

**FEAR AND THE SAFETY NET:  
EVIDENCE FROM SECURE COMMUNITIES**

Appendix For Online Publication

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## Appendix A: Additional Results

Appendix Table A1: SC on Crime and Immigration Enforcement

<i>Outcome</i>	<i>Log Offenses</i> (1)	<i>Submissions</i> (2)	<i>Matches</i> (3)	<i>Detainers</i> (4)
Post	0.017 (0.023)	36650.970*** (12924.440)	3348.951** (1619.514)	1033.287** (433.832)
Pre-Period Mean	6.658	271.552	13.459	39.170
Fixed Effects		State-Yr, County		
Observations	30,712	27,920	27,920	27,920

Note: Data on offenses known to law enforcement are from FBI from 2005–2015. Data on fingerprint submissions, matches, and detainers are from FOIA requests to ICE from 2006–2014. All regressions control for county fixed effects and state-by-year fixed effects. Robust standard errors clustered at the county level are reported in parentheses. \*\*\* = significant at 1 percent level, \*\* = significant at 5 percent level, \* = significant at 10 percent level.

Appendix Table A2: Comparison of ACS Food Stamp Estimates to Administrative State Data

	<i>Hispanics</i>	<i>Whites</i>	<i>Blacks</i>	<i>Hispanics vs. Whites</i>
	(1)	(2)	(3)	(4)
Post	-58600.667 (70348.757)	-11203.418 (28268.512)	-4676.916 (8868.256)	-14374.708 (9897.761)
Fixed Effects		State, Year		
Observations	23	31	31	31

Note: Data from ACS and state administrative data on SNAP participation from California, Minnesota, North Dakota, and Oklahoma. All regressions control for state and year fixed effects. Robust standard errors clustered at the state level are reported in parentheses. \*\*\* = significant at 1 percent level, \*\* = significant at 5 percent level, \* = significant at 10 percent level.

Appendix Table A3: Robustness to Alternative Samples/Specifications  
ACS Citizens Sample

	<i>Match PSID</i>	<i>Female</i>	<i>No Mixed</i>	<i>Drop Cities</i>	<i>Spatial Lag</i>	<i>PUMA</i>	<i>Deshpande</i>	<i>Some College</i>
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<u>Panel A: Share Food Stamp</u>								
Hispanic × Post	−0.127*** (0.038)	−0.014 (0.009)	−0.030*** (0.010)	−0.018** (0.009)	−0.021** (0.009)	−0.014* (0.008)	−0.017 (0.011)	−0.005 (0.004)
Post	0.008 (0.007)	−0.002 (0.005)	0.004 (0.004)	0.006 (0.004)	0.006 (0.004)	0.003 (0.004)	0.009* (0.005)	−0.002* (0.001)
<u>Panel B: Share SSI</u>								
Hispanic × Post	−0.036*** (0.007)	−0.021*** (0.006)	−0.017*** (0.006)	−0.012** (0.006)	−0.016*** (0.006)	−0.021*** (0.006)	−0.008 (0.007)	−0.001 (0.001)
Post	0.009* (0.005)	0.006* (0.004)	0.007** (0.003)	0.005* (0.003)	0.007** (0.002)	0.006* (0.003)	0.004 (0.004)	−0.001 (0.001)
Fixed Effects	State-Yr, State-Race, Race-Yr, County-Morton							
Baseline Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	12,731	71,815	79,862	80,878	80,977	25,023	177,533	85,960

Note: Data from ACS from 2006–2016. In column 1, we estimate our main specification using a sample of counties that approximates the PSID sample in terms of dependent variable means. In column 2, we estimate our main specification using a sample of females (either female head of household or female spouse). In column 3, we estimate our main specification using a sample of citizen heads of households excluding families that are mixed-status. In column 4, we estimate our main specification dropping New York, Los Angeles, Miami, Houston, and Chicago. In column 5, we estimate our main specification controlling for a spatial lag in SC activation using an exponential model with distance decay parameter of 0.05 km. In column 6, we estimate our main specification at the PUMA-level, assigning the minimum year of SC activation to each PUMA. In column 7, we estimate our main specification where for treated counties that activate in a particular year, we define control counties as those that activate more than one year in the future, following Deshpande and Li (forthcoming). In column 8, we estimate our main specification using a sample of heads of households with more than a high school degree. Baseline controls in the ACS include log poverty, number of children, share employed, share citizen, and FBI log crime interacted with race. All regressions control for county-by-Morton memo fixed effects, state-by-year fixed effects, state-by-race fixed effects, race-by-year fixed effects, and race-by-state changes in employment during the Great Recession. Observations in the ACS are weighted by the race-specific population in each county. Robust standard errors clustered at the county level are reported in parentheses. \*\*\* = significant at 1 percent level, \*\* = significant at 5 percent level, \* = significant at 10 percent level.

Appendix Table A4: Robustness to Alternative Weighting and Controls  
ACS Citizens Sample

	<i>No Weights Hisp &gt; 25%</i>	<i>Individual</i>	<i>Hisp Share</i>	<i>Non-Citizens</i>
	(1)	(2)	(3)	(4)
	<u>Panel A: Share Food Stamp</u>			
Hispanic × Post	−0.015 (0.011)	−0.027*** (0.010)	−0.023*** (0.008)	−0.021*** (0.008)
Post	0.012* (0.007)	0.006 (0.005)	0.005 (0.004)	0.005 (0.004)
	<u>Panel B: Share SSI</u>			
Hispanic × Post	−0.006 (0.006)	−0.016*** (0.006)	−0.017*** (0.006)	−0.016*** (0.006)
Post	0.007* (0.004)	0.006** (0.003)	0.007** (0.003)	0.006** (0.003)
Fixed Effects	State-Yr, State-Race, Race-Yr, County-Morton			
Baseline Controls	Yes Yes Yes Yes			
Observations	61,997 80,327 80,977 80,977			

Note: Column 1 estimates our main results with no weights, limited to counties above the 25th percentile of total Hispanic population. Column 2 estimates our main results with weights using one observation per person in each household. Column 3 estimates our main results with weights controlling for the share Hispanic. Column 4 estimates our main results with weights controlling for the log number of non-citizen Hispanics. Baseline controls in the ACS include log poverty, number of children, share employed, share citizen, and FBI log crime interacted with race. All regressions control for county-by-Morton memo fixed effects, state-by-year fixed effects, state-by-race fixed effects, race-by-year fixed effects, and race-by-state changes in employment during the Great Recession. Observations in the ACS are weighted by the race-specific population in each county. Robust standard errors clustered at the county level are reported in parentheses. \*\*\* = significant at 1 percent level, \*\* = significant at 5 percent level, \* = significant at 10 percent level.

Appendix Figure A1: California SNAP Application

**6a. HOUSEHOLD'S INFORMATION**

Complete the following information for all persons in the home that you buy and prepare food with, including you. **If applying for noncitizens, please complete question 6b and 6c. If not, go to question 6d.** Social Security number is optional for members not applying for benefits. You must answer the questions below for each person applying for benefits.

APPLYING FOR BENEFITS (✓ check Yes or No)	NAME (Last, First, Middle Initial)	How is the person related to you?	DATE OF BIRTH	GENDER (M OR F)	U.S. CITIZEN or NATIONAL (✓ check Yes or No) If no, complete question 6b below	SOCIAL SECURITY NUMBER
<input type="checkbox"/> Yes <input type="checkbox"/> No		SELF			<input type="checkbox"/> Yes <input type="checkbox"/> No	
<input type="checkbox"/> Yes <input type="checkbox"/> No					<input type="checkbox"/> Yes <input type="checkbox"/> No	
<input type="checkbox"/> Yes <input type="checkbox"/> No					<input type="checkbox"/> Yes <input type="checkbox"/> No	
<input type="checkbox"/> Yes <input type="checkbox"/> No					<input type="checkbox"/> Yes <input type="checkbox"/> No	
<input type="checkbox"/> Yes <input type="checkbox"/> No					<input type="checkbox"/> Yes <input type="checkbox"/> No	

Please list the names of anyone who lives with you that does not buy and prepare food with you:

NAME	NAME
NAME	NAME

**6b. NONCITIZEN INFORMATION** - Complete for those listed in question 6a above who are not citizens and are applying for aid.

Name	Date of Entry into U.S. (if known)	Give one of the following (if known): Passport Number, Alien Registration Number, etc.	Sponsored? (✓ check Yes or No) If yes, complete question 6c below:
		DOCUMENT TYPE: _____ DOCUMENT NUMBER: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No
		DOCUMENT TYPE: _____ DOCUMENT NUMBER: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No
		DOCUMENT TYPE: _____ DOCUMENT NUMBER: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No

Does anyone listed above have at least 10 years (40 quarters) of work history or military service in the USA?  
If yes, who? \_\_\_\_\_ (PLEASE CHECK ONE)  
 Yes  No

Does anyone listed above have, or have they applied for, or do they plan to apply for a T-Visa, U-Visa or VAWA status?  
If yes, who? \_\_\_\_\_  Yes  No

**6c. SPONSORED NONCITIZEN INFORMATION** - Complete for those listed in question 6b above who are sponsored noncitizens and are applying for aid.

