

# Unintended Consequences of Immigration Enforcement: Personal Services and High-Skilled Women's Work

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## Abstract

We examine the spillover effects of immigration enforcement policies on the labor supply of high-skilled citizen women. Immigrants disproportionately work in personal services; therefore, enforcement may increase the cost of outsourcing household production. Exploiting the staggered rollout of Secure Communities (SC), a national enforcement policy that led to over 450,000 deportations, we estimate a difference-in-differences model with time and location fixed effects. We find that SC reduced the labor supply of college-educated citizen women, particularly women with young children. Moreover, SC increased wages in the personal services sector, suggesting that increased costs of outsourcing household production is an important mechanism.

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# 1 Introduction

Roughly 11 million undocumented immigrants lived in the U.S. in 2015, making up 3.4% of the U.S. population (Krogstad, Passel and Cohn, 2017). Over the last 15 years, comprehensive federal immigration reform has continually stalled in Congress, and a patchwork of policies have been put in place at the local, state, and federal level to address the issue of undocumented immigration. One type of policy that has increased significantly over this time period is interior immigration enforcement, which has in part led to the dramatic rise in immigrant detentions and deportations—for example, in 2003 only about 5,000 immigrants were detained annually, whereas by 2014, roughly 160,000 were detained each year.<sup>2</sup> Although an extensive literature has studied the impact of migratory flows on labor outcomes, the evidence on the effects of *enforcement policies* on citizens' wages and employment is much more limited.<sup>3</sup>

In this paper we focus on the potential unintended consequences of enforcement laws on the labor supply of high-skilled citizen women. While undocumented immigrants represent 5% of the total workforce in the U.S., they make up 24% of maids and housekeepers, 22% of workers in private households, and 7% of workers in personal and laundry services (Passel and Cohn, 2016). Thus, the presence of undocumented immigrants may reduce the cost of personal services (Cortes, 2008), and the removal of undocumented immigrants, who disproportionately work in these services, is predicted to increase the cost of these services. High-skilled workers are expected to be the most affected, since they spend a larger fraction

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<sup>2</sup>Information from the Transactional Records Access Clearinghouse (TRAC) available at: <https://trac.syr.edu/phptools/immigration/detainhistory/>. This has far outpaced the growth in the estimated number of undocumented immigrants living in the U.S. in this time period: from roughly 9 million in 2003 to 11 million in 2014 (Krogstad, Passel and Cohn, 2018).

<sup>3</sup>Many studies on the effect of migration inflows on native wages and employment exist. For excellent reviews of the literature see Friedberg and Hunt (1995), Longhi, Nijkamp and Poot (2005), and Longhi, Nijkamp and Poot (2006). Previous studies on the labor market impacts of recent immigration enforcement policies in the U.S. have mostly focused on the direct effects on the migrant population. See Phillips and Massey (1999), Bansak and Raphael (2001), Orrenius and Zavodny (2009), Amuedo-Dorantes and Bansak (2014), and Orrenius and Zavodny (2015).

of their income on outsourcing household work.<sup>4</sup> Additionally, among high-skilled workers, women may be particularly affected by changes in the cost of household work, as they spend more time on these household tasks, and have a more elastic labor supply, when compared to men (Blau and Kahn, 2007; Pew Research Center, 2013).<sup>5</sup>

To test this hypothesis empirically, we focus on the roll-out of Secure Communities (SC)—a large, federal enforcement program. SC requires the fingerprints of all individuals booked in jail to be sent to U.S. Immigration and Customs Enforcement (ICE). We expect SC to affect the labor supply of low-skilled immigrant workers through two main channels. First, SC affected the availability of low-skilled labor through direct removals. SC is credited with more than 450,000 deportations over our sample period of 2005-2014. Of those deported in this time period, 17% were not convicted of a crime, and 29% were not convicted of a serious crime, so a broad population may have been directly affected by these policies.<sup>6</sup> Second, partially because of this broad nature of the deportations, fear and mistrust of local law enforcement and government more broadly may have created a “chilling effect” among immigrants who stayed in the U.S., causing immigrants to reduce their labor supply. Empirical evidence supports the idea of a chilling effect: Alsan and Yang (2018) find that SC reduced Hispanic *citizens’* participation in safety net programs, and Wang and Kaushal (2018) find that enforcement caused a worsening of self-reported mental health among Latino immigrants. As the previous literature has documented, Hispanic and Latino immigrants—both undocumented *and* documented—may be particularly affected by these policies because of their overrepresentation in those deported under SC: in 2005, 77%

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<sup>4</sup>On average, college-educated households spend 30% more on household services compared to less-educated households in the Consumer Expenditure Survey: <https://www.bls.gov/cex/tables.htm#annual>.

<sup>5</sup>Table (1) shows statistics from the American Time Use Survey, for the period between 2005 and 2014. On average, high-skilled citizen women spent 45% more time on household activities and 50% more time on child care relative to high-skilled citizen men.

<sup>6</sup>Appendix Table (A1) shows the information about individuals who were deported under SC discussed here. Of those deported, 17% had a traffic violation or DUI as their most serious criminal conviction. Amuedo-Dorantes, Puttitanun and Martinez-Donate (2018) also find that broad enforcement policies, like SC, led to increased detainment for minor violations.

of all undocumented immigrants were estimated to come from Latin American countries, but 95% of the deportations through SC were among immigrants from this region. This may be due to racial profiling—advocacy groups have alleged that SC provided a way for law enforcement to use minor violations to target the Hispanic population (Kohli, Markowitz and Chavez, 2011).

While SC was not optional, it was rolled out in a staggered fashion across localities. Our empirical specification exploits both the temporal and geographic variation in the roll-out of SC to examine the effects on high-skilled (college-educated) female labor supply. To conduct our analysis, we gathered data on the timing and location of the implementation of SC and merged these data to the American Community Survey (ACS) from 2005-2014, which allows us to measure the effect of SC on the labor supply of high-skilled women. The smallest consistent and comprehensive geographic area available in the ACS is the Public Use Microdata Area (PUMA), so we create measures of the presence of SC by PUMA and year (described in more detail in Section 2). This allows us to estimate a difference-in-differences model, while controlling for PUMA and survey year fixed effects. For our empirical strategy, our focus on SC has several advantages: first, local areas had little influence over the timing of adoption of SC, and, once it was in place, they had limited discretion in the operation of the program;<sup>7</sup> second, because the program was rolled out quickly and eventually covered the entire country, internal migration of citizens is less likely to contaminate the results (Borjas, 2003; Borjas and Katz, 2007; Cadena and Kovak, 2016).<sup>8</sup>

For our main sample—working-age (20-64) college-educated citizen women—we find evidence that the roll-out of SC reduced labor supply. These effects are particularly large and

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<sup>7</sup>After the activation of SC, some jurisdictions known as “sanctuary cities” started refusing to cooperate with ICE detainer requests by claiming that the policy was unconstitutional under the Fourth Amendment. Since there is not a single definition of sanctuary cities, we do not focus on this level of heterogeneity in our empirical estimation and instead use alternative proxies for intensity of treatment described below.

<sup>8</sup>East et al. (2018) show that SC did not have a significant effect on overall migration rates, as well as migration rates of citizens during the same sample period. Moreover, we find no significant effects of SC on migration rates of high-skilled citizen mothers (results available upon request).

robust for mothers, which is consistent with the fact that mothers will have more household production responsibilities, and thus be more sensitive to changes in the price of outsourcing this production. Among mothers, the effects seem to be driven by women with children under 6 (before children are likely to enter school); mothers of young children experience a reduction in the likelihood of working by 0.8% and in hours worked by 1.2%. To give context to the magnitude of these effects, our point estimates are about 5% of the effect of having a child for women born in the U.S. (Kuziemko et al., 2018).<sup>9</sup> We investigate the extent to which having SC in place in the years following a child’s birth affects women’s longer-run outcomes. We find suggestive evidence that, similar to the persistent reduction in labor supply after having a child, exposure to SC around a birth negatively impacts the labor supply of college-educated women for several years after the birth.

We conduct a number of tests to verify that changes in the price of market-provided household services are an important mechanism. To do this, we directly examine employment and wage outcomes in the personal services sector. First, we document that SC had a negative effect on the working hours of low-skilled non-citizen Hispanic females. Second, we examine the effect of SC on the cost of outsourcing household production, as proxied for by wages of personal service workers. Consistent with the previous result, we find a significant positive effect on female personal service workers’ wages, particularly at the lower end of the wage distribution, where undocumented immigrants are most likely to be. We find little evidence of similar changes for men, either for non-citizen employment or for overall male wages, which is expected given that women constitute 73% of the total employment in personal services, and, among low-skilled non-citizens, this number is even higher: 78% in the ACS in 2005. Interestingly, 97% of deportees under SC are men, so the negative effect on women’s labor supply adds to existing evidence that SC led to meaningful chilling

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<sup>9</sup>Kuziemko et al. (2018) estimates that having a child decreases labor force participation by 36 percentage points for a sample of college-educated women in the NLSW68 (average birth cohort of 1951), 20 percentage points for women in the NLSY79 (average birth cohort of 1962), and 13 percentage points for women in the PSID (average birth cohort of 1967).

effects on immigrant populations not directly affected by the policy. To further investigate chilling effects, we hypothesize these effects should be stronger when a broader swath of the immigrant population is affected by SC, and we use the proportion of SC deportations related to non-violent crimes as a proxy for this. We find suggestive evidence supporting this hypothesis. The effects on high-skilled citizen mothers are larger, although imprecisely estimated, in places with more deportations related to non-violent crimes. Third, we estimate the effects of SC on two groups of the population whose labor supply should not be as responsive to changes in the prices of household services: high-skilled men, and high-skilled women with no children. In both cases we find no significant effects of exposure to SC on their labor supply. And, finally, we find that the effects are larger for women who live outside of their state of birth and are thus more likely to rely on market-provided household production, rather than informal sources, like grandparents. Taken together, this provides strong evidence that changes in the price of outsourcing home production is an important mechanism behind the labor supply effects on citizen mothers. If we assume that all of the change in mothers' labor supply is operating through this change in price, our estimates imply an elasticity of high-skilled mother's work to this price of -0.15.

