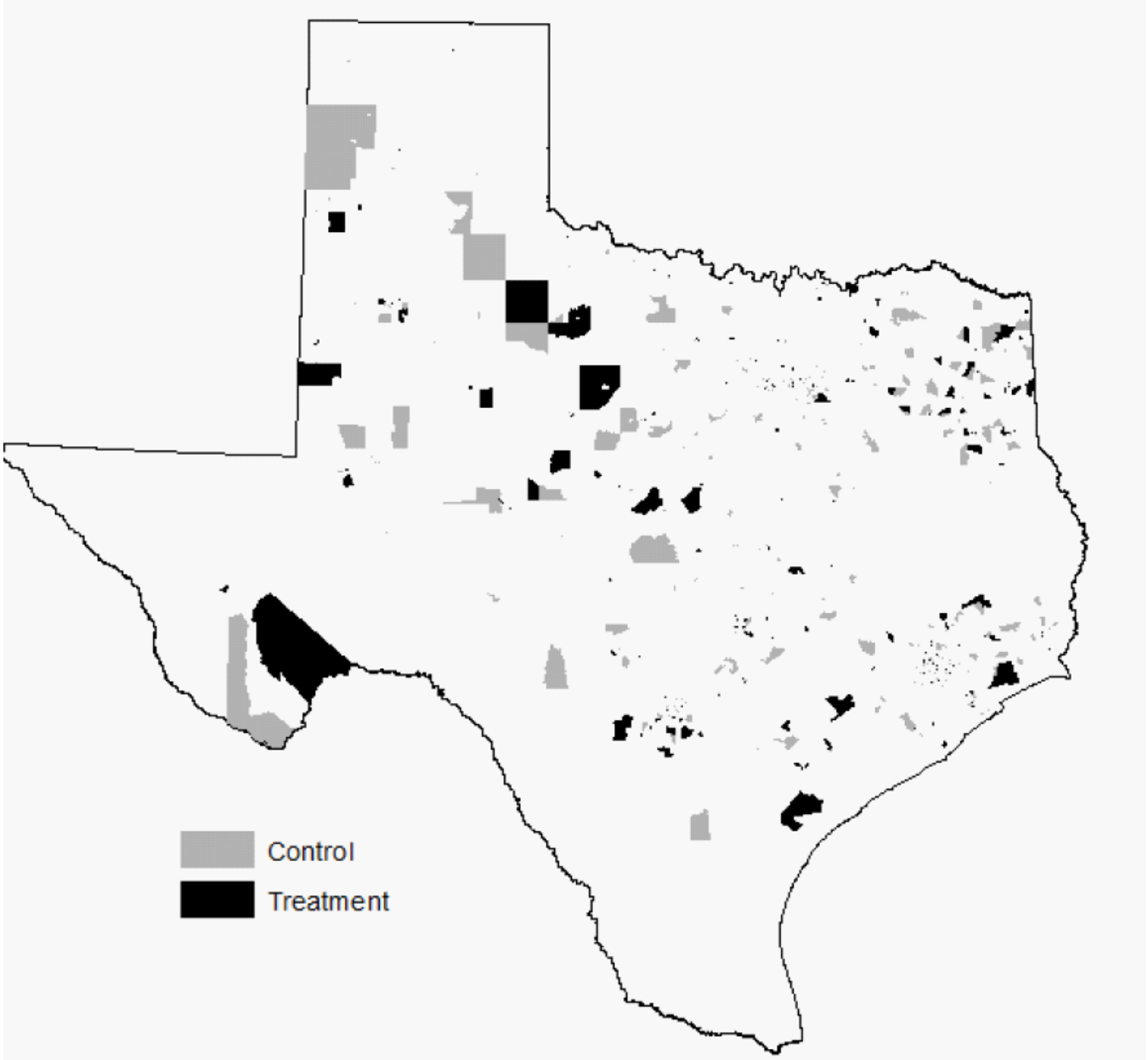
- Data are obtained from four sources
  1. US Department of Housing and Urban Development (HUD)
  2. Economic Development and Tourism Division (EDT) of the Texas Governor' sOffi ce
  3. 2000 Decennial Census (5% sample)
  4. Federal Reserve Bank of New York Consumer Credit Panel/Equifax (FRBNY CCP/Equifax)

- HUD provides areas classified as EZ/RC/EC under federal policy
- EDT provides areas classized as EZs under TEZP due to the poverty rate and distressed county criteria
- Census provides block group poverty rates (p_i) and other attributes (x_i)
- Equifax/FRBNY CCP provide consumer debt information