Did the sponsor sign an I-864?  Yes  No If yes, please answer the rest of the question. If the sponsor signed an I-134 then skip this question.

Does the sponsor regularly help with money?  Yes  No If yes, how much? \$ \_\_\_\_\_

Note: Data from section of California SNAP Application.

Appendix Figure A2: SSI Application

24.	(b) Name of placing agency	Address	Telephone Number
			(    )       -
(c) Does this agency pay for your room and board? <input type="checkbox"/> YES Go to #38 <input type="checkbox"/> NO If NO, who pays?			
			Go to #38

**HOUSEHOLD ARRANGEMENTS**

25.	Check the block that describes your current residence, then Go to #26:	
	<input type="checkbox"/> House	<input type="checkbox"/> Mobile Home
	<input type="checkbox"/> Apartment	<input type="checkbox"/> Houseboat
	<input type="checkbox"/> Room (private home)	<input type="checkbox"/> Other (Specify)
	<input type="checkbox"/> Room (commercial establishment)	
26.	Do you live alone or only with your spouse?	<input type="checkbox"/> YES Go to #28 <input type="checkbox"/> NO Go to #27

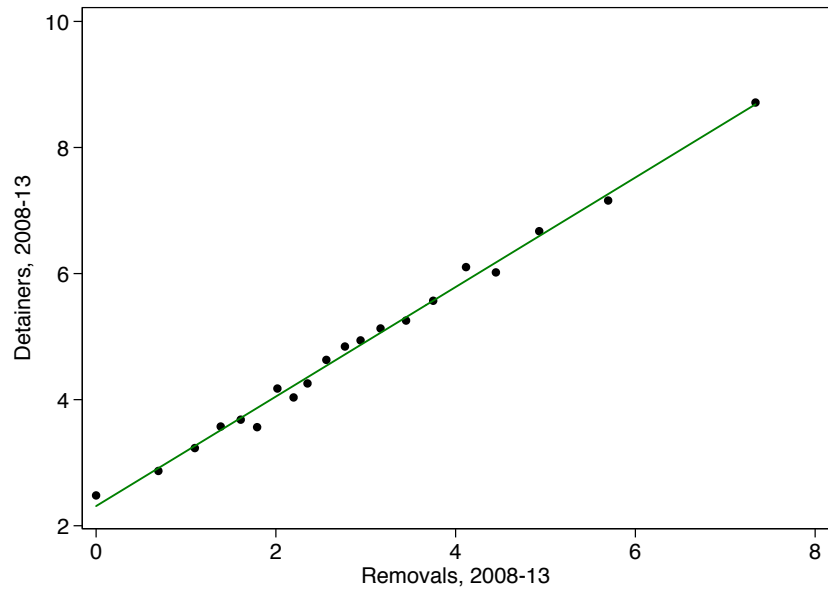
27. (a) Give the following information about everyone who lives with you:													
Name	Relationship	Public Assistance		Sex		Birthdate mm/dd/yy	Blind or Disabled		If Under 22				Social Security Number
		YES	NO	M	F		YES	NO	Married		Student		
									YES	NO	YES	NO	

If anyone listed is under age 22 and not married, Go to (b); otherwise, Go to #28.

Note: Data from section of SSI Application from ssa.gov.

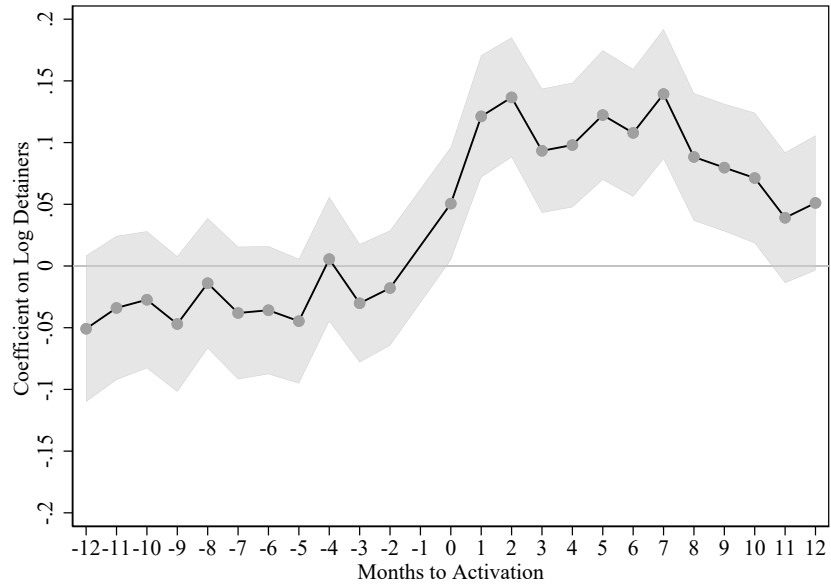


Appendix Figure A3: Correlation between Detainers and Removals



Note: Data from FOIA. This figure presents the correlation between log detainers and log removals for binned counties (20 total). The correlation between the measures is 0.84.

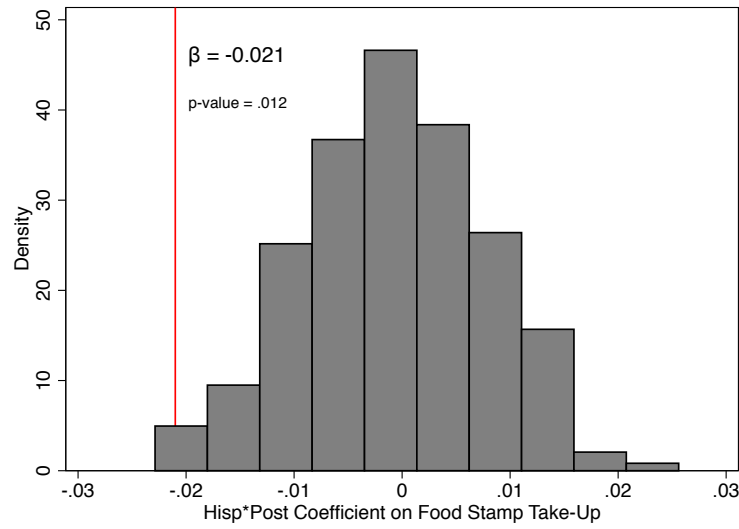
Appendix Figure A4: Detainers Event Study



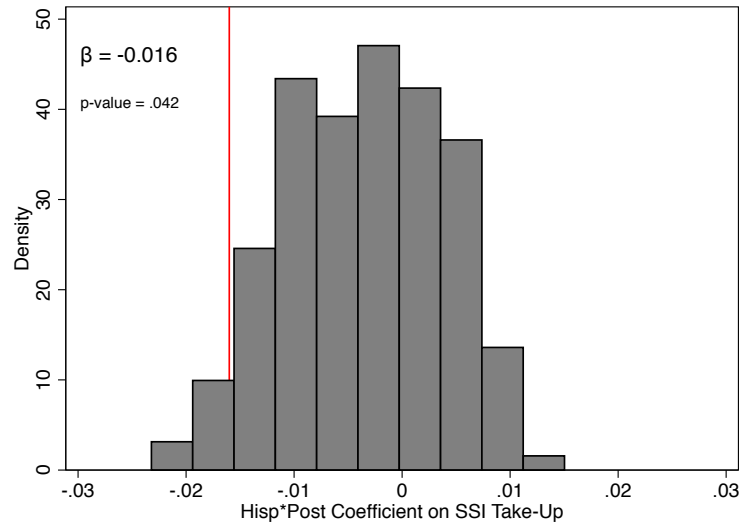
Note: Data from FOIA. Coefficients and 95% confidence intervals are plotted. This figure represent event study estimates of the time to SC activation in months on the log number of detainers issued. All specifications control for county fixed effects. Standard errors are clustered at the county level.