This paper builds on previous work documenting a positive relationship between the presence of low-skilled immigrants and high-skilled women's labor supply in the United States (Furtado and Hock, 2010; Cortes and Tessada, 2011; Amuedo-Dorantes and Sevilla, 2014; Furtado, 2015, 2016), Italy (Barone and Mocetti, 2011; Peri, Romiti and Rossi, 2015), Hong Kong (Cortes and Pan, 2013), and Spain (Farré, González and Ortega, 2011).<sup>10</sup> Our paper makes several contributions to this literature. First, while the literature has focused on studying the effect of migratory inflows on the outcomes of interest, we focus on evaluating the effects of recent enforcement policy in the U.S. that led to the removal of immigrants.

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<sup>10</sup>These papers primarily rely on cross-sectional variation in the concentration of immigrants across locations. With the exception of Cortes and Pan (2013), all these papers use an instrumental variables strategy in the spirit of Card (2001), which takes advantage of cross-sectional variation in historical immigration settlement patterns to predict future patterns.

President Trump recently reinstated SC and expanded other interior enforcement policies (Alvarez, 2017; Sakuma, 2017)<sup>11</sup>, so, understanding the spillover effects of enforcement policies is crucially important for policy-makers as they actively change immigration policy. Moreover, a priori, an increase in new immigrant arrivals may not have a symmetric effect to increasing deportations, because the characteristics of immigrants affected by deportations are different: e.g. roughly 40% of undocumented immigrants in 2005 had lived in the U.S. for at least 10 years (Krogstad, Passel and Cohn, 2018).

The second contribution is methodological: we use local enforcement policies as an exogenous driver of immigrants' labor supply, which relies on relatively innocuous and easily testable assumptions. Our identification strategy relies on the assumption that, conditional on observables, there are not time-varying differences within PUMAs that are correlated with the timing of the adoption of SC. We conduct a number of tests to provide evidence that the results are driven by the implementation of enforcement policies. First, we account for differential trends across locations based on pre-existing demographic characteristics, and the results are robust to the inclusion of these controls. Second, we show event studies to test the parallel trend assumption and provide evidence that there were no systematic differences across PUMAs before SC was put into place in either high-skilled mother's labor supply or the wages of female personal service workers.

We also contribute to the literature on the potential spillover effects of enforcement policy. The only existing evidence of these spillover effects on labor outcomes is East et al. (2018), who find a negative effect of SC on employment of low-skilled male immigrants, as well as a negative effect on the employment of male *citizens* in high-skilled occupations. These effects on citizens are driven those working in sectors with a higher share of low-skilled immigrant workers, which suggests that there may be complementarities in production between workers in low and high-skilled occupations that cause negative spillover effects onto

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<sup>11</sup>SC was replaced by the Priority Enforcement Program in 2015, and it was reactivated in January 2017.

citizen males. In this paper, we find evidence of another important pathway through which SC affects the labor market outcomes of citizens, explained by another type of complementarity: between low-skilled female immigrants working in personal services and high-skilled citizen mothers working outside the home. Moreover, the negative effects on the labor supply of female immigrant workers we document here, highlights that the effects of SC operate not only through direct deportations, but also through chilling effects. Both of these mechanisms should be considered when designing immigration enforcement policies aimed to impact only the undocumented immigrant population.

The rest of the paper proceeds as follows: in the next section we provide details about SC and the data we use. Section 3 describes our empirical strategy and section 4 presents our results. Section 5 concludes.

## 2 Policy Background and Data

We examine the effects of the Secure Communities Program (SC), which is one of the largest interior immigration enforcement programs in the United States.<sup>12</sup> SC increased information sharing between local law enforcement agencies and U.S. Immigration and Customs Enforcement (ICE). The goal of SC was to identify individuals eligible for removal from the U.S. Prior to SC, individuals' fingerprints would be taken upon being booked in state prisons or local jails and would be sent to the Federal Bureau of Investigation (FBI) to conduct a criminal background investigation. Under SC, these fingerprints would now also be sent to ICE, who would try to determine an individual's immigration status using their Automated Biometric Identification System (IDENT).<sup>13</sup> Based on this information, a detainer may be

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<sup>12</sup>For comprehensive reviews of SC see Alsan and Yang (2018), Cox and Miles (2013), and Miles and Cox (2014). The information in this section comes primarily from these reviews, and is similar to that discussed in East et al. (2018).

<sup>13</sup>IDENT includes biometric and biographical information on non-U.S. citizens who have violated immigration law, or are lawfully present in the U.S., but have been convicted of a crime and are therefore subject to removal, as well as naturalized citizens whose fingerprints were previously included in the database. In

issued, and the law enforcement agency would then be required to hold the individual for up to 48 hours in order for ICE to obtain custody and start the deportation process. Importantly, detainers could be issued for criminal reasons or for immigration-crime-related reasons, and they did not have to be proceeded by a conviction.

Implementation of SC required establishing a partnership between local law enforcement and local ICE officers, which took time and resources, and this led to the staggered nature of the program roll-out over 2008-2013 that we exploit in our empirical approach. SC ended in December 2014 (before being reinstated in 2017) so we focus on the period 2005-2014 for our main analysis and our results should be thought of as the effect of *increasing* immigration enforcement. Figure (1) shows the pattern of the rollout across counties. The timing of county adoption was determined by the federal government. This is important for the assumptions underlying our empirical model, since local areas had little discretion in the implementation. Previous evidence shows that early adopters were selected based on the size of their Hispanic population, proximity to the U.S.-Mexico border, and presence of other local enforcement policies.<sup>14</sup> The timing of implementation among later adopters was more random (Cox and Miles, 2013), because the government shifted to mass activations which led to waiting lists. Importantly, there is no evidence of a relationship between the timing of SC adoption and the county's economic performance, crime rates and potential political support for SC. Our empirical specification described below includes PUMA fixed effects to control for time-invariant unobserved heterogeneity at the PUMA level including pre-SC characteristics such as proximity to the border. In addition, in section (5), we show that the results are not explained by early-adopter PUMAs.

We also directly test whether the timing of the rollout is correlated with pre-SC trends

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addition, the IDENT system includes biometric information on all travelers who enter or leave the U.S. through an official port, and when applying for visas at U.S. consulates.

<sup>14</sup>These other local enforcement policies are 287(g) Agreements, which were similar in design to SC but were an optional policy that local areas and states could choose to adopt. We discuss this policy in more detail in the Appendix.

in demographics and economic conditions at the PUMA level. The results of this exercise are shown in Appendix Table (A2). The only variables that are statistically significantly related to the rollout timing are the change in the percentage of non-citizens and the change in housing prices. However, these relationships are small in magnitude—the results imply that a one standard deviation increase in the percentage of non-citizens reduces the timing of adoption by about 0.1, or roughly one month, and similarly, a one standard deviation increase in housing prices reduces the timing of adoption by 0.2 or 2.5 months. Moreover, the R-squared on this model is very low (0.06) suggesting that observable characteristics do not do well in predicting the timing of the rollout.

We hypothesize that SC will reduce high-skilled women’s labor supply through increases in the cost of services that substitute for household production—such as childcare, cleaning, cooking, and gardening (Cortes and Tessada, 2011). This price increase will be caused by a reduction in the labor supply of immigrants through two potential channels: 1) forced or voluntary out-migration of immigrants, and 2) reductions in immigrants’ labor supply among those that remain in the U.S. due to fear (chilling effects). Descriptive statistics of those deported in Appendix Table (A1) support the idea that chilling effects may have existed due to the broad nature of the population affected, as well as the over-representation of immigrants from Latin American countries.<sup>15</sup> Anecdotal evidence further suggests that SC disrupted the social and economic relationships of both citizens and non-citizens living in immigrant communities (Amuedo-Dorantes, Puttitanun and Martinez-Donate, 2018). For example, interviews of roughly 2,000 Latinos living in Cook (Chicago), Harris (Houston), Los Angeles, and Maricopa (Phoenix) counties found that 78% of undocumented immigrants think police officers stop Latin immigrants without any reasonable cause, 61% are afraid of leaving their own home, and 62% feel more isolated because local law enforcement is involved with immigration enforcement (Theodore, 2013). And, as discussed above, the quantitative evidence also indicates there are spillover effects onto documented immigrants (Alsan and

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<sup>15</sup>The TRAC data used in this table described in the Appendix.

Yang, 2018).