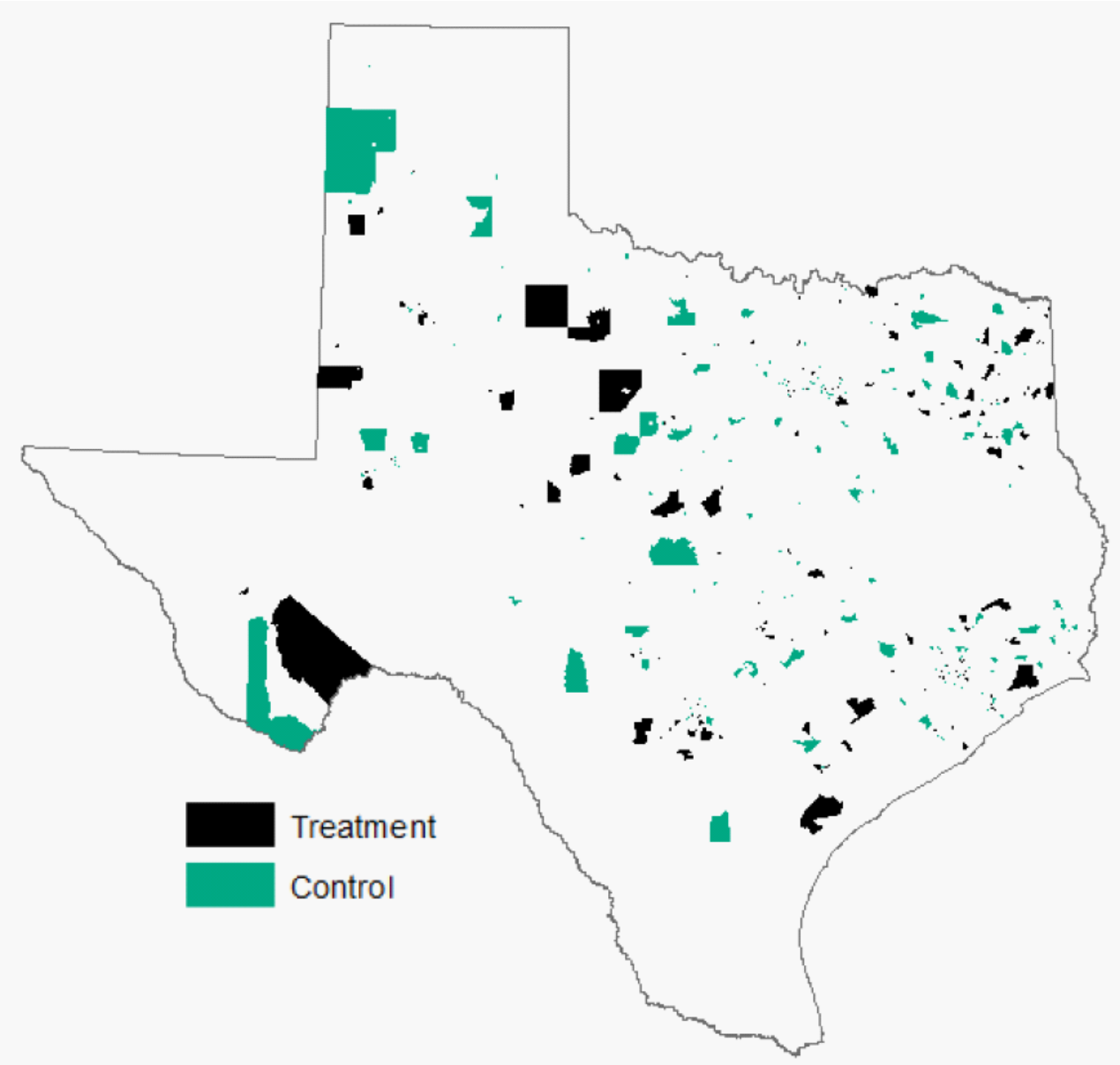
Data

- Unit of observation is a census block group ($N = 14,463$)
- Sample restrictions
  - Block groups that are not in distressed counties or a federal EZ/RC/EC
  - Block groups that have a poverty rate, p_i, between 18-22%
  - Final sample: $N = 1,000$ block groups