## Appendix Figure A5: Permutation Tests

### Panel A: Food Stamp

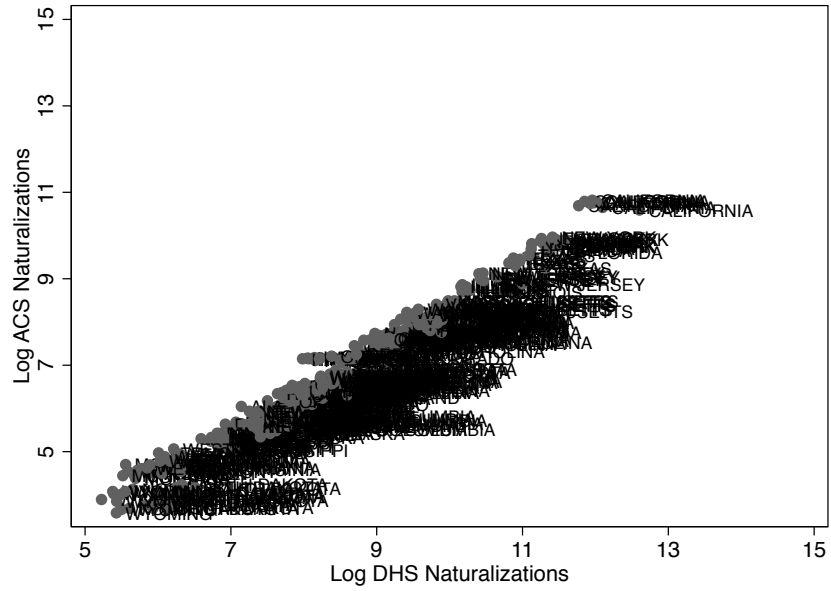


### Panel B: SSI



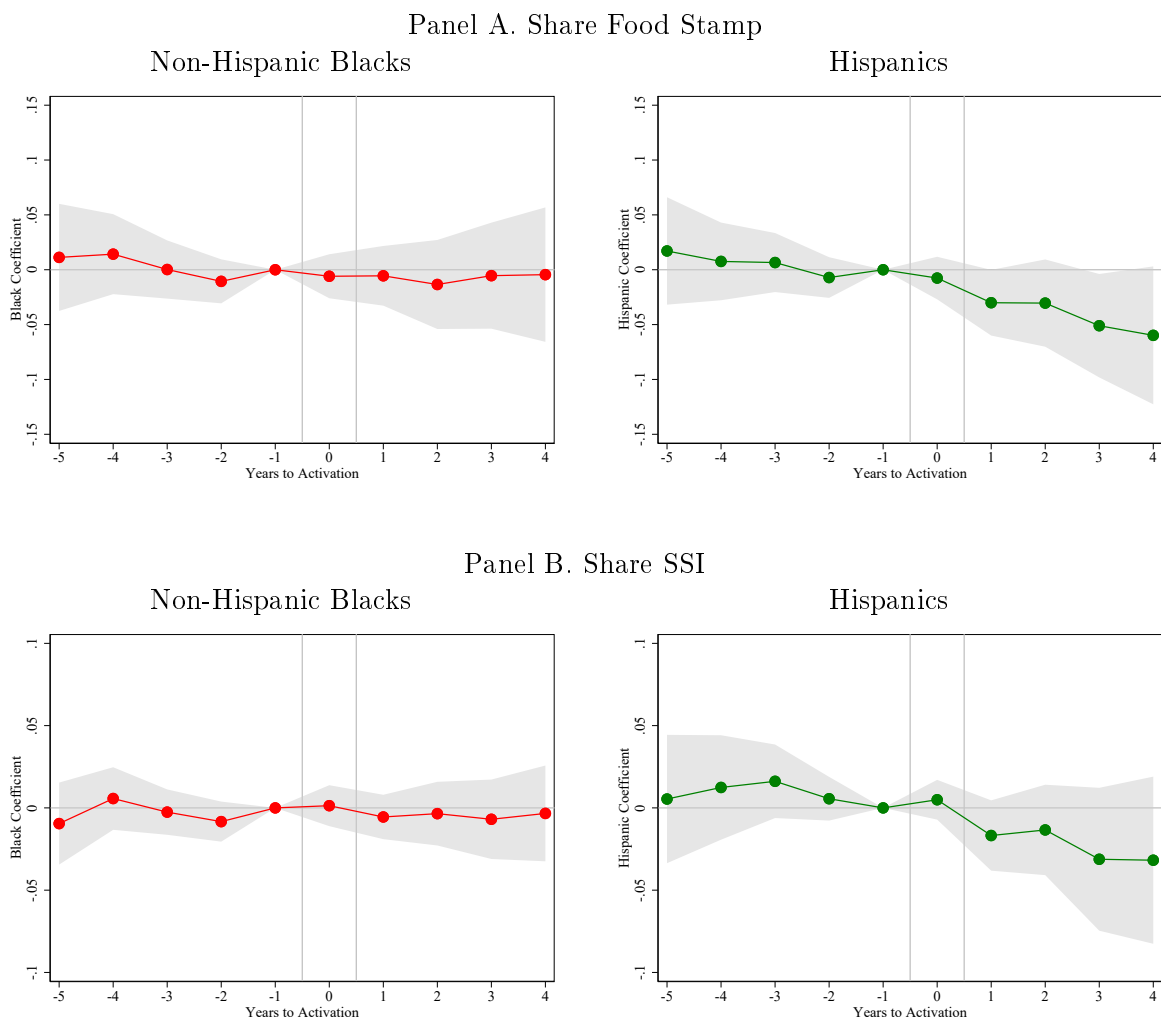
Note: Data from ACS. These figures represent empirical distributions of our estimates of interest when we randomly permute activation years to each county. The red line denotes our actual coefficient along with the corresponding two-sided empirical p-value. The data are limited to actual SC pre-activation years.

Appendix Figure A6: Correlation between ACS Naturalized Citizens and DHS Naturalized Citizens



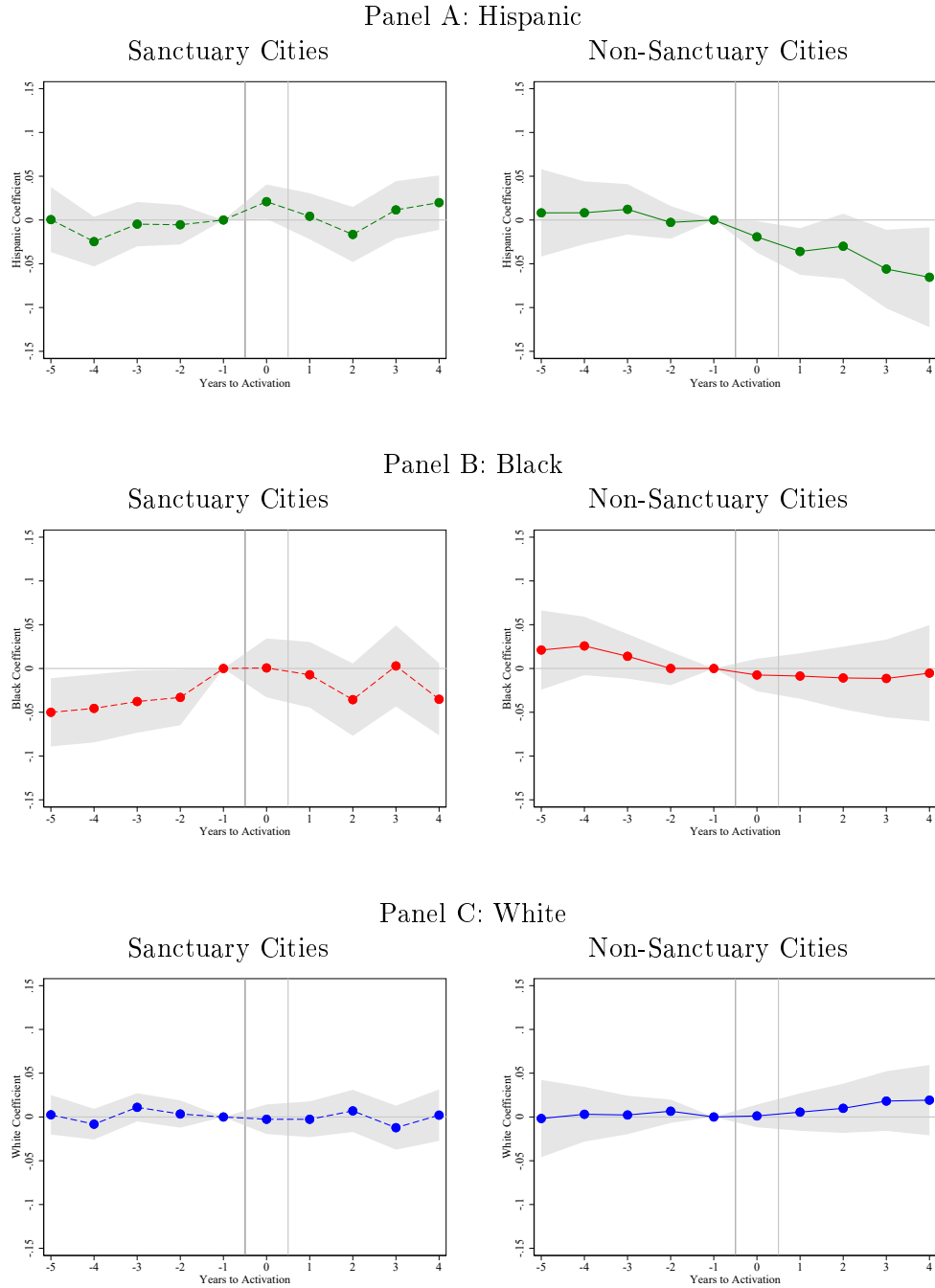
Note: Data from FOIA and ACS. This figure presents the correlation between log naturalized citizens from DHS and log naturalized citizens from ACS for each state-year. The correlation between the measures is 0.94.