In thinking about mechanisms, it is also important to note that 97% of those deported were men, so men will be the ones directly affected through deportation, and effects on immigrant women will operate through chilling effects. This is particularly important since the vast majority of low-skilled non-citizens who work in personal services are women. Therefore, we expect the main mechanism through which SC affects the price of personal services, is through changes in the labor supply of immigrants who remain in the U.S.<sup>16</sup> Previous evidence has shown immigrant women who stay in the U.S. might be particularly affected by immigration enforcement policies: Rhodes et al. (2015) find that after the implementation of 287(g) agreements in North Carolina, Hispanic and Latina mothers used pre-natal care later in their pregnancy because of fear and mistrust related to using health services. Additionally, women reported being scared of being targeted while driving, so they would avoid driving to the healthcare facilities and abstain from leaving their home to socialize with friends and relatives. The fear of family separation might also particularly affect women. Between 2004 and 2015, placements of Hispanic minors in foster care increased by 845 percent, while non-Hispanic placement of minors *decreased* by 66 percent over the same period (Amuedo-Dorantes and Arenas-Arroyo, 2018).

Information on the date of implementation of SC in each county comes from ICE and we merge this with data on local-level high-skilled citizen women’s labor supply over the period 2005-2014 from the ACS (Ruggles et al., 2017). The ACS is a repeated cross-sectional dataset covering a 1% random sample of the U.S., and in the publicly available data set, the smallest geographic area available is the PUMA. The advantage of using PUMAs as the level of analysis is that it allows us to cover the entire U.S. and is a consistent measure of geography

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<sup>16</sup>Estimates suggest that in 2012, 53% of the undocumented population was male (Baker and Rytina, 2013) and 90% of the incarcerated population in 2001 was male (Bonczar, 2003). For women whose spouses were deported, the effect on labor supply may actually be positive if they enter the labor force to make up for the lost family income (Chaudry et al., 2010). We measure how many low-skilled non-citizen women who work in personal services report a spouse absent (a proxy for spouse deported) and only about 3% do, so this effect would likely have a small influence over the total effect on women.

over time. The disadvantage is that it does not perfectly map onto the level of policy variation (county-level). In particular, some PUMAs are equivalent to counties, whereas others include several counties, and still others are smaller than individual counties. To merge the county-level policy data with the PUMA-level ACS data, we calculate the population-weighted average of the county values of the enforcement variables within each PUMA, similar to the approach taken by Watson (2013).<sup>17</sup> Another potential disadvantage is that the PUMA may not perfectly measure a local labor market. An alternative approach would be to convert PUMAs into commuting zones, however this concordance requires assumptions about where in the PUMA each observation is located, which may lead to measurement error, so we do not do this concordance here. Additionally, we have no information about the month of survey within the ACS, only the year of survey, so we assign to each observation the enforcement policies in January of the survey year and test the robustness of this choice.

Our main sample includes women ages 20-64 with a four-year college degree or more, which we refer to as “high-skilled”. We further restrict the sample to include only citizens: all U.S.-born, and foreign-born who report being naturalized citizens. As women with children may have more demands on household production, we also explore the results on women with children living at home, and women with children younger than age 6 at home. The primary outcome variables in the ACS are high-skilled citizen women’s usual hours worked per week in the past year (including 0 hours) and whether the woman worked *any* positive hours usually in the past year.

To provide direct evidence that the cost of personal services is an important mechanism, we also look at employment and wages for workers in personal services. We construct a sample of individuals ages 20-64 who report that either their industry or occupation at their

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<sup>17</sup>If a PUMA is equivalent to a county, or smaller than a county, the PUMA will get the value of the enforcement variables for that county. If multiple counties are contained within a PUMA, we weight the value of the enforcement variable for each county by the fraction of the total PUMA population that each county represents. Additionally, the PUMA codes were revised after the 2011 ACS survey, so we use the time-consistent version of the PUMA codes provided by IPUMS.

current or most recent job was personal services (described in more detail below). We look at the same measures of labor supply as for the main sample but restricted to a sample of likely undocumented immigrants in personal services, as well as the average wage of all personal service workers. The ACS does not have information about undocumented status, so we define likely undocumented workers as non-citizens with at most a high school diploma. We also test the robustness of the results to alternative definitions of likely undocumented.

Since our sample period spans the Great Recession, to account for changes in economic conditions that may influence women’s labor supply, we add to the data several “Bartik-style” measures of labor demand, as well as housing price values. During this period another local interior enforcement policy—287(g) Agreements—was changing across locations, so we control for the presence of local 287(g) agreements.<sup>18</sup> Details on these variables are included in the Appendix.

Summary statistics for the ACS are in Table (1). We use the survey-provided person weights in all summary statistics and regressions. We have over 2.5 million observations of high-skilled women for the period between 2005 and 2014. We multiply the dichotomous labor supply outcome variable by 100 to ease presentation of the results. So, for example, 85.49% of high-skilled women worked at all in the past year, and this decreases to 78.98% for women with young children. At the bottom of this table we also show descriptive statistics taken from the American Time Use Survey (ATUS), for a sample of citizens aged 20-64 with a college degree or more, for two measures of time use related to household production: 1) time spent caring for household children (e.g. feeding them, socializing with them and time spent on activities related to their education) and 2) time on household activities (e.g. time spent on maintaining the respondent’s household, like housework, cooking, and home maintenance). These statistics reinforce the idea that women, and especially mothers, spend

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<sup>18</sup>Two papers examine the labor market effects of 287(g) agreements and find evidence of reduced employment in local areas after implementing these policies (Bohn and Santillano, 2017; Pham and Van, 2010). However, these papers do not separate these effects by citizenship status or gender.

more time on average in these types of activities relative to men.

### 3 Empirical Strategy

Our identification strategy exploits both the geographic and temporal variation in the implementation of SC to identify its effect on labor market outcomes of high-skilled citizen women. Our main analysis examining the effect of SC on high-skilled women’s contemporaneous labor supply is estimated with the following model:

$$Y_{ipt} = \alpha + \beta SC_{pt} + X'_{ipt}\delta + Z'_{pt}\gamma + \mu_p + \phi_t + \theta \Delta W'_p * t + \epsilon_{ipt} \quad (1)$$

Where  $Y_{ipt}$  represents different measures of labor outcomes for a woman  $i$ , living in PUMA  $p$  and observed in year  $t$ .  $SC_{pt}$  is a continuous variable measuring exposure to SC at the PUMA level, and takes values between 0 and 1.  $SC_{pt}$  is equal to zero if SC has not been implemented by January of the survey year in any of the counties in PUMA  $p$ , and a value of one once it has been implemented in all counties in the PUMA by January of the survey year. Since we focus on the roll-out period of SC, once  $SC_{pt}$  takes a value equal to one, it keeps that value for the remainder of the sample period. The coefficient of interest,  $\beta$  should be interpreted as the effect of SC when the entire population in a PUMA is exposed to SC by the beginning of the survey year.

We include fixed effects at the PUMA level,  $\mu_p$ , that account for any time-invariant unobserved heterogeneity at the PUMA level. Our initial specification also includes year fixed effects ( $\phi_t$ ) to account for national shocks to labor outcomes over time. In order for the difference-in-differences model to be valid there should not be time-varying differences within PUMAs that are correlated with the timing of the adoption of SC in those PUMAs. Thus, we subsequently add in controls at the PUMA-year level to test this assumption. These controls ( $Z'_{pt}$ ) include Bartik-style measures of labor demand, housing price values, and 287(g)

programs. Following Hoynes and Schanzenbach (2009) and Almond, Hoynes and Schanzenbach (2011), in order to control for pre-trends, we interact changes in PUMA characteristics between 2000 and 2005 (vector  $\Delta W'_p$ ) with linear time trends.<sup>19</sup> Finally, we include individual level controls in  $X'_{ipt}$ : age and age squared, race, marital status, educational attainment, number of children and number of young children in the household.<sup>20</sup>

## 4 Results

We begin our analysis in Table (2) by showing the effects of SC on the labor supply of all high-skilled citizen women (columns (1)-(2)), as well as women with children (columns (3)-(4)), and women with young children (columns (5)-(6)). Focusing first on Panel A, this model includes only PUMA and year fixed effects and the results indicate reductions in high-skilled citizen women’s work that is larger for mothers. Recall that the dichotomous outcome variable has been multiplied by 100, so the results imply a reduction in the likelihood of working at all by 0.26 percentage points (a 0.3% reduction off the sample mean) for all women, 0.37 percentage points (0.4%) for all mothers, and this effect appears to be primarily driven by women with young kids, who experience a decline of 0.6 percentage points (0.8%). The effects on hours worked are less precisely estimated across the samples, but suggest a reduction that is again driven by women with young children, for whom there is a significant reduction of 0.34 hours worked per week ( $p=0.04$ ).

Across the subsequent panels we include additional controls. First, to account for other

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<sup>19</sup>The variables included are changes in the PUMA-level labor force participation rate, unemployment rate, housing prices, the share of the PUMA that are citizens, black, non-citizens, have children, have young children, work more than 50 and 60 hours, have a college degree, masters degree, or a Ph.D. as well as the same education categories just for women. The results are robust to using only the levels in 2000, or in 2005, interacted with a time trend (results available upon request).