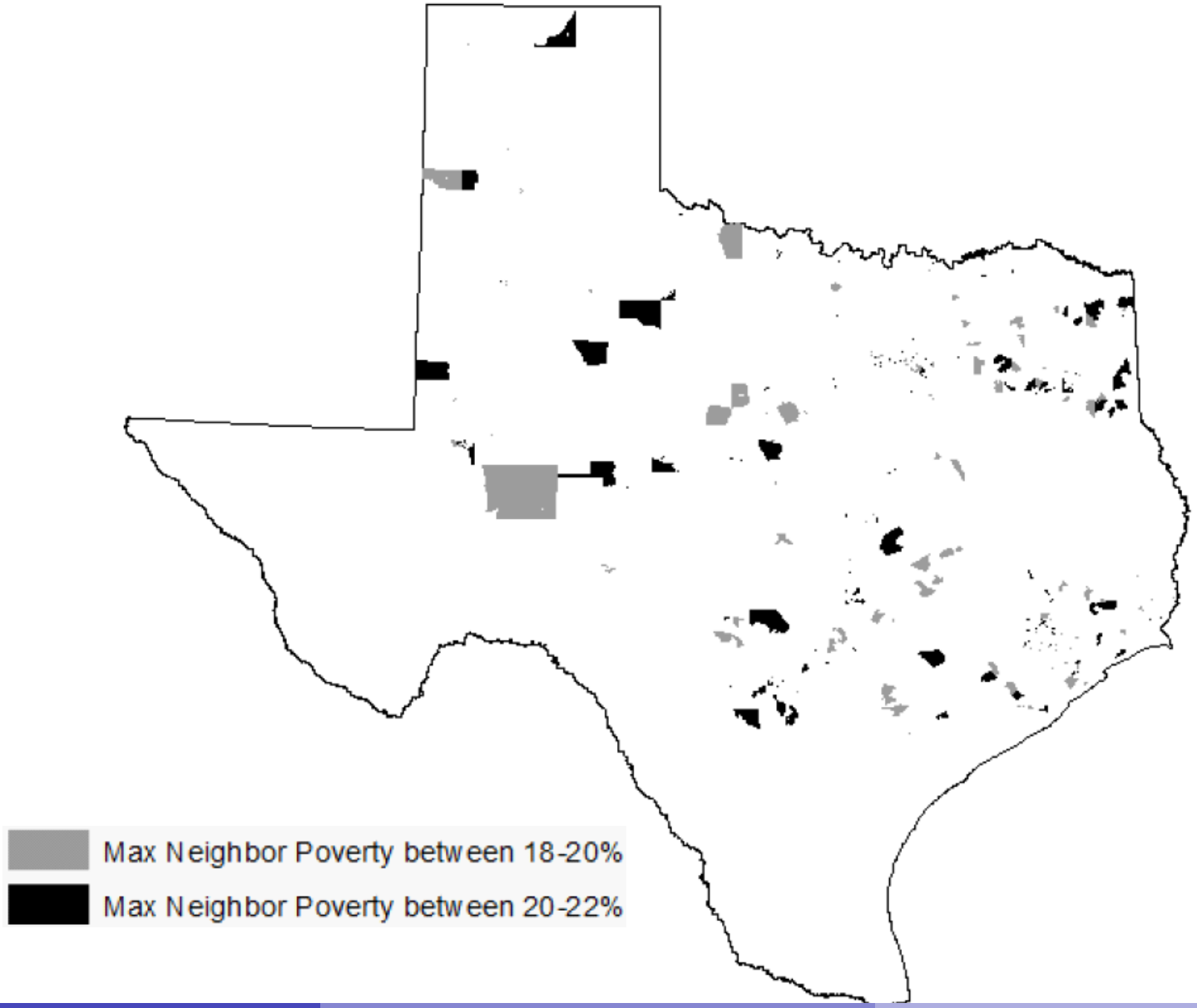
Treatment and Control Census Block Groups



Treatment and Alternative Control Census Block Groups (Exclude Adjacent Non-EZs)