Appendix Figure A7: Event Study of Food Stamp and SSI Take-Up with County-by-Year FE



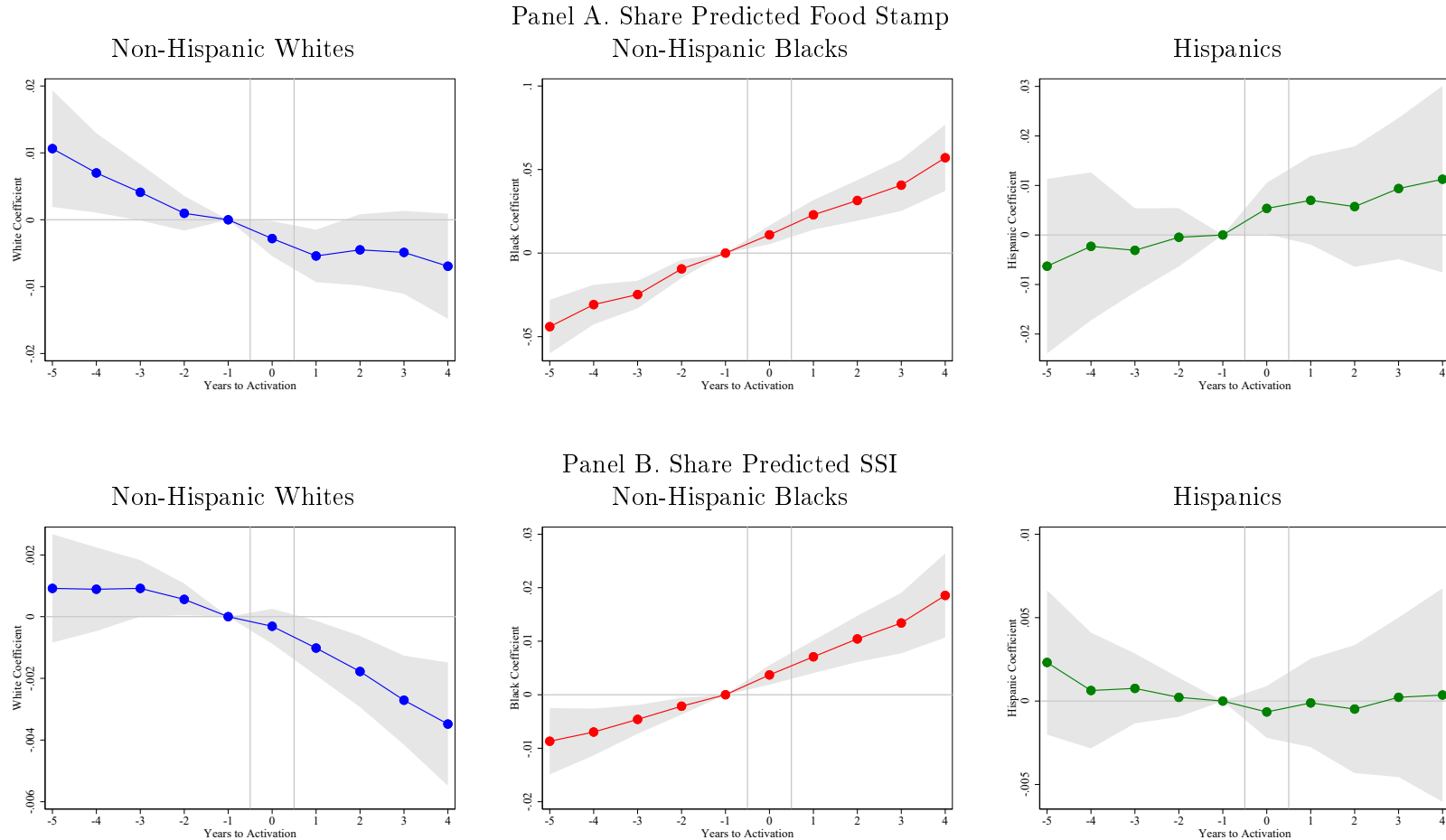
Note: Data from ACS from 2006–2016. Coefficients and 95% confidence intervals are plotted. The data are limited to heads of households with less than a high school degree that are U.S. citizens. Baseline controls in the ACS include log poverty, number of children, share employed, share citizen, and FBI log crime interacted with race. All regressions control for county-by-Morton memo fixed effects, state-by-year fixed effects, state-by-race fixed effects, race-by-year fixed effects, and race-by-state changes in employment during the Great Recession. Observations in the ACS are weighted by the race-specific population in each county. Robust standard errors are clustered at the county level. The vertical lines denote the interval of Secure Communities activation.

Appendix Figure A8: Event Study of Food Stamp Take-up by Sanctuary City Status



Note: Data from ACS from 2006–2016. Coefficients and 95% confidence intervals are plotted. The data are limited to heads of households with less than a high school degree that are U.S. citizens. Non-Hispanic includes household heads who identify as non-Hispanic black or non-Hispanic white. Baseline controls in the ACS include log poverty, number of children, share employed, share citizen, and FBI log crime interacted with race. All regressions control for county-by-Morton memo fixed effects, state-by-year fixed effects, state-by-race fixed effects, race-by-year fixed effects, and race-by-state changes in employment during the Great Recession. Observations in the ACS are weighted by the race-specific population in each county. Robust standard errors are clustered at the county level. The vertical lines denote the interval of Secure Communities activation.

Appendix Figure A9: Event Study of Predicted Food Stamp and SSI Take-Up



Note: Data from ACS from 2006–2016. Coefficients and 95% confidence intervals are plotted. The data are limited to heads of households with less than a high school degree that are U.S. citizens, defined as individuals born in the United States or those who are naturalized and have lived in the United States for at least a decade. Take-up is predicted using log poverty, number of children, share employed, share citizen, and FBI log crime interacted with race. All regressions control for county-by-Morton memo fixed effects, state-by-year fixed effects, state-by-race fixed effects, race-by-year fixed effects, and race-by-state changes in employment during the Great Recession. Observations in the ACS are weighted by the race-specific population in each county. Robust standard errors are clustered at the county level. The vertical lines denote the interval of Secure Communities activation.

## Appendix B: Data Appendix

### A. Data Sources

*American Community Survey:* We use American Community Survey (ACS) data both in aggregate and microdata form. We download the ACS five-year (2005–2009) summary file using the Census Bureau’s DataFerrett and American FactFinder tools. The estimates include counts of foreign born by country of origin, citizenship and other sociodemographic characteristics by county of residence. We also use annual (from 2006 to 2016) microdata from the Integrated Public Use Microdata Series (IPUMS) website compiled by the University of Minnesota. These data are publicly available at the Public Use Microdata Area (PUMA) level — areas with at least 100,000 people. Variables of interest include food stamps and Supplemental Security Income (SSI) use, race, Hispanic ethnicity, family size, education, number of children, poverty, citizenship status, naturalization status, and place of birth.<sup>1</sup>

*Census Bureau Gazetteer Files:* Distance from each county to the Mexican border is created using the 2010 Census Gazetteer Files. These files include the latitude and longitude coordinates for the centroid of each county. Mexican border shapefiles are available from the Homeland Infrastructure Foundation-Level Data via the Department of Homeland Security.

*Census Bureau Population Estimates:* We use data from the Census Bureau’s Population Estimates Program to estimate county-level population data for different races. These data — reported by county, age, sex, race, and Hispanic ethnicity — are publicly available and formatted by the National Bureau of Economic Research (NBER).

*Current Population Survey:* We construct a race-specific proxy for Great Recession severity using data from the Current Population Survey from IPUMS. The finest level of geography publicly available is the state. The proxy we use is the change in employment rates for each group between 2007 and 2009.

*Federal Bureau of Investigation:* The Federal Bureau of Investigation (FBI) Return A database includes information on the number of crimes for each FBI reporting agency at the month level. We use 2005–2016 data acquired from the FBI to construct county-level data on total offenses known to law enforcement.

*Google Trends:* The relative popularity of search terms relating to deportation from 2006 to 2015.<sup>2</sup> Google Trends terms are ranked on a scale of 1 to 100 for each Nielsen Designated Market Area (DMA), with 1 representing the lowest relative search for that DMA and time period; and 100 representing the highest relative search per DMA and time period. The terms we tabulate include both English and Spanish spellings — specifically, we include the terms *undocumented*, *immigration*, *deported*, *immigration lawyers*, *deportation* and their Spanish translations: *indocumentado*, *inmigracion*, *deportacion*, and *abogados de inmigracion*. Furthermore, we assess their relativity by including popular terms in the Hispanic community including *deportes* and *telenovelas*.

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<sup>1</sup>See references for websites of data sources.

<sup>2</sup>By 2006, over 70% of U.S. adults used the internet, although access was likely uneven across race and ethnicity which is why we normalize deportation searches by searches for telenovelas and deportes as described in the text (Pew Research Center 2018).



*Immigration and Customs Enforcement:* Immigration and Customs Enforcement (ICE) provides a list of jurisdictions that “have enacted policies which limit cooperation with ICE,” which have come to be known as sanctuary jurisdictions, in a February 4 – February 10, 2017 “*Weekly Declined Detainer Outcome Report*.” The report lists the jurisdiction (city, county, or state), the policy enactment date, type of policy, and the criteria for not honoring an ICE detainer. We denote a county as a sanctuary if the county enacted a sanctuary policy or encompasses a city that did.

*Panel Study of Income Dynamics:* The Panel Study of Income Dynamics is household-level panel survey data, managed by the Institute for Social Research at the University of Michigan. Much of the data is publicly available, but we also obtain restricted access for counties of current residence and for counties where individuals were born. The PSID data contain information on whether households received food stamps or SSI benefits in the last year. In addition, the dataset includes variables on race, Hispanic ethnicity, age, education, and poverty for individuals within a household. For our analysis, we focus on years 2005–2015.