<sup>20</sup>Fertility may be directly affected by enforcement if the price of having children, for example child care, changes (Furtado, 2016). We directly test for this and find no evidence of changes in fertility as shown in Appendix Table (A4). Note the sample size is slightly smaller in this model because this fertility question is only asked to women ages 15-50 in the ACS.

changes over time across PUMAs, Panel B adds controls for 287(g) agreements and economic conditions (bartik-style variables and housing prices). The point estimates for the sample of all women shrink somewhat and lose some significance, but the estimates for both groups of mothers are very similar to, and often slightly larger than, the estimates in Panel A. Next, Panel C further includes interactions between changes in PUMA characteristics from 2000 to 2005 and a linear trend, to account for the fact that PUMAs may have been trending differentially based on these characteristics. Finally, Panel D, also includes individual-level demographic characteristics. The additions in Panels C-D cause the point estimates to shrink slightly for mothers, but the overall conclusions remain the same.

The specification, based on equation (1) and shown in Panel D, is the most conservative model because it includes all the PUMA and individual-level controls, so we focus on the results in this model in what follows. In this model, there is a significant reduction in the likelihood of working at all for all mothers of 0.4% relative to the sample mean ( $p=0.06$ ) and no significant effect on hours worked, although the point estimate is negative. These effects on all mothers appear to be driven by mothers with young children; for mothers with children below school-age, SC reduces the likelihood of working by 0.8% ( $p=0.06$ ) and reduces usual hours worked weekly by 1.2% ( $p=0.03$ ).

To further test the validity of our identification strategy, we estimate an event study approach using the model with the full set of controls (corresponding to Panel D of Table (2)). This allows us to test our key empirical assumption, which is that conditional on observable characteristics of the PUMAs and individuals, the timing of SC adoption is exogenous. Note that our main measure of SC can range from 0 to 1 because we aggregate the county-level policy variation to the PUMA level. In this event study, the first “post-period” (event time equal to 1) is the first year SC took on any non-zero value for the PUMA. There are some PUMAs that experienced a phase-in of SC over a period of multiple years, as SC rolled out across counties in the PUMA, so we may see a phase-in of the effect of SC across event

time as well. Figure (2) shows the results of the event study model for high-skilled mothers of young children, who appear to be driving the results in Table (2). The figures show no evidence that, prior to SC adoption, the labor supply of high-skilled mothers of young children was differentially trending across PUMAs. Moreover, there is strong evidence of significant negative effects of SC on labor supply after implementation and this appears to phase-in over time.

We examine the margins on which this decline in labor supply is operating in more detail by estimating the effect of SC on the probability of working full-time (35+ hours), part-time (20-35 hours), and being marginally employed (0-20 hours, *inclusive* of 0 hours worked). Full-time work may be more affected because outsourcing of household production may be more important for women who work longer hours. The results in Table (3) suggest that indeed most of the change in labor supply is coming from a reduction in the likelihood high-skilled women work full-time and again these results seem to be driven by mothers with young children. For mothers with young children, the estimates indicate a reduction in full-time work of 1.7% ( $p=0.03$ ). Overall, this indicates that SC may be particularly impactful for mothers of young children working full-time jobs and may have important implications for the potential career progression of mothers in very time-intensive jobs (Bertrand, Goldin and Katz, 2010).

## 4.1 Mechanisms

To better understand whether changes in the cost of outsourcing household work are driving the negative effect of SC on high-skilled mothers, we conduct several tests. First, we directly examine the labor market outcomes of likely undocumented workers (low-skilled non-citizens) working in personal services in Table (4).<sup>21</sup> We explore the effect of SC on the likelihood

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<sup>21</sup>We show statistics for the most common occupations in our definition of personal services in Appendix Table (A3). The first column shows the percentage each occupation makes up of total employment in our definition of personal services, the second column shows what percentage of all workers in that occupation

of working at all (Panels A and B) and usual hours worked (Panels C and D). In Panels B and D, we focus on Hispanics as a proxy for those most likely to be affected by SC; unfortunately, the ACS does not allow us to identify all the Latin American countries that would be necessary in order to mimic the classification in the TRAC data. The first column presents the results for both genders pooled, and the second and third columns show the results for women and men separately. The results suggest reductions in work among female likely undocumented, particularly Hispanics, as expected, and the point estimates indicate a meaningful decrease in working hours: a 2% decline among all women ( $p=0.11$ ), and a 3% decline among Hispanic women ( $p=0.09$ ). The results for men are less consistent, which may be because very few men work in personal services.<sup>22</sup>

These results provide suggestive evidence of a negative effect of SC on the labor supply of likely undocumented immigrant women in personal services. Given this reduction, we would expect an increase in wages in this sector, so we investigate this in Figure (3). We aggregate the data to the PUMA and year level and re-estimate equation (1) at the PUMA by year level, with all controls except individual-level controls included. We weight these

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are low-skilled non-citizens, and the third column shows what percentage of all workers in that occupation are female low-skilled non-citizens. There is heterogeneity across the occupations in the representation of low-skilled non-citizens, and in occupations which are most likely to be complements to market work—e.g. housekeepers, maids, butlers, stewards; child care workers; and nursing aides, orderlies, and attendants—there is an overrepresentation of low-skilled non-citizens. Finally, across almost all occupations, most of the low-skilled non-citizens who work in that occupation are women (across all occupations women are 78% of low-skilled non-citizens working in personal services).

<sup>22</sup>In order to be observed in these samples, immigrants must have remained in the U.S. We also directly examine whether the overall number of likely undocumented workers in personal services changed in response to SC (through either migration or chilling effects) in Appendix Table (A5). To construct the dependent variable in this table, we sum the total number of low-skilled non-citizens who report working at all in the past 12 months in personal service, in each PUMA and year. We then divide this by the total working age population in each PUMA in the base year (2005), and finally divide by 100,000 to ease the presentation of the results. Thus, this analysis is at the PUMA-year level, rather than the individual level. Note that one possibility is that SC induces workers to switch from formal work to more informal work, the latter of which might include some personal services. Given the construction of the variable, industry and occupation switching should be included in this result and would lead to a less negative estimated effect of SC. We weight these models with the total PUMA population in 2000. The results are very imprecisely estimated suggesting the total number of personal service workers may not have been affected by out-migration. This makes sense because as discussed previously, women are the majority of personal service workers, and very few women were deported, so we expect the effects on women in personal services to come primarily from chilling effects among those remaining in the U.S., which is captured in the outcomes in Table (4).

models by the PUMA population in 2000. The top panel shows the effect of SC on the wages of all workers in personal services, and the bottom two panels split the sample by gender to explore whether the effects on wages mimic the pattern by gender we find on employment. In each panel we plot the effect of SC on wages on average and across the wage distribution from the 5th percentile to the 95th percentile. The point estimates indicate a positive effect on average wages (1.3% increase overall) that is again driven by women (2% increase for women, shown in Panel E of Table (A6)). Moreover, there are larger positive effects of SC at the lower part of the wage distribution. Appendix Figure (A1) plots the share of workers by wage percentile bin that are low-skilled non-citizens. The left-hand-side dot represents workers in the 0-5th percentile of the wage distribution, and so on. This figure demonstrates that undocumented immigrants are more likely to be in the lower part of the wage distribution, where we find the largest effects. We also plot event study models focusing on average wages and 5th percentile wages for female personal service workers in Appendix Figure (A2). These figures demonstrate that there were no pre-trends in these outcomes prior to SC implementation that appear to be driving the results, and that there were large positive effects after SC implementation. As points of comparison, Furtado (2016) finds that a 1% change in the low-skilled immigrant population in the U.S. reduced the median wage of child care workers by about 4%, and Cortes (2008) finds that a 10% increase in low-skilled immigrants reduced the price of immigrant-intensive services (mostly household services) by roughly 2%.<sup>23</sup>

Since 97% of the deportees are men, we hypothesize the negative effect on the labor participation of likely undocumented women is operating through chilling effects. We test this hypothesis by examining whether the effects of SC are stronger in places where a broader population of immigrants are deported due to SC. Following Alsan and Yang (2018), we use the percentage of deportations for which the most serious criminal conviction is for a non-

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<sup>23</sup>East et al. (2018) find no effect of SC on wages overall, split by citizenship, or split by occupational skill. Our significant effects on female wages, are mainly explained by the focus on personal services in our analysis.

violent crime as a proxy for how broad the population directly affected by SC is. Empirically, we add to the model an interaction term between SC and the percentage of total deportations with convictions that were for non-violent crimes. Appendix Table (A6) shows these results. Although imprecisely estimated, the results suggest that the effects on the labor supply of low-skilled immigrant women, and wages for female workers, are stronger when deportations for non-violent crimes are more common.

Building off of these findings, we next investigate whether the effects on high-skilled citizen mothers are larger in places that have greater concentrations of immigrants likely to be affected by SC. We interact the SC variable with three different measures of intensity in Table (5): 1) the share of the PUMA working-age population that is low-skilled non-citizen in 2005; 2) the share of the PUMA low-skilled non-citizen population that is Hispanic in 2005; and 3) the share of deportations in the PUMA that were for non-violent crimes following the analysis on low-skilled non-citizens above (each measure corresponds to a different column). The sample sizes are slightly smaller than our baseline models because there are a few PUMAs that have no low-skilled non-citizens in them and because not all PUMAs are observed in the TRAC data. Given the results on low-skilled non-citizens, as well as the information about the demographics of those deported under SC, we expect the effects on high-skilled citizens mothers to be larger (more negative) for higher values of all of these intensity measures. This is what we find across all outcomes and measures of intensity, although many of the interaction terms have large confidence intervals. To interpret these coefficients, we include the mean and standard deviation of each intensity measure in the table as well as the estimated effect of SC evaluated at the mean of each intensity measure and at one standard deviation of intensity above the mean. The largest and most precise estimates on the interaction term are with the share of the PUMA low-skilled non-citizen population that is Hispanic; for this measure, the results imply a more than doubling of the effect for a one standard deviation increase in intensity. For example, looking at the effect on work for mothers with young children, the effect of SC in a PUMA with the average share

of low-skilled non-citizens that are Hispanic (62%) is -0.64 percentage points, whereas the effect in a PUMA with one standard deviation higher share of low-skilled non-citizens that are Hispanic (91%) is -1.38 percentage points.