Alternative Treatment and Control Census Block Groups for Adjacency Effects



- Equifax/FRBNY CCP
  - Quarterly longitudinal 5% random sample of all individuals in the US with a credit report
  - Includes all individuals with a SSN ending in 1 of 5 2-digit combinations
  - Individuals appear every quarter as long as their credit report remains open
  - Began in 1999 and is on-going
  - Individual debt behavior is aggregated to the census block level in 2002:Q4 and 2009:Q4
  - Outcomes
    - ★ Equifax Credit Risk: Median Risk Score, Prime Risk Score (% above 680), Near Prime Risk Score (% 620-680), Sub-Prime Risk Score (% below 620)
    - ★ Bankruptcy: Chapter 7 (%), Chapter 13 (%)
    - ★ Credit Action: Median New Inquiries (past 3 or 12 months), Median New Accounts (past 6 or 12 months)
    - ★ Auto/Bank Card/Mortgage/Retail loans: Borrowers (%), Delinquency and Severe Delinquency (%), Balances Delinquent (%), Median Balance

Outline

Results

Table 2. Effect of Texas Enterprise Zone Program on the Change in Aggregate Financial Outcomes:

	Median Risk Score	Prime Risk Score (Percent)	Near Prime Risk Score (Percent)	Sub-Prime Risk Score (Percent)	Chapter 7 Bankruptcy (Percent)	Chapter 13 Bankruptcy (Percent)
Δ(2009-2003)						
TX EZ (1 = Yes)	3.745	-0.058	0.027	0.028	0.001	0.006
	(10.5)	(0.051)	(0.022)	(0.035)	(0.008)	(0.005)
N	1000	1000	1000	1000	1000	1000

Notes: * p<0.10, ** p<0.05, *** p<0.01.

Nothing is statistically significant at the $p < 0.10$ level.

Results

Table 2. Effect of Texas Enterprise Zone Program on the Change in Aggregate Financial Outcomes:

	Median Number of Credit Inquiries (Past 3 Months)	Median Number of Credit Inquiries (Past 12 Months)	Median Number of New Accounts (Past 6 Months)	Median Number of New Revolving Accounts (Past 6 Months)	Median Number of New Accounts (Past 12 Months)
Δ(2009-2003)					
TX EZ (1 = Yes)	0.905	1.351	0.000	-0.119	0.111
	(1.548)	(1.586)	(0.021)	(1.315)	(0.158)
N	1000	1000	1000	1000	1000

Notes: * p<0.10, ** p<0.05, *** p<0.01.

Nothing is statistically significant at the $p < 0.10$ level.

Results

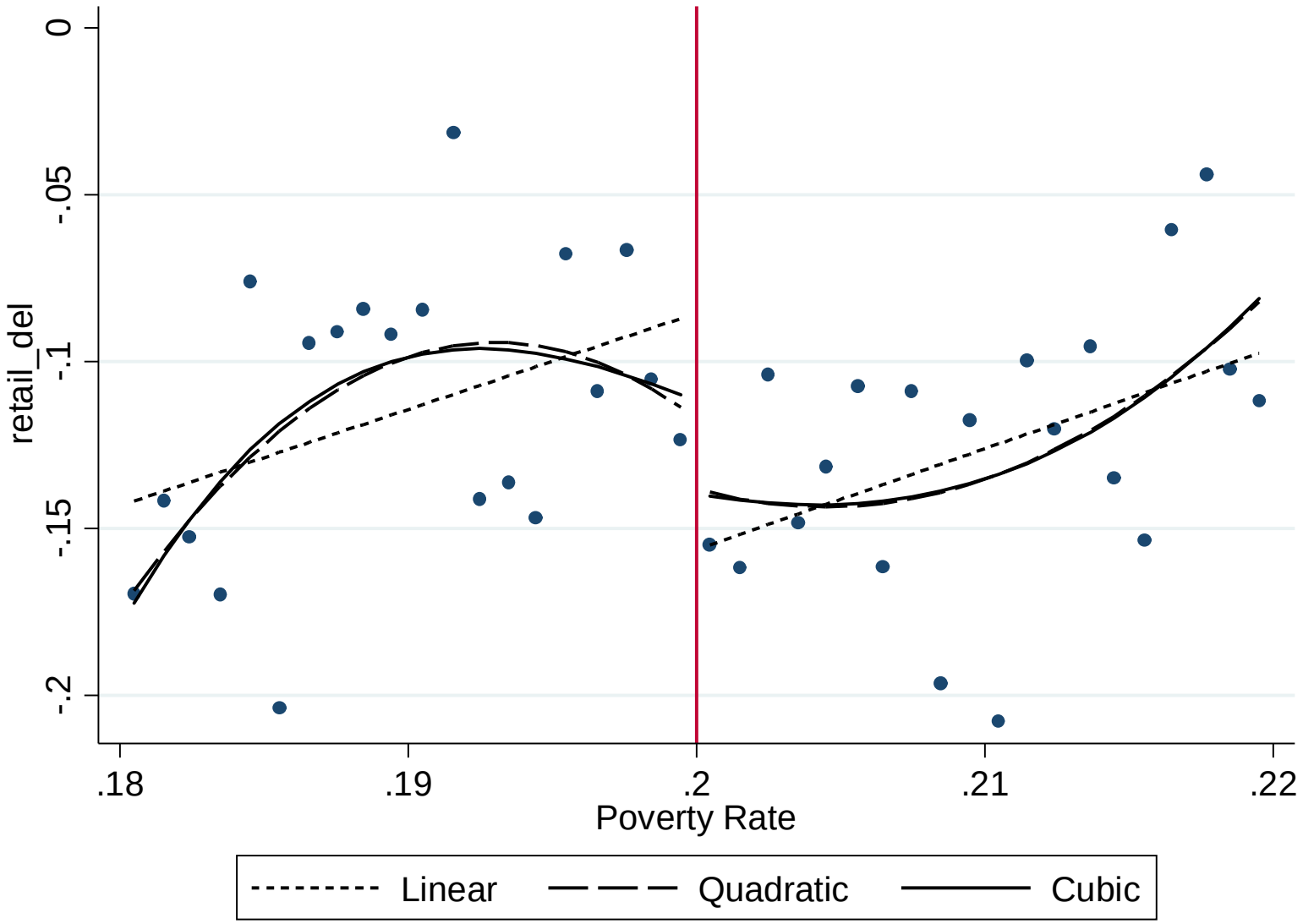
Table 3. Effect of Texas Enterprise Zone Program on the Change in Aggregate Financial Outcomes by Type