*Pew Research Surveys on Hispanic Communities:* The 2010 Pew Research Survey of Latinos and the 2013 Survey of Hispanics contain questions on immigration enforcement. The data are publicly available, though we obtain restricted state of residence geographic identifiers for the 2010 survey via a data use agreement. The specific questions we use in the study are: “*Regardless of your own immigration or citizenship status, how much, if at all, do you worry that you, a family member, or a close friend could be deported?*” and also “*Do you personally know someone who has been deported or detained by the federal government for immigration reasons in the last 12 months?*”

*Secure Communities:* Data on Secure Communities were obtained in three ways. First, publicly available data were obtained on Congressional Quarterly Reports, the Task Force on Secure Communities, and from the ICE website. In addition, the authors submitted a Freedom of Information Act (FOIA) request for statistical data on Secure Communities activities. ICE responded to the FOIA request on November 28, 2016. Third, the authors obtained additional data from a third-party that had conducted their own FOIA via a data use agreement. Together, these three data sources provide information on the date of SC activation in every county as well as the universe of detainers issued before and during SC.<sup>3</sup> This includes almost 2 million detainers issued between 2002 and 2015 — including the country of origin, sex and age of the arrestee, the location and date of the detainer issued, a description of the offense, and the most serious criminal conviction (MSCC) level. These data also include the universe of removals under the SC program between 2008 and 2014. In addition, data on all fingerprint submissions and ICE matches with the IDENT database from 2008 to 2014 are available by year at the county level.

## B. Variable Definitions

*Black:* In all analysis, we define black individuals as those who identify their race as black but do not identify as Hispanic ethnicity.

*Border Counties:* The border counties we exclude from all analysis are as follows: San Diego County, CA; Imperial County, CA; Yuma County, AZ; Pima County, AZ; Santa Cruz County, AZ; Cochise

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<sup>3</sup>Note: Two counties — Shannon County, SD, and Doddridge County, WV — are not listed in the ICE activation dates data. Therefore we drop them from the analysis.

County, AZ; Hidalgo County, NM; Luna County, NM; Dona Ana County, NM; El Paso County, TX; Hudspeth County, TX; Jeff Davis County, TX; Presidio County, TX; Brewster County, TX; Terrell County, TX; Val Verde County, TX; Kinney County, TX; Maverick County, TX; Webb County, TX; Zapata County, TX; Starr County, TX; Hidalgo County, TX; Cameron County, TX.

*Deportation Fear:* Deportation fear, created using Pew survey data, is equal to one for a respondent if they answer “A lot” or “Some” to the question: *Regardless of your own immigration or citizenship status, how much, if at all, do you worry that you, a family member, or a close friend could be deported?* The change in deportation fear is the difference in fear between the 2013 and the 2010 surveys for each Census division.

*Deportation Related Searches:* The following search terms were used to generate the Deportation Related Search variable: *deported, deportation, deportacion, immigration, inmigracion, immigration lawyer, abogados de inmigracion, undocumented, and indocumentado.* The following search terms were used to normalize the aforementioned for internet access: *deportes* (sports) and *telenovelas* (soap operas). The sum of deportation related searches was divided by searches for soap operas and sports. The data are available at the Nielsen media market level (DMA).

*Distance to the Mexico Border:* The number of kilometers from each county’s centroid, using Census Gazetteer Files, to the closest point on the Mexico border, defined from the Homeland Infrastructure Foundation-Level Data.

*Great Recession Severity:* The employment decline during the Great Recession using monthly CPS data. The severity measure is the percent decline in employment from December 2007 to June 2009 at the state by race level.

*Hispanic:* For both the ACS and PSID, individuals are considered Hispanic if they self-identify as Hispanic.

*Log Poverty:* The log average poverty rate per race, county, year group in the ACS data.

*Log Total Offenses:* The log total number of yearly offenses known to police per county, year group in the FBI Return A data. We linearly interpolate totals within an agency if an agency failed to report data for an individual year.

*Mixed Status Households:* An indicator equal to 1 for a household if at least one member self-identifies as a Hispanic non-citizen, but other members do not. This is not applicable if the household head is the non-citizen, as the study focuses on citizen heads.

*Number of Children:* The average number of children per household in each race, county, year group in the ACS data.

*Population Weights:* The total number of people in 2005 for each race category and county, using Census Bureau Population Estimates.

*Post:* An indicator variable equal to one if the year of program receipt is after a county’s Secure Communities activation year.

*Post Recession:* An indicator variable equal to one if the year of program receipt is after 2008.

*Proportion Petty:* The proportion of Level 3 to Level 1 and Level 3 crimes among Hispanic arrestees in the SC detainer data. For specific categorization of crimes, see Institutional Appendix below.

*Sanctuary City:* An indicator variable equal to one in a county (or city that the county encompasses) if there is an active sanctuary policy during the SC activation period.

*Share Citizen:* The share of household heads for each race that are U.S.-born citizens or naturalized citizens that have resided in the United States for at least a decade.

*Share Food Stamp:* The share of household heads for each race reporting household food stamp usage in the past 12 months.

*Share Employed:* The ratio of employed individuals to all individuals in the ACS. Data are averages at the race, county, year level.

*Share SSI:* The share of household heads for each race reporting individual Supplemental Security Income usage in the past 12 months.

*White:* We define white individuals as those who identify their race as white but do not identify as Hispanic ethnicity.

## Appendix C: Institutional Appendix

### A. Secure Communities and Immigration Reform

*Immigration Enforcement Prior to Secure Communities:* In the United States, the federal government has virtually unlimited authority to decide who to admit and deport, with detailed rules governing admissibility and removability as described in the Immigration and Nationality Act (INA). In the past decades, however, the federal government has increasingly worked with state and local governments to help enforce federal immigration law. The most prominent example of this cooperative federal-state relationship is the delegation of federal immigration enforcement powers to state and local agents under 287(g) of the Illegal Immigration Reform and Immigrant Responsibility Act of 1996 (IIRIRA). Known colloquially as “287(g) agreements,” these agreements typically allow local law enforcement agents to screen arrestees for potential violations of immigration laws and issue detainers. Formally, state and local agencies enter into a Memorandum of Agreement (MOA) with ICE pursuant to which law enforcement officers become deputized immigration enforcement officers. However, 287(g) agreements were wholly voluntary, and as of 2013, ICE had only entered into 69 active 287(g) agreements in 24 states.<sup>4</sup>

In addition to 287(g) agreements, ICE initiated several other cooperative programs with state and local agencies, focused on apprehending alien fugitives (“Future Operations Team”) and absconders (“Operation Absconder”). See Chacón (2010) for an overview of these programs. One of the best known cooperative programs prior to SC was called the Criminal Alien Program (CAP), with the goal of identifying “criminal aliens incarcerated in federal, state and local prisons and jails throughout the United States, preventing their release into the general public by securing a final order of removal prior to the termination of their sentences.” Under CAP, ICE officials physically or electronically (through telephone) gained access to local and state jails to interview and identify immigrants who could be removed. Through CAP, ICE created a risk assessment of all federal, state and local prisons, classifying the facilities into four tiers of risk, with Tier 1 indicating a facility with the highest risk to security. CAP prioritized screening the higher tier facilities. In March 2008, ICE reported that all federal and state facilities were part of CAP, but only about 10 percent of local jails were screened through CAP.

Secure Communities represented a significant expansion of these federal-state cooperative programs, relying on instantaneous information sharing between local jails, ICE, and the FBI. While each of the above programs (287(g), CAP) is separate, they often overlap and can operate simultaneously in the same jurisdiction.

*Interoperability Deployment — Rollout of Secure Communities:* Secure Communities was started following the appropriation of \$200 million by Congress in Fiscal Year (FY) 2008 to ICE in order to “improve and modernize efforts to identify aliens convicted of a crime ... and remove them from the United States.”<sup>5</sup> In FY 2009, Congress appropriated an additional \$150 million in funding and instructed ICE to use \$850 million in other funding to the priority, which expanded to include identifying “individuals illegally present in the United States who have criminal records whether incarcerated or at-large, and to remove those aliens once they have been judged deportable in an immigration court.” In FY 2010, Congress instructed ICE to allocate \$1.5 billion to the same goal.

At the time of deployment, it was estimated that there were more than 53,000 arresting and booking locations in 3,100 jurisdictions across the United States. ICE stated in reports to Congress

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<sup>4</sup>See Fact Sheet: Updated Facts on ICE’s 287(g) Program, <http://www.ice.gov/news/library/factsheets/287g-reform.htm> (last visited Oct. 13, 2013).

<sup>5</sup>See Secure Communities: Criminal Alien Removals Increased, but Technology Planning Improvements Needed, <https://www.gao.gov/assets/600/592415.pdf>.

that it coordinated with federal, state, and local partners to deploy “Interoperability,” another term for SC, based on a “risk-based prioritization approach.” The evaluation included ensuring adequate resources for ICE field offices and local enforcement agencies (LEAs). In addition, deployments were determined by utilizing data provided by the SC Program Management Office (PMO) Criminal Alien Population Projection, which factors in data such as crimes committed by non-citizens and census data to examine foreign-born populations.<sup>6</sup>

As found by Cox and Miles (2013), the roll-out of SC did not seem to be predicted by crime levels, though ICE was specifically targeting crimes committed by non-citizens. Instead, using a hazard model, Cox and Miles (2013) find that the strongest predictors of early activation were whether a county was on the southern border with Mexico, the fraction of the population Hispanic, and whether a local government had a 287(g) cooperative enforcement agreement with the federal government. Their analysis, combined with the ICE documentation, motivates our approach to predict activation dates using distance from the Mexican border, estimated non-citizen population, crime, presence of a 287(g) agreement, and higher order terms/interactions of these covariates. We note that our findings are similar using this approach (see Table 4).