The results so far suggest changes in the cost of personal services is an important mechanism through which enforcement policies affect high-skilled women’s labor supply. However, there are other channels through which changes in the labor supply of undocumented immigrants could affect high-skilled individuals’ work, such as complementarities in the production process of market work (Chassamboulli and Peri, 2015; East et al., 2018). We therefore look at the effect of enforcement on two different groups in the population whose labor supply should not be as highly affected through changes in the price of outsourcing household production. First, we look at high-skilled men. We argue that since women have been found to be more sensitive to changes in the price of household services in other contexts (such as child care), and because high-skilled women spend more time in household production relative to high-skilled men (13.84 vs. 8.91 hours per week in Table (1)), high-skilled men are less likely to change their time use directly due to the changes in the cost of household services. Second, we estimate the effects for high-skilled women with no children since the presence of a child at home affects the demand of household services. Table (6) show the results for these two groups. Although the sign of the coefficients in Table (6) goes in the same direction of those in Table (2), their magnitudes are smaller both in absolute levels and in percentage terms, and none of the estimates is statistically significant.<sup>24</sup> Due to these smaller and statistically insignificant findings for high-skilled women without children, we continue to focus only on mothers for the remainder of the analysis.

Finally, as an additional investigation into mechanisms, we expect stronger effects for mothers who do not have access to informal help with household production. To proxy for

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<sup>24</sup>East et al. (2018) find a negative effect on citizen male employment in high-skilled occupations and no similar effect for women in high-skilled occupations. The results, however, are not directly comparable given that we stratify the data by individual education as well as by presence of children, while East et al. (2018) stratifies by the skill level of an individual’s occupation.

this, we explore the heterogeneity of the results by whether a woman lives in the state of her birth. Women that live in their state of birth might be more likely to live in proximity to their own families and thus have more access to informal household production outsourcing (Compton and Pollak, 2014), so we expect the effects of SC to be larger for women who have moved out of their state of birth (this includes U.S.-born women not living in their state of birth and *all* foreign-born citizen women). In Table (7) we show the results of the model that interacts SC with an indicator variable equal to one if a woman does not live in her state of birth. As expected, the results are stronger for this sample of women.<sup>25</sup> Taken together, these results all suggest that an important mechanism through which SC affected the labor supply of high-skilled citizen women is the increased price of personal services.

## 4.2 Robustness Checks

We test the robustness of our main results on the labor supply of high-skilled mothers. First, we test the sensitivity of the findings to alternative timing assumptions. In the baseline results, we code SC as being in place in a given survey year if it was in place in January of that year. Since the ACS interviews are conducted continuously throughout the year, but we do not know the month of the interview, we test the sensitivity of the findings to an alternative timing assumption. Appendix Table (A7) Panels A and C replicate the results from the main specification. In Panels B and D we show the results coding the enforcement policy as the fraction of the year *before* the survey year and the results are very similar.

Second, because the early adopters of SC may be more highly selected, we test the robustness of the results to dropping PUMAs that had at least one county that adopted SC in 2008-2009 in Appendix Table (A8). Note that the early adopters are mostly along the U.S.-Mexico border, and the intensity results shown in Table (5) suggest that the effects

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<sup>25</sup>It is possible that the decision to live in proximity of relatives is not random. We find no evidence that SC affects whether a woman lives in her state of birth. Results available upon request.

of SC are driven by places with large Hispanic populations, since these are the immigrant populations most directly affected by SC. Therefore, we re-estimate both the main model (column (1)), and the model interacted with the percentage of low-skilled non-citizens who are Hispanic (column (2)), because the effects on the main model may be weakened when we drop the early adopter areas with large Hispanic populations. In column (1), for the main model, the point estimates shrink somewhat and become insignificant when we drop early adopters, although the confidence intervals are overlapping with the baseline estimates on the full sample. The results in column (2) indicate that this drop in column (1) may be due to the fact that the early adopters are also places with large Hispanic populations. In particular, the effects on high-skilled women when interacted with Hispanic intensity are nearly identical with or without the early adopter PUMAs included. Therefore, early adopter locations do not seem to be driving our main results.

Third, since housing prices may be directly affected by SC, we include more aggregate measures of housing prices instead in Appendix Table (A9). The results are similar with state-level housing prices, or state-level housing prices that leave out each individual PUMA.<sup>26</sup>

Fourth, although measurement error in our definition of likely undocumented should not impact our estimates on the labor supply of high-skilled citizen women, it can affect our estimate of the effect on non-citizens in personal services.<sup>27</sup> Therefore, we test the robustness of our results to alternative definitions of likely undocumented immigrants, focusing on the effects for female immigrants where we saw the largest effects in the baseline sample. The

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<sup>26</sup>There is slightly larger sample size with state housing prices since not all PUMAs are captured in the county level housing price data. On the other hand, when we leave out the individual PUMA a few additional observations are dropped due to missing information for state housing prices in small states.

<sup>27</sup>Another potential source of measurement error in the estimate on non-citizens is the undercount of undocumented immigrants in surveys conducted by the U.S. government (Passel and Cohn, 2011; Hofer, Rytina and Baker, 2012; Warren and Warren, 2013; Warren, 2014; Van Hook et al., 2014; Genoni et al., 2017; Brown et al., 2018). However, it is important to note that the internal validity of these estimates would only be biased if the undercount of undocumented immigrants is related to the implementation of SC. Unfortunately, although previous work has provided evidence about the size and selection of the undercount, we cannot assess whether the undercount varies in response to SC.

alternative definitions of undocumented workers are: 1) low-skilled non-citizens born in Mexico or Central America who entered the U.S. after 1980; 2) Hispanic low-skilled non-citizens who entered the U.S. after 1980; and 3) we follow the definition of undocumented immigrants suggested by Borjas (2017).<sup>28</sup> For each definition, Appendix Table (A10) shows the effect of SC on the likelihood of working (Panel A), and usual hours worked (Panel B). Our results on hours worked are largely robust to these alternative methods of proxying for undocumented status, although less consistent for whether working at all.

### 4.3 Long-term Effects

To better understand the impact of SC on women’s labor supply, we explore the potential long-term effects of this policy. Previous evidence on the effects of motherhood have found persistent effects of having a child on women’s labor market outcomes (Juhn and McCue, 2017; Kuziemko et al., 2018). We expect the same may be true in the case of SC—having enforcement policies in place around the time of a child’s birth may have lasting negative consequences on women’s labor market outcomes.

The previous results above suggested that the biggest contemporaneous effects of SC were when children are 0-5. We explore first in more detail at what ages SC has the biggest contemporaneous impact in Appendix Table (A11), in order to motivate our long-run model. This table suggests SC has the largest negative effects while the youngest child is under age 3, which may be due to the fact that childcare before age 3 is more expensive and higher-quality care is harder to find for children younger than 3 (Workman and Jessen-Howard, 2018; Jessen-Howard et al., 2018). As a result, to explore the long-term effects of SC on women’s labor supply, we model the longer-run effects of exposure of SC when the youngest child was between 0 and 2, and therefore at the most vulnerable age to affect women’s labor

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<sup>28</sup>We follow Passel and Cohn (2014) in choosing 1980 as the entry year by which most immigrants who entered prior would have become citizens. A detailed description of the Borjas (2017) definition and how it compares to our primary sample is provided in the Appendix.

supply. We estimate the following regression for the sample of high-skilled women who had their youngest child between 2000 and 2012 and were observed in 2005-2017:<sup>29</sup>

$$Y_{ipts} = \alpha + \beta_2 SC_{ps} + X'_{ipt} \delta + Z'_{pt} \gamma + \mu_p + \phi_t + \lambda_s + \theta \Delta W'_p * t + \epsilon_{ipts} \quad (2)$$

where  $Y_{ipts}$  represents the labor outcomes for a woman  $i$ , living in PUMA  $p$  and year  $t$ , who had their youngest child in year  $s$ .  $SC_{ps}$  is the sum of annual PUMA-level exposure to SC while the youngest child was 0, 1 and 2, so it can take on a value between 0 and 3. Therefore,  $\beta_2$  should be interpreted as the effect of one additional year of exposure to SC before the youngest child turns 3. Note, the limitation of this analysis is we only observe PUMA of residence, rather than PUMA of child's birth, which may introduce measurement error. In addition to the controls specified in equation (1), we add a youngest child birth year fixed effect,  $\lambda_s$ .<sup>30</sup>

Table (8) shows the results for the probability of working positive hours in column (1), the usual hours worked in column (2), and we add the log of weekly hourly wages in column (3) since reductions in labor supply in the short-run may lead to diminished wages in the longer-run. Panel A shows the effect of SC exposure during the first two years of life of the youngest child, when the youngest child is *observed* between 3 and 5 years old. The negative effects on working hours are similar to those in Table (2), which suggests that there are lasting effects of SC exposure around the birth of a child. In addition, there is evidence of a negative effect on weekly hourly wages—one year of exposure to SC before a child turns 3 reduces the mother's wages by 1.4% when the child is between the ages 3 and 5. This suggests there may be persistent effects of SC exposure around the birth of a child on women's labor market outcomes. When expanding the sample in Panel B to observe children

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<sup>29</sup>SC was rolled-out between 2008 and 2014. We choose the 2012 cut-off for birth years since children who were born after 2012 would be exposed to the ending of SC in the first two years of life and our focus is on the effect of the roll-out.