	Δ(2009-2003)				
	Borrowers (Percent)	Borrowers Delinquent (Percent)	Borrowers Severely Delinquent (Percent)	Balance Delinquent (Percent)	Median Balance (Dollars)
I. Auto Loans					
TX EZ (1 = Yes)	-0.039	0.022	0.040	0.006	-4097.6
	(0.062)	(0.042)	(0.028)	(0.026)	(3615.4)
N	1000	987	987	987	1000
II. Bank Cards					
TX EZ (1 = Yes)	0.054	-0.024	-0.023	0.004	62.00
	(0.043)	(0.035)	(0.041)	(0.041)	(75.21)
N	1000	994	994	994	1000
III. Mortgage Loans					
TX EZ (1 = Yes)	0.008	0.084	0.013	0.097 *	107.04
	(0.021)	(0.051)	(0.032)	(0.057)	(152.01)
N	1000	862	862	862	1000
IV. Retail Loans					
TX EZ (1 = Yes)	0.047	-0.076	-0.098 **	-0.114 *	3.068 *
	(0.032)	(0.048)	(0.046)	(0.066)	(1.661)
N	1000	977	977	978	1000

Notes: * p<0.10, ** p<0.05, *** p<0.01.

(Almost) Nothing is statistically significant at the $p < 0.10$ level.

Graphical example: Retail Loans, Percent Borrowers Delinquent



SOURCE: Federal Reserve Bank of New York Consumer Credit Panel/Equifax.

Results

- Alternative control group
  - Excluding non-EZs that border EZs, we find modest evidence that EZs have beneficial effects on bank card and retail loans
  - Consistent with small, positive spillovers to non-EZs bordering EZs
  - Not surprising since Enterprise Projects can locate outside of EZs
- Alternative treatment and control groups
  - Comparing non-EZs adjacent to an EZ to non-EZs not adjacent to EZs, we find no effect
  - Indicative of no spillovers
  - Sample is significantly smaller relative to preceding specifications
- Placebo tests
  - Cut-off = 0.175, 0.225
  - No meaningful evidence of statistically significant differences

Outline

Conclusion

- We extend the literature on the effects of place-based policies by assessing critical outcomes other than employment and wages
- Specifically, we examine the consumer debt behavior of EZ residents under the Texas EZ Program over the period 2003-2009
- We exploit the sharp discontinuity in the poverty rate threshhold used to designate EZs under the program
- Comparing block groups with a 2% window around the cut-off of 20% using a regression discontinuity approach, we find
  - Little evidence of a beneficial effect of the TEZP on the financial well-being of residents
  - At best, most positive effect on bank card and retail loan repayment once bordering non-EZs are excluded from the control group