*Risk-Based Prioritization under SC:* SC used a risk-based approach to decide which individuals should be removed. The risk basis for determining the threat to community safety relies on a three-level hierarchy of aggravated felonies and other serious offenses, building off of risk assessment used under the CAP program. The SC risk-based approach classifies aliens convicted of a criminal offense into three levels, starting with those who present the greatest threat:

**Level 1:** Offenses include threats to national security, violent crimes such as murder, manslaughter, rape, robbery and kidnapping; and drug offenses resulting in sentences greater than 1 year.

**Level 2:** Offenses include minor drug offenses and property offenses such as burglary, larceny, fraud and money laundering.

**Level 3:** Offenses consist of less severe criminal offenses, primarily misdemeanors, such as illegal entry, public drunkenness, and disorderly conduct.

After the roll-out of SC, many reported concerns regarding racial profiling among arrests. For example, Kohli, Markowitz, and Chavez (2011) find that Latinos comprise 93 percent of individuals arrested through SC although they comprise only 77 percent of the undocumented U.S. population. In addition, many argued that SC was not targeting dangerous criminal non-citizens as it claimed to do, but was in fact removing many non-citizens charged with minor offenses. For example, a *New York Times* article claimed that “government records show that since President Obama took office, two-thirds of the nearly two million deportation cases involve people who had committed minor infractions, including traffic violations, or had no criminal record at all. Twenty percent — or about 394,000 — of the cases involved people convicted of serious crimes, including drug-related offenses ....”<sup>7</sup>

In 2011, a Task Force on Secure Communities was created as a subcommittee of the Homeland Security Advisory Council (HSAC) and was comprised of leaders from the government, private sector, academia, and local enforcement agencies. The goal of the Task Force was to address some concerns about potential racial profiling and to focus on individuals that were a “true threat” to public safety or national security.

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<sup>6</sup>See Secure Communities Quarterly Report to Congress (2011) at [https://www.ice.gov/doclib/foia/secure\\_communities/congressionalstatusreportfy104thquarter.pdf](https://www.ice.gov/doclib/foia/secure_communities/congressionalstatusreportfy104thquarter.pdf).

<sup>7</sup>See Ginger Thompson & Sarah Cohen, More Deportations Follow Minor Crime, Data Shows, *New York Times*, Apr. 7, 2014, at <https://www.nytimes.com/2014/04/07/us/more-deportations-follow-minor-crimes-data-shows.html>.

The Task Force held four information gathering sessions where groups and local agencies could express their opinion on SC. According to the Task Force Final Report, “By a very significant margin, most speakers criticized or expressed concern about Secure Communities. Many speakers commented that the program is resulting in the deportation of persons arrested for only minor offenses as well as victims of crime, that such deportations split families apart, and that Secure Communities makes people afraid to call their local police when they are victims or witnesses to crime. A few speakers stated that the program had a positive impact, particularly in identifying and removing serious criminals or providing information useful to local law enforcement that would not always be available from the FBI database alone.”<sup>8</sup>

*Resistance to SC:* When SC was first activated, Secretary of Homeland Security Janet Napolitano described the program as follows: “Secure Communities gives ICE the ability to work with our state and local law enforcement partners to identify criminal aliens who are already in their custody, expediting their removal and keeping our communities safer.”<sup>9</sup> SC was also described as a partnership between ICE and each state’s State Identification Bureau, requiring a memorandum of agreement (MOA) between the ICE acting director and State Identification Bureau officials.<sup>10</sup>

However, in the spring of 2011, governors in Massachusetts, New York, and Illinois ended their respective MOAs with DHS. The three states alleged that the program was not exclusively targeting the most violent offenders and was hindering community policing. ICE subsequently determined and clarified that the MOAs were “not required to activate or operate Secure Communities in any jurisdiction.”<sup>11</sup>

Shortly thereafter, John Morton, former Director of ICE, terminated all MOAs in August 2011 in the “Morton Memo,” stating they had led to “substantial confusion” and that “ICE has determined that an MOA is not required to activate or operate SC for any jurisdiction ... Once a state or local law enforcement agency voluntarily submits fingerprint data to the federal government, no agreement with the state is legally necessary for one part of the federal government to share it with another part.”<sup>12</sup> Secretary Napolitano also weighed in, claiming that “This whole opt-in, opt-out thing was a misunderstanding from the get-go ... and we have tried to correct that,” clarifying that local governments cannot decline to participate.<sup>13</sup>

Beginning in late 2012, a growing number of states and counties began resisting detainer requests, or setting conditions on their responses to federal requests. For example, Cook County, IL, passed an ordinance in 2011 seeking opt-out from SC. States like California, Connecticut, Illinois, Rhode Island, and also Washington, D.C., enacted legislation restricting cooperation with federal officials. See Chen (2016) and Villazor (2008) for an extensive discussion of these approaches.

These states, counties, and cities are collectively known as “sanctuary cities.” The term “sanctuary city” derives from the 1980s when faith groups offered services to Central American refugees denied asylum to the U.S. (Villazor 2008 and Paik 2017). In the 21st century context of deportation, a sanctuary city does not provide refuge to undocumented immigrants. Rather, it refers to specific policies that limit cooperation with federal immigration enforcement agents, which can vary widely.

Ultimately, SC was deactivated on November 20, 2014, in part due to resistance from the

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<sup>8</sup>See pg. 6 of Task Force on Secure Communities: Findings and Recommendations, <https://www.dhs.gov/xlibrary/assets/hsac-task-force-on-secure-communities-findings-and-recommendations-report.pdf>.

<sup>9</sup><https://www.dhs.gov/news/2010/08/10/secretary-napolitano-announces-secure-communities-deployment-all-southwest-border>.

<sup>10</sup>See MOA at [https://www.ice.gov/doclib/foia/secure\\_communities/securecommunitiesmoatemplate.pdf](https://www.ice.gov/doclib/foia/secure_communities/securecommunitiesmoatemplate.pdf).

<sup>11</sup><http://www.ncsl.org/research/immigration/secure-communities.aspx>.

<sup>12</sup>See pg. 7 of Task Force on Secure Communities: Findings and Recommendations, <https://www.dhs.gov/xlibrary/assets/hsac-task-force-on-secure-communities-findings-and-recommendations-report.pdf>.

<sup>13</sup>[https://www.huffingtonpost.com/2011/04/26/napolitano-defends-secure-communities\\_n\\_853860.html](https://www.huffingtonpost.com/2011/04/26/napolitano-defends-secure-communities_n_853860.html).

sanctuary cities. In a memorandum issuing the discontinuance of the program, Secretary Jeh Charles Johnson noted that SC had “attracted a great deal of criticism, is widely misunderstood, and is embroiled in litigation. Its very name has become a symbol for general hostility toward the enforcement of our immigration laws.”<sup>14</sup>

*Other Immigration Reform and Executive Actions During the Obama Administration:* As commentators have noted, Obama’s presidency exhibited very different immigration policies during his two terms. During his first term, interior removals increased dramatically under SC, but in his later term, he introduced progressive immigration reforms while decreasing the use of detainers and interior removals. Some have noted that his stance on SC may have reflected a political gamble that more aggressive enforcement in the interior might lead to a bi-partisan compromise on immigration reform.

Other than SC, one of the best known policies of the Obama Administration is the “Deferred Action for Immigrant Youth” (DACA) initiative, announced on June 15, 2012. Under DACA, DHS uses its discretion to defer deportation proceedings temporarily for qualified individuals who were brought to the United States illegally when they were children. The program also gives those who are approved work authorization, and relatedly Social Security numbers and driver’s licenses in some states. DACA was announced after Congress failed to pass the DREAM Act, which would have provided a path to citizenship for undocumented children. According to Obama, DACA was “a temporary stopgap measure that lets us focus our resources wisely while giving a degree of relief and hope to talented, driven, patriotic young people.” According to the U.S. Citizenship and Immigration Services, as of September 2017, there were 689,800 DACA recipients with the largest concentration of approved recipients from California and Texas. In September 2017, the Trump administration announced a “wind-down” of the DACA program.

Another piece of reform, which ultimately did not pass, was the 2013 “Border Security, Economic Opportunity, and Immigration Modernization Act,” also known as S.744. S.744 represented an extensive proposal for reforming the U.S. immigration system written by a bipartisan group of eight Senators known as the “Gang of Eight.” The bill was passed in the Senate but was not taken up by Congress and expired. The bill provided a comprehensive approach to providing a pathway to citizenship for non-citizen immigrants, updating the legal visa system, and increasing border enforcement by allocating funding for border security.

We note that both DACA and the Senate passage of S.744 may have affected perceptions of immigration enforcement, and thus deportation fear. However, since both DACA and S.744 were enacted at the federal level and affected the entirety of the United States once announced, our state-by-year fixed effects in our triple-differences specifications non-parametrically control for the effects of these other reforms.