<sup>30</sup>The only controls measured based on the year of the youngest child's birth are the controls for 287(g) exposure at ages 0-2 to mimic the measure of SC exposure. Results are very similar if we also include contemporaneous controls for all enforcement policies.

at older ages (and thus even longer-run effects) the point estimates become insignificant and positive, which could indicate a fading out of the effect when children reach school age. However, these results should be interpreted with caution since the further from birth we observe the mother, the more measurement error may be induced in assigning SC exposure given the fact that we do not observe PUMA of birth.

We also estimate the same model for fathers. Appendix Table (A12) shows that in this case there are no significant effects, and the point estimates are smaller than those estimated for women, although some estimates have overlapping confidence intervals with the effects on women. These results suggest that an increase in the cost of personal services may be another avenue that affects the gender gap in the labor market and future research should further explore this possibility with data that more precisely measures exposure to enforcement in a child’s early life.

## 4.4 Discussion

Low-skilled immigrants are over-represented in personal services, and a policy-driven decrease in immigration may result in an increase in the price of these services, which has important consequences for workers who outsource household production. Our results support this hypothesis; they indicate a statistically significant negative effect of the roll-out of SC on high-skilled mother’s labor supply, driven by mothers with children below school-age. When interpreting our results, it is important to remember that our estimates are the “Intent to Treat” effect of SC and the effects among mothers who change their outsourcing of household production may be much larger. Comparing our estimates to those in the related literature is difficult, as other papers typically look at how high-skill women’s labor supply is related to the quantity of immigrants in a local area. For example, Cortes and Tessada (2011), who use the closest sample to ours, but take a different approach to identification, find that a 10% increase in low-skill immigration in the U.S. was associated with an increase

in hours of work by 0.3% among women earning wages at the top of the distribution. Moreover, Cortes (2008) finds that a 10% increase in low-skill immigration decreased prices of immigrant-intensive services by 2%. We find SC reduced hours work among all high-skilled women by 0.2% and increased personal service wages by 1.3% (estimate on average wages shown in panel (a) of Figure (3)). This suggests that our estimated elasticity of high-skilled women's labor supply with respect to the price of personal services is similar as other researchers have found: -0.15. However, this ignores the large confidence intervals on our estimates and assumes that the entire change in high-skilled women's labor supply is due to this change in price.

In a different context, Farré, González and Ortega (2011) find that, in Spain, a 10 percentage point increase in the predicted number of female immigrants living in a local area increases the likelihood women with children or elderly dependents living with them work by about 2 percentage points. In the paper using the empirical approach most similar to ours, but in a very different setting, Cortes and Pan (2013) examine the effect of a series of policy changes in the 1970s to 2000s regarding foreign domestic workers in Hong Kong on high-skill women's labor supply. They identify the effects of these policy changes in several ways, including comparing long-run changes in the labor supply of women with and without children over the period of these policy changes in Hong Kong. They find that women with young children increase the likelihood of working by 12-13 percentage points over time.

## 5 Conclusion

This paper examines the effect of a recent surge in local interior immigration enforcement on high-skilled women's labor supply. Given the large representation of undocumented workers in the personal services' industry, a negative effect on their labor supply can affect the cost of outsourcing household production, and thus the labor supply of those most likely to

outsource these services. Our empirical analysis supports this hypothesis.

Exploiting the roll-out of Secure Communities, we estimate a difference-in-differences model with time and location fixed effects. We find that SC reduced the labor supply of high-skilled citizen mothers. These results are robust to including a variety of controls: local measures of economic conditions, other local enforcement policies, local characteristic trends, and individual demographics. To provide support for the hypothesis that changes in the price of outsourcing household services is an important mechanism behind the labor supply effects on citizens, we look directly at the presence of likely undocumented workers in the personal service industry and at their working hours. We find SC has a negative effect on the labor supply of Hispanic low-skilled female non-citizens in this industry. This is accompanied by increases in the wages of female workers in this industry. Since most of those deported were male, these results suggest the effects of SC on female labor supply operate through chilling effects and we provide evidence suggesting this is the case. Finally, to further support this as an important mechanism behind the effects on high-skilled women's labor supply, we show there are no similar effects on high-skilled men and high-skilled women without children, and that the effect is larger for women more likely living away from their extended family.

This paper shows an important spillover effect of immigration enforcement policies onto citizen workers. Understanding the full effects of enforcement policies is crucially important to quantify today as immigration policy is being actively debated and changed. For example, recent policy proposals plan to give priority to high-skilled immigrant workers (Holland and Rampton, 2019), but our results indicate that the labor supply of low-skilled immigrants can have positive spillover effects on the employment of high-skilled citizen workers as well. Our paper also speaks to broader literatures that examine how policy can influence women's labor supply and time spent in household production, especially around the birth of a child (see for example: Baker, Gruber and Milligan (2008); Baker and Milligan (2008); Cascio (2009); Havnes and Mogstad (2011); Rossin-Slater, Ruhm and Waldfogel (2013)). The decline in

mother's labor supply as a result of SC may have far-reaching consequences to the gender gap in work and wages, as well as children's well-being. We view this paper as a first step to analyzing the full impact of immigration enforcement policies on high-skilled women and their families' well-being.

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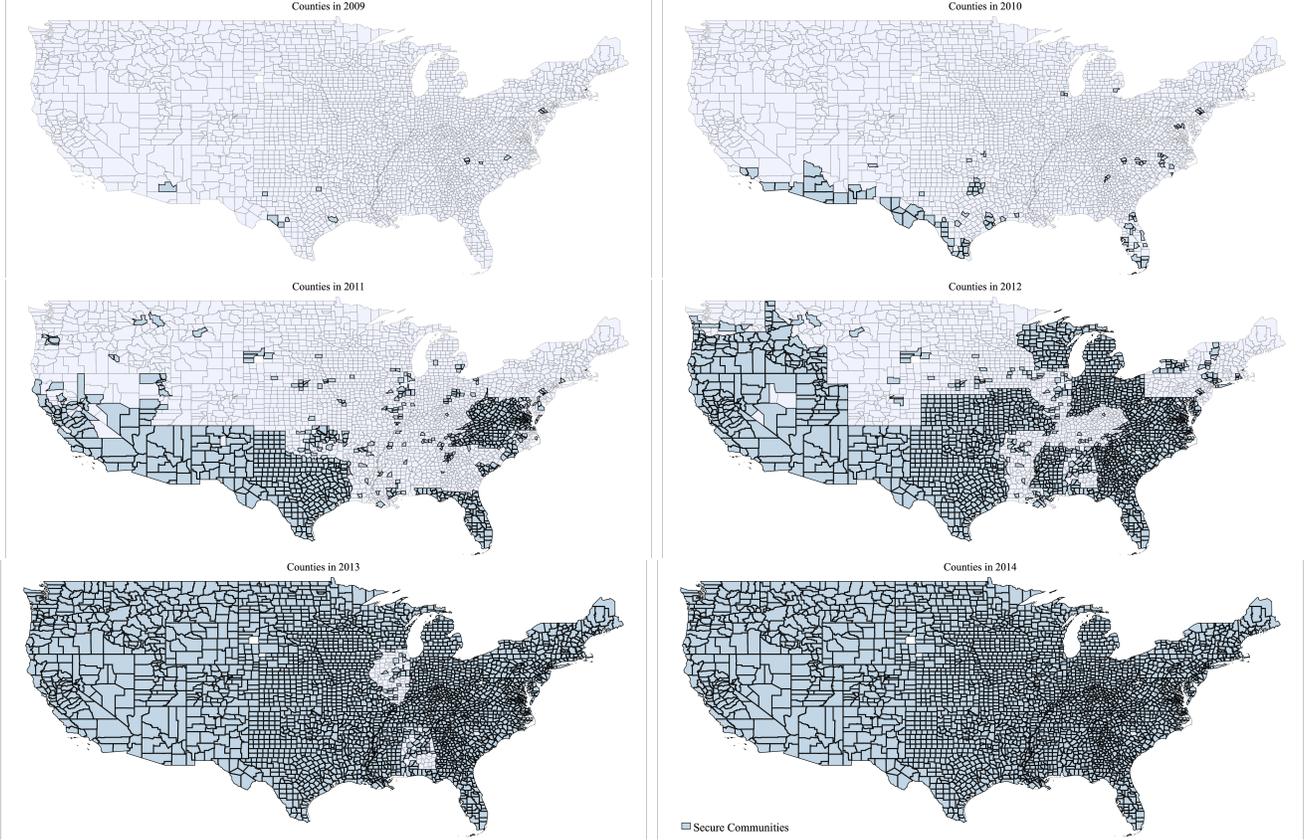
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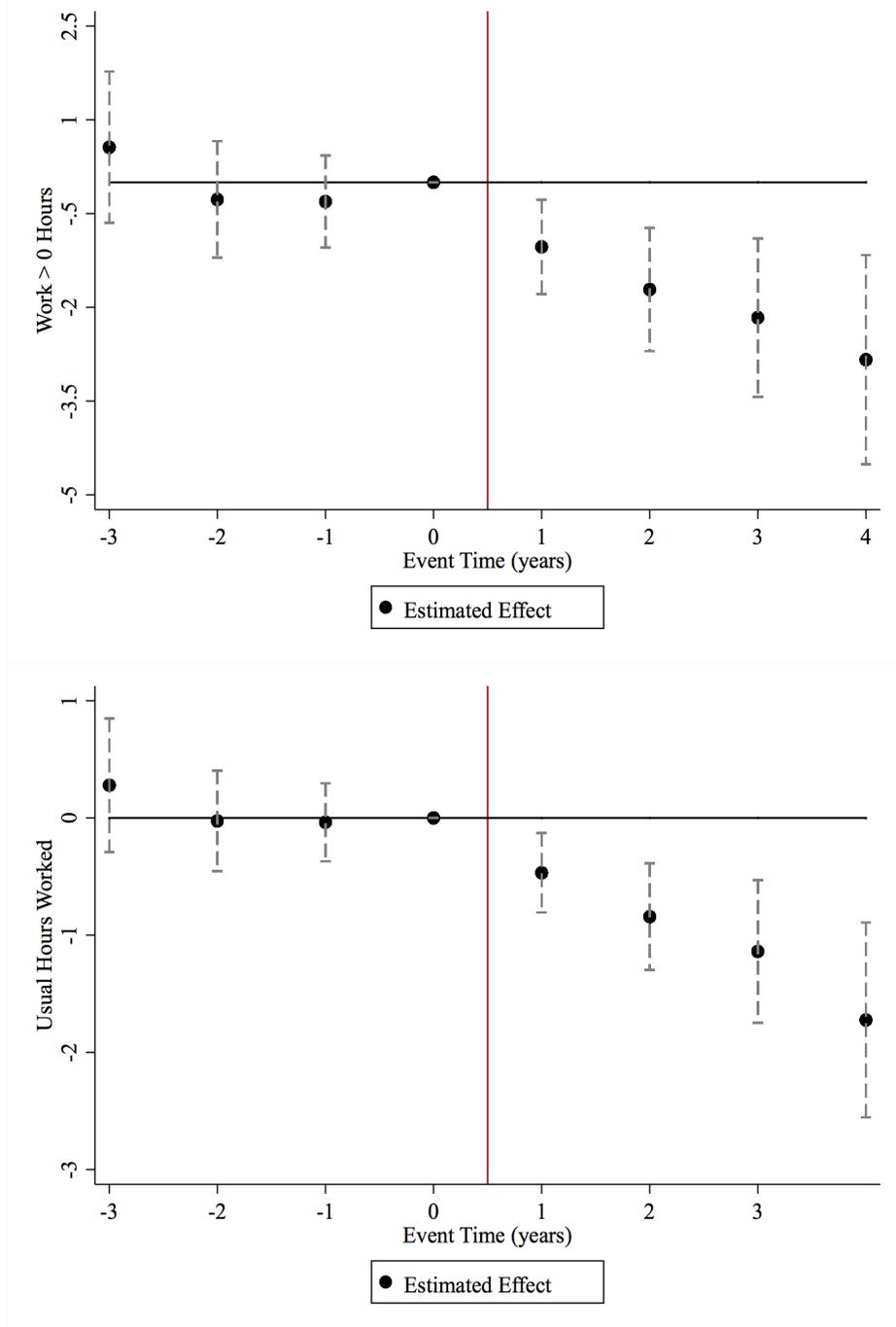
# 6 Figures