## B. Safety Net Programs

*Designation of Public Charge:* The passage of the 1996 Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) limited immigrant eligibility for federal public assistance programs, such as the Supplemental Nutrition Assistance Program (SNAP). Prior to PRWORA, immigrants had similar eligibility to natives; after, immigrants who obtained legal status were barred from means-tested programs for five years or more.<sup>15</sup>

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<sup>14</sup><http://www.latimes.com/local/california/la-me-1121-immigration-justice-20141121-story.html>.

<sup>15</sup><https://www.nilc.org/wp-content/uploads/2015/12/overview-immeligfedprograms-2015-12-09.pdf>, <https://www.migrationpolicy.org/article/immigrants-and-welfare-use>.

As part of the 1996 welfare reform, states could deny entry for individuals trying to immigrate into the U.S. or not upgrade an individual's immigration status if the government deemed an individual as reliant on assistance programs, known as a "public charge." Specifically, the U.S. Customs and Immigration Services (USCIS) defines a public charge as an "individual who is likely to become primarily dependent on the government for subsistence, as demonstrated by either the receipt of public cash assistance for income maintenance, or institutionalization for long-term care at government expense."<sup>16</sup> In 1999, USCIS clarified that non-cash benefits (i.e., food stamps) do not apply to public charge determinations.<sup>17</sup>

Despite the fact that PRWORA did not affect eligibility for pre-enactment legal immigrants for Temporary Assistance for Needy Families (TANF) and Medicaid, several studies find reductions in immigrant take-up for these programs (see Fix and Passel 1999; Kandula et al. 2004). Thomas and Collette (2017) argue that immigrants reduced their take-up because they were confused regarding eligibility and immigrants may have been concerned about being labeled a "public charge," which can reduce the likelihood of obtaining legal permanent resident status (see also Johnson 1995). In contrast, Lofstrom and Bean (2002) and Haider et. al (2004) suggest that economic and labor market conditions were at least partly responsible for reductions in welfare use among immigrants following the passage of PRWORA (see also Kaestner and Kaushal 2005; Bitler and Hoynes 2013).

*Fraud in Public Programs:* If an individual is caught misusing SNAP benefits or lying on their application in order to receive benefits, states can invoke penalties ranging from disqualification from the program to a fine or jail time.<sup>18</sup> Many states promote specific ways to contact government departments in order to report suspected welfare fraud.<sup>19</sup> The Government Accountability Office (GAO) finds that 3.7 percent of SNAP benefits were improperly paid in 2014, down from 5.8 percent roughly a decade earlier.<sup>20</sup> SNAP fraud often occurs in the form of trafficking, whereby individuals or retailers sell food stamp benefits for cash. The United States Department of Agriculture (USDA) cites that unlawful possession of benefits via trafficking of \$100 or more is a felony; improperly possessing less than \$100 is a misdemeanor.<sup>21</sup> In 2012, the USDA barred 1,400 stores from future participation for program violations.

*Recertification of Benefits:* SNAP recipients must reapply for benefits after a specified length of time, depending on state rules. In California for instance, most households must recertify their application every year. Households with elderly or disabled individuals often have longer periods of eligibility before recertification.<sup>22</sup> To reapply, households must complete a new application before their certification period will end and must complete a new interview with a SNAP representative.

For Supplemental Security Income (SSI), the Social Security Administration (SSA) reviews income requirements every one to six years.<sup>23</sup> The SSA also reviews eligibility after a change that may affect income, for instance when an individual gets married. An individual can complete the recertification process by phone, mail, or in person, and must provide documents attesting to one's level of income, such as bank statements and tax returns. The SSA also conducts a continuing disability review (CDR) to determine whether an individual's disability still qualifies for

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<sup>16</sup><https://www.uscis.gov/news/fact-sheets/public-charge-fact-sheet>.

<sup>17</sup><https://www.uscis.gov/ilink/docView/FR/HTML/FR/0-0-0-1/0-0-0-54070/0-0-0-54088/0-0-0-55744.html>.

<sup>18</sup>For example in California: <http://www.cdss.ca.gov/cdssweb/entres/forms/English/SAWS2ASAR.pdf>.

<sup>19</sup><https://www.fns.usda.gov/report-nutrition-assistance-fraud-state>

<sup>20</sup><https://www.gao.gov/products/GAO-16-708T>

<sup>21</sup>For example in California: <http://www.cdss.ca.gov/cdssweb/entres/forms/English/SAWS2ASAR.pdf>.

<sup>22</sup><http://calfresh.guide/how-to-keep-getting-calfresh-benefits-certification-periods/>

<sup>23</sup><https://www.ssa.gov/ssi/text-redets-ussi.htm>.



SSI receipt.<sup>24</sup> A CDR typically occurs once every three years, unless the SSA has reason to believe a disability will or will not improve by that time, in which case a CDR can take place sooner or later, respectively.

### C. The Great Recession

*The Great Recession:* The Great Recession commenced in December 2007 and continued over the time period of our analysis with several important effects. The Great Recession likely increased eligibility for safety net programs since many households fell into poverty. Specifically, we note that white families' wealth fell 26.2 percent during the Great Recession, while the wealth of black families and Hispanic families fell by 47.6 and 44.3 percent, respectively (McKernan et al. 2014). To account for the differential effects of the Great Recession on poverty and thus safety net eligibility, we use data from the CPS to create race/ethnicity specific recession effects at the state level by calculating the percent change in employment from December 2007 to June 2009. All of our main results control for these race-specific state-level recession effects, such that our results on SC activation are likely not explained by differential trends due to the Great Recession. We also control for the county-level employment rate for each racial group over the time period. Finally, we control non-parametrically for race-by-year fixed effects to capture the differential effect of any yearly shocks that affect each racial group.

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<sup>24</sup><https://www.ssa.gov/ssi/text-cdrs-ussi.htm>

## Appendix D: Model

### A. Indirect Treatment Effects

Secure Communities represented a major shift in immigration enforcement policy. In this simple model, we formalize how SC may have influenced the choice behavior of Hispanic citizens. Our starting point is Moffitt's (1983) seminal model of non-participation in social programs. We adopt his cost-benefit approach to participation, and incorporate indirect treatment effects by allowing the utility of the household head to depend on the well-being of others in his family. We allow participation decisions to depend on the citizenship status of the head of household given a large literature that finds that decisions within a multiple-person household cannot be assumed to be stable and transitive (Browning, Chiappori, and Lechene 2006). In our main model, the head of household is a citizen to capture indirect treatment effects.

Specifically, let household  $j$  with head of household  $i$  be comprised of a set of citizen members  $C$  and non-citizen members  $N$  where  $C + N = T$ . Let the expected utility of head  $i$  in household  $j$  in location  $l$  be given by:

$$EU_{ijl} = \lambda_i \cdot (Y_j + p_{ijl} \mathbb{1}_{i \in C} \cdot (B_i)) + \lambda_c \cdot (Y_j + p_{ijl} B_{j,-i}) + \lambda_n \cdot (Y_j - \pi_{jl}(p_{ijl})) \quad (1)$$

where  $Y_j$  is household income (split among all  $T$  members, citizen or non-citizen),  $p_{ijl}$  is the decision to participate (made by the head of household  $i$ ),<sup>25</sup>  $B_i$  is the per capita benefit to  $i$  from participation if  $i$  is a citizen, and  $B_{j,-i}$  is the total benefit to other citizen members of the household. For simplicity, we only allow citizen members of the household to receive the benefit as it is unlawful for unauthorized individuals to utilize the safety net programs in our study.<sup>26</sup>  $\pi_{jl}$  is the subjective probability of deportation (i.e. fear) and is an increasing function of program participation,  $p_{ijl}$ .

In this utility function,  $\lambda_i$ ,  $\lambda_c$ , and  $\lambda_n$  represent welfare weights that head  $i$  gives to his own utility, the utility of other citizen members, and the utility of non-citizen members of the household, where  $\lambda_i + \lambda_c + \lambda_n = 1$ . Equation 1 nests both direct and indirect treatment effects.

If head of household  $i$  is a citizen ( $i \in C$ ), the above expected utility function can be re-expressed as:

$$EU_{ijl} = Y_j + (\lambda_i + \lambda_c) \cdot (p_{ijl} B_j) - \lambda_n \cdot \pi_{jl}(p_{ijl}) = Y_j + \lambda_C \cdot (p_{ijl} B_j) - \lambda_n \cdot \pi_{jl}(p_{ijl}) \quad (2)$$

The model captures the spillover effect of deportation fear because the probability of deportation for an authorized head of household  $i$  is equal to zero. Deportation fear affects the participation decision of head  $i$  if  $\lambda_n > 0$ . Note that, by choosing not to participate, head  $i$  forgoes a private benefit  $\lambda_i B_j$ .

At the optimal choice of participation, and assuming participation is continuous, the beneficiary benefit weighted by the welfare importance of citizen household members (marginal benefit) must equal the deportation cost induced by participation weighted by the welfare importance of non-citizen members (marginal cost):

$$\frac{\partial \pi_{jl}}{\partial p_{ijl}} \cdot \lambda_n = B_j \cdot \lambda_C$$

If  $\pi''_{jl}(p_{ijl}) > 0$ , it is straightforward to show that  $\frac{\partial p}{\partial \lambda_n} < 0$  and  $\frac{\partial p}{\partial \lambda_C} > 0$ .<sup>27</sup> Intuitively, participation

<sup>25</sup>If the household is mixed-status, then whomever has citizenship likely has the higher utility threat point and will be the decision-maker.

<sup>26</sup>We abstract away from the fact that some legal permanent residents are eligible for safety net programs. An alternative model that allows all members of the household to share in  $B$  generates similar predictions.

<sup>27</sup>Specifically,  $\frac{\partial p}{\partial \lambda_n} = -\frac{\pi'_{jl}(p_{ijl})}{\lambda_n \cdot \pi''_{jl}(p_{ijl})} < 0$  and  $\frac{\partial p}{\partial \lambda_C} = \frac{B_j}{\lambda_n \cdot \pi''_{jl}(p_{ijl})} > 0$ .

increases with the welfare importance of citizen household members, but decreases with the welfare importance of non-citizen members.

In reality, participation is a binary choice. To incorporate deportation fear, we let the change in the subjective probability that a non-citizen will be deported if the household participates in a program relative to no participation be:

$$\Delta\pi_{jl} = \beta \cdot D_l + \epsilon_{jl}$$

where  $D_l$  is the intensity of location-specific immigration enforcement and  $\epsilon_{jl}$  is an error term that is distributed  $\epsilon \sim F(\cdot)$ . Thus, household  $j$  will participate in the federal safety net program if and only if:

$$Y_j + (\lambda_i + \lambda_c) \cdot (B_j) - \lambda_n \cdot \pi_{jl}(1) > Y_j - \lambda_n \cdot \pi_{jl}(0)$$

Let  $\frac{(\lambda_i + \lambda_c) \cdot (B_j)}{\lambda_n} = \gamma_j$ , where  $\gamma \sim G(\cdot)$ . Within each location  $l$ , let the average  $\gamma_j$  be equal to  $\bar{\gamma}_l$ . Then, aggregating over households  $j$  in a given location  $l$ , the share not participating is given by:

$$s_l = 1 - F(\bar{\gamma}_l - \beta \cdot D_l)$$

The non-participation share,  $s_l$ , is decreasing in the size of the program benefit ( $B_j$ ) and in the weights ascribed to citizen members including the head himself ( $\lambda_c$  and  $\lambda_i$ ). In contrast, the non-participation share is increasing in the weight assigned to non-citizens ( $\lambda_n$ ), and increasing in the intensity of local immigration enforcement ( $D_l$ ). Our model predicts that, holding all else constant, as immigration enforcement intensifies in an area, citizen heads of households may reduce their take-up of public programs, particularly those with close connections to non-citizens in their networks. Appendix Figure D1 graphically illustrates how the non-participation share is affected by immigration enforcement and connections to non-citizens.

In our main model, the head of household is a citizen individual.<sup>28</sup> We now consider an extension of that model where we let the head be a non-citizen individual. This alternative model captures the direct treatment effect of immigration enforcement as measured in papers like Watson (2014) and Vargas and Pirog (2016).

## B. Direct Treatment Effects

Recall from our main model that household  $j$  with head of household  $i$  is comprised of a set of citizen members  $C$  and non-citizen members  $N$  where  $C + N = T$ . Let the expected utility of head  $i$  in household  $j$  in location  $l$  be given by:

$$EU_{ijl} = \lambda_i \cdot (Y_j + p_{ijl} \mathbb{1}_{i \in C} \cdot (B_i)) + \lambda_c \cdot (Y_j + p_{ijl} B_{j,-i}) + \lambda_n \cdot (Y_j - \pi_{jl}(p_{ijl}))$$

where  $Y_j$  is household income (split among all  $T$  members, citizen or non-citizen),  $p_{ijl}$  is the decision to participate (made by the head of household  $i$ ),  $B_i$  is the per capita benefit to  $i$  from participation if  $i$  is a citizen, and  $B_{j,-i}$  is the total benefit to other citizen members of the household.  $\pi_{jl}$  is the subjective probability of deportation (i.e. fear) and is an increasing function of program participation,  $p_{ijl}$ . Recall that  $\lambda_i$ ,  $\lambda_c$ , and  $\lambda_n$  represent welfare weights that head  $i$  gives to his

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<sup>28</sup>If instead we modeled the decision to participate as the outcome of Nash bargaining (McElroy 1990), enforcement could be characterized as increasing the threat point of the citizen spouse (i.e. since he/she does not have to engage in costly concealment of a non-citizen partner). Such bargaining could lead to relative increases in the demand for welfare benefits intended for the citizens only.

own utility, and the utility of other citizen and non-citizen household members, respectively, where  $\lambda_i + \lambda_c + \lambda_n = 1$ .

Now, let head of household  $i$  be a non-citizen such that  $\mathbb{1}_{i \notin C}$ . Under our model, a non-citizen head can sign up for benefits for other citizen members of the household but is not eligible himself. We can rewrite the expected utility function as:

$$EU_{ijl} = Y_j + \lambda_c \cdot (p_{ijl} B_j) - (\lambda_i + \lambda_n) \cdot \pi_{jl}(p_{ijl})$$

In this framework, immigration enforcement affects the household participation decision because the head incurs a direct private cost of deportation, capturing a direct treatment effect. Note that unlike the main model, the non-citizen head does not forgo a private benefit by choosing not to participate.

In this version of the model, household  $j$  will participate if and only if:

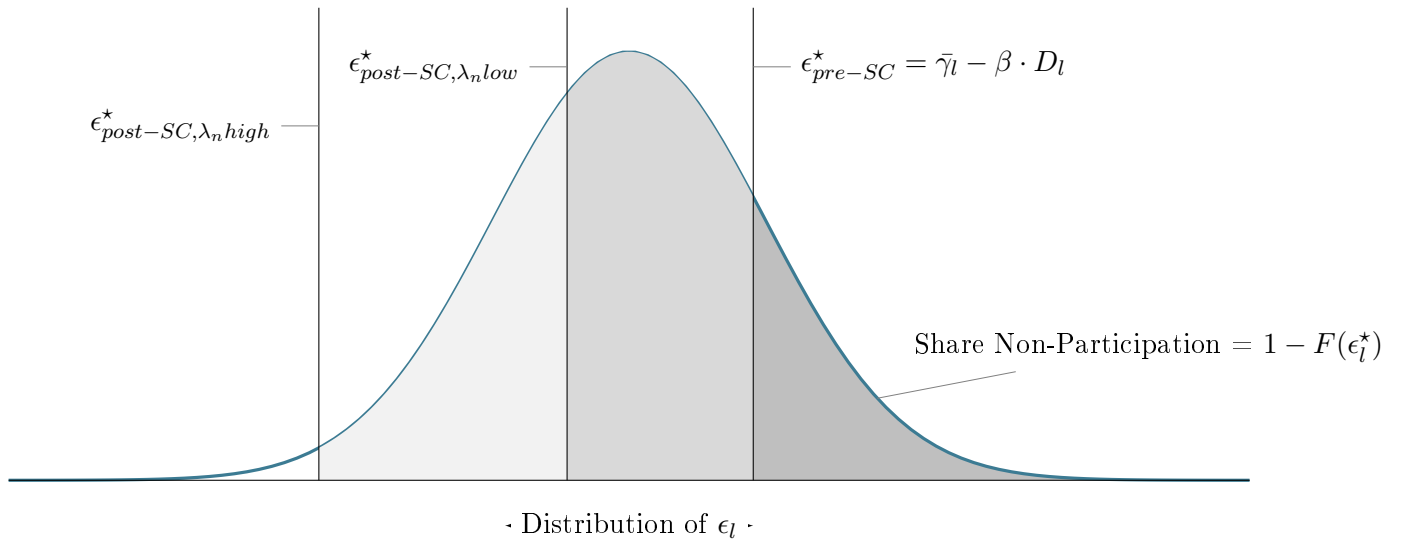
$$Y_j + \lambda_c \cdot (B_j) - (\lambda_i + \lambda_n) \cdot \pi_{jl}(1) > Y_j - (\lambda_i + \lambda_n) \cdot \pi_{jl}(0)$$

where the participation threshold is  $\frac{\lambda_c \cdot (B_j)}{\lambda_i + \lambda_n} = \kappa_j$ . Let  $\kappa \sim G(\cdot)$  such that within each location  $l$ , the average  $\kappa_j$  be equal to  $\bar{\kappa}_l$ . Then, aggregating over households  $j$  in a given location  $l$ , the share not participating is given by:

$$s_l = 1 - F(\bar{\kappa}_l - \beta \cdot D_l)$$

This non-participation share,  $s_l$ , is decreasing in the size of the program benefit ( $B_j$ ), increasing in the utility weight given to non-citizen individuals ( $\lambda_n$ ), and increasing in the local intensity of immigration enforcement ( $D_l$ ). Unlike the main model, however, the non-participation share is *increasing* (versus decreasing) in the utility weight given to the head himself ( $\lambda_i$ ) because participation imposes a private cost on the household head.

Appendix Figure D1



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