**Figure 1: Rollout of Secure Communities by Year**



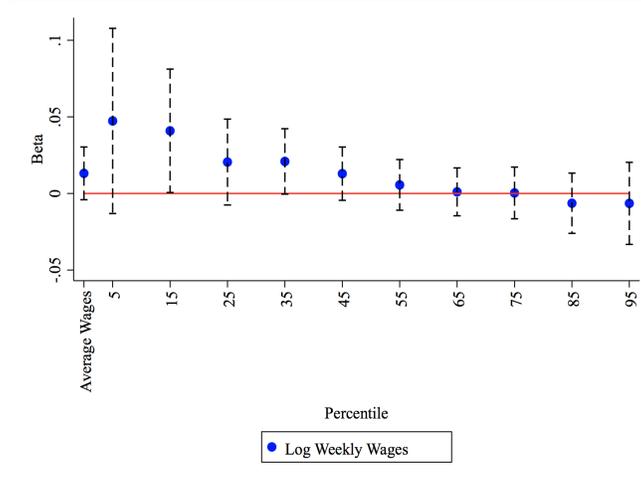
Notes: Counties that had adopted the Secure Communities based on January of each year are shaded. See text for source.

**Figure 2:** Effect of SC on High-Skilled Mothers with Kids Under 6 Labor Supply, Event Study

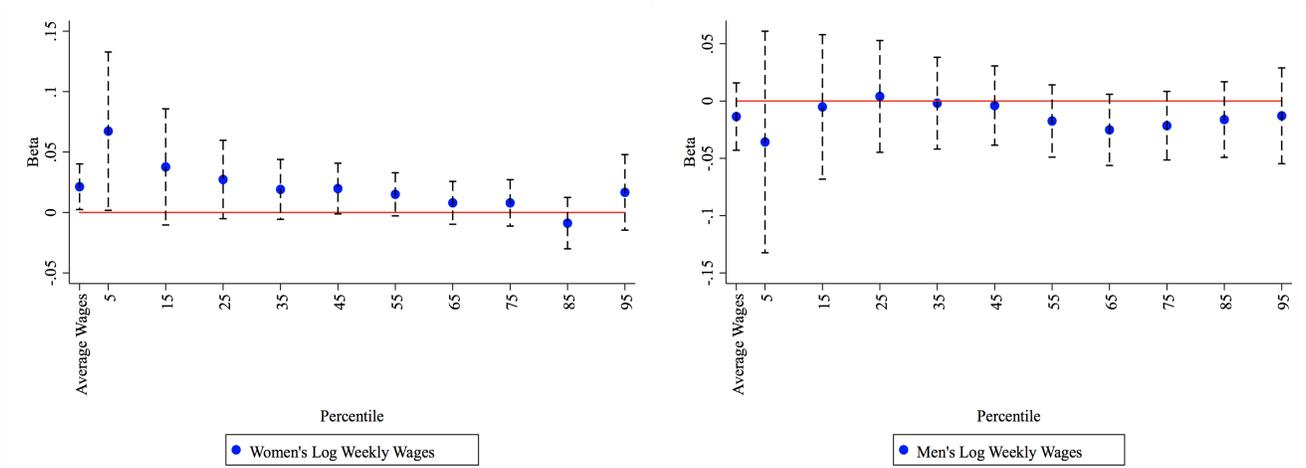


Notes: Data are from the 2005-2014 American Community Survey. The sample includes U.S. citizen mothers with children under age 6, and with a college degree or more aged 20-64. The model includes PUMA fixed effects, year fixed effects, PUMA-year controls, PUMA characteristics trends and individual demographic controls. The PUMA-year controls include: labor demand controls, housing price controls, and 287(g) programs at the PUMA level. The PUMA characteristics trends include interactions of time trends with the change in PUMA characteristics between 2000 and 2005 (this includes changes in the following: the PUMA-level labor force participation rate, unemployment rate, and housing prices, the share of the PUMA that are citizens, black, non-citizens, have children, have young children, work more than 50 and 60 hours, and have a college degree, masters degree, or a Ph.D. as well as the same education categories just for women). The demographic controls include: age, number of kids, number of kids under age 6, educational attainment, marital status, and race. The results are weighted using the individual-level weights in the ACS. Standard errors are clustered at the PUMA level and the 95% confidence intervals are shown by the dashed lines. The horizontal axis denotes “event time” where the omitted year is the year before the first SC policy in the PUMA was implemented.

**Figure 3: Effect of SC on All Personal Service Worker’s Log Wages By Percentile**  
**(a) All Workers**



**(b) Split by Gender**



Notes: Data are from the 2005-2014 American Community Survey. The sample includes all individuals aged 20-64 who report working in the personal services and the data is collapsed at the PUMA by year level. The model includes PUMA fixed effects, year fixed effects, PUMA-year controls, and PUMA characteristics trends. The PUMA-year controls include: labor demand controls, housing price controls, and 287(g) programs at the PUMA level. The PUMA characteristics trends include interactions of time trends with the change in PUMA characteristics between 2000 and 2005 (this includes changes in the following: the PUMA-level labor force participation rate, unemployment rate, and housing prices, the share of the PUMA that are citizens, black, non-citizens, have children, have young children, work more than 50 and 60 hours, and have a college degree, masters degree, or a Ph.D. as well as the same education categories just for women). The results are weighted by the PUMA population in 2000. Standard errors are clustered at the PUMA level and the 95% confidence intervals are shown by the dashed lines. The horizontal axis denotes the percentile at which the effect on wages are evaluated. The far left-hand-side estimate is for average wages across all percentiles.

## 7 Tables

**Table 1: Summary Statistics**

	High-Skilled Women			High-Skilled Men
	All	With Kids	With Kids Under 6	All
<b>ACS</b>				
Age	41.87	42.07	34.28	43.31
Black	0.09	0.09	0.08	0.07
Married	0.61	0.81	0.89	0.66
# Children Under 6	0.20	0.43	1.30	0.20
# All Children	0.86	1.83	1.94	0.85
College Degree	0.66	0.66	0.66	0.66
Masters Degree	0.26	0.26	0.26	0.22
Ph.D.	0.08	0.08	0.08	0.11
Work >0 Hours (*100)	85.49	83.00	78.98	93.14
Usual Hours Worked per Week	33.10	31.12	28.78	41.43
Secure Communities	0.36	0.36	0.35	0.35
N	2556962	1212842	392473	2214982
<b>ATUS</b>				
Hours Spent Caring for Children in Household per Week	5.58	13.58	19.87	2.87
Hours Spent on Household Activities per Week	13.84	16.14	15.16	8.91
N	8068	4316	2048	6681

Notes: Data are from the 2005-2014 American Community Survey and the American Time Use Survey. The sample includes all U.S. citizens with a college degree or more, ages 20-64. The results are weighted the using individual-level weights in the ACS and in the ATUS.

**Table 2: Effect of SC on High-Skilled Women's Labor Supply by Presence of Children**

	All Women		With Kids of Any Age		With Kids Under 6	
	Work > 0 Hours	Usual Hours Worked	Work > 0 Hours	Usual Hours Worked	Work > 0 Hours	Usual Hours Worked
<i>A: PUMA FE, Year FE</i>						
Secure Communities	-0.257** (0.121)	-0.117* (0.065)	-0.365** (0.179)	-0.131 (0.089)	-0.606* (0.358)	-0.335** (0.159)
P-Value	0.03	0.07	0.04	0.14	0.09	0.04
<i>B: Add PUMA-Year Controls</i>						
Secure Communities	-0.225* (0.125)	-0.069 (0.067)	-0.385** (0.183)	-0.120 (0.091)	-0.774** (0.363)	-0.401** (0.163)
P-Value	0.07	0.30	0.04	0.19	0.03	0.01
<i>C: Add PUMA Characteristic Trends</i>						
Secure Communities	-0.190 (0.126)	-0.059 (0.066)	-0.361* (0.184)	-0.110 (0.090)	-0.707* (0.362)	-0.365** (0.161)
P-Value	0.13	0.38	0.05	0.22	0.05	0.02
<i>D: Add Demographics</i>						
Secure Communities	-0.236* (0.123)	-0.074 (0.065)	-0.345* (0.183)	-0.099 (0.088)	-0.651* (0.353)	-0.343** (0.153)
P-Value	0.06	0.25	0.06	0.27	0.06	0.03
Mean Y	85.49	33.10	83.00	31.12	78.98	28.78
N	2556962	2556962	1212842	1212842	392473	392473

Notes: Data are from the 2005-2014 American Community Survey. The sample includes all U.S. citizen women with a college degree or more aged 20-64. All models include PUMA fixed effects, and year fixed effects. The PUMA-year controls include: labor demand controls, housing price controls, and 287(g) programs at the PUMA level. The PUMA characteristics trends include interactions of time trends with the change in PUMA characteristics between 2000 and 2005 (this includes changes in the following: the PUMA-level labor force participation rate, unemployment rate, and housing prices, the share of the PUMA that are citizens, black, non-citizens, have children, have young children, work more than 50 and 60 hours, and have a college degree, masters degree, or a Ph.D. as well as the same educational categories just for women). The individual demographic controls include: age, number of kids, number of kids under age 6, educational attainment, marital status, and race. The results are weighted using the individual-level weights in the ACS. Standard errors clustered at the PUMA level and shown in parentheses. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01

**Table 3:** Effect of SC on High-Skilled Women’s Full-Time and Part-Time Work by Presence of Children

	Hours 35+	Hours 20–35	Hours <20
<i>A: Full Sample</i>			
Secure Communities	-0.243 (0.173)	0.120 (0.120)	0.123 (0.143)
Mean Y	67.24	12.45	20.31
P-Value	0.16	0.32	0.39
N	2556962	2556962	2556962
<i>B: Kids of Any Age</i>			
Secure Communities	-0.225 (0.251)	0.083 (0.179)	0.141 (0.206)
Mean Y	62.25	13.78	23.98
P-Value	0.37	0.64	0.49
N	1212842	1212842	1212842
<i>C: Kids Under 6</i>			
Secure Communities	-0.976** (0.436)	0.155 (0.318)	0.821** (0.368)
Mean Y	57.43	13.65	28.92
P-Value	0.03	0.63	0.03
N	392473	392473	392473

Notes: Data are from the 2005-2014 American Community Survey. The sample includes all U.S. citizen women with a college degree or more aged 20-64. All models include PUMA fixed effects, and year fixed effects. The PUMA-year controls include: labor demand controls, housing price controls, and 287(g) programs at the PUMA level. The PUMA characteristics trends include interactions of time trends with the change in PUMA characteristics between 2000 and 2005 (this includes changes in the following: the PUMA-level labor force participation rate, unemployment rate, and housing prices, the share of the PUMA that are citizens, black, non-citizens, have children, have young children, work more than 50 and 60 hours, and have a college degree, masters degree, or a Ph.D. as well as the same education categories just for women). The individual demographic controls include: age, number of kids, number of kids under age 6, educational attainment, marital status, and race. The results are weighted using the individual-level weights in the ACS. Standard errors clustered at the PUMA level and shown in parentheses. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01

**Table 4:** Effect of SC on Non-Citizens' Labor Supply in Personal Services

	All	Women	Men
<i>A: Low-Skilled Non-Cit Work &gt;0 Hours</i>			
Secure Communities	-0.635 (0.641)	-0.570 (0.786)	-1.391 (1.212)
Mean Y	89.42	87.79	95.67
P-Value	0.32	0.47	0.25
N	65126	52330	12614
<i>B: Hispanic Low-Skilled Non-Cit Work &gt;0 Hours</i>			
Secure Communities	-0.857 (0.816)	-0.772 (1.014)	-1.498 (1.169)
Mean Y	88.89	87.13	96.48
P-Value	0.29	0.45	0.20
N	45081	37130	7757
<i>C: Low-Skilled Non-Cit Usual Hours Work</i>			
Secure Communities	-0.376 (0.363)	-0.617 (0.389)	0.392 (0.665)
Mean Y	31.06	29.30	37.81
P-Value	0.30	0.11	0.56
N	65126	52330	12614
<i>D: Hispanic Low-Skilled Non-Cit Usual Hours Work</i>			
Secure Communities	-0.508 (0.449)	-0.840* (0.491)	0.744 (0.712)
Mean Y	29.89	28.10	37.60
P-Value	0.26	0.09	0.30
N	45081	37130	7757

Notes: Data are from the 2005-2014 American Community Survey. The sample includes individuals aged 20-64 who report being non-citizens, who have at most a high school degree, and who report their current or most recent industry or occupation as personal services. All models include PUMA fixed effects, year fixed effects, PUMA-year controls, and PUMA characteristics trends. The PUMA-year controls include: labor demand controls, housing price controls, and 287(g) programs at the PUMA level. The PUMA characteristics trends include interactions of time trends with the change in PUMA characteristics between 2000 and 2005 (this includes changes in the following: the PUMA-level labor force participation rate, unemployment rate, and housing prices, the share of the PUMA that are citizens, black, non-citizens, have children, have young children, work more than 50 and 60 hours, and have a college degree, masters degree, or a Ph.D. as well as the same education categories just for women). The results are weighted using the individual-level weights in the ACS. Standard errors clustered at the PUMA level and shown in parentheses. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Table 5:** Effect of SC on High-Skilled Mothers' Labor Supply by Intensity of Treatment

	% LSNC	% LSNC Hisp	% Nonviolent Dep
<i>A: Work &gt;0 Hours, Women with Kids</i>			
Secure Communities	-0.320 (0.228)	0.244 (0.288)	0.410 (0.957)
SC * Intensity	-0.457 (2.184)	-0.950*** (0.356)	-0.947 (1.169)
Mean Y	83.00	82.99	82.99
Mean Intensity	0.06	0.61	0.81
SD Intensity	0.06	0.29	0.08
$\beta$ -Mean Int	-0.35	-0.34	-0.36
$\beta$ -1 SD Higher Int	-0.37	-0.61	-0.43
N	1212842	1210014	1204282
<i>B: Hours Worked, Women with Kids</i>			
Secure Communities	-0.036 (0.109)	0.264* (0.137)	0.522 (0.470)
SC * Intensity	-0.972 (0.992)	-0.587*** (0.174)	-0.764 (0.572)
Mean Y	31.12	31.12	31.11
Mean Intensity	0.06	0.61	0.81
SD Intensity	0.06	0.29	0.08
$\beta$ -Mean Int	-0.09	-0.10	-0.10
$\beta$ -1 SD Higher Int	-0.15	-0.26	-0.16
N	1212842	1210014	1204282
<i>C: Work &gt;0 Hours, Women with Kids Under 6</i>			
Secure Communities	-0.349 (0.452)	0.954* (0.560)	0.982 (2.004)
SC * Intensity	-4.725 (3.798)	-2.585*** (0.677)	-2.034 (2.452)
Mean Y	78.98	78.97	78.97
Mean Intensity	0.06	0.62	0.81
SD Intensity	0.06	0.29	0.08
$\beta$ -Mean Int	-0.62	-0.64	-0.67
$\beta$ -1 SD Higher Int	-0.90	-1.38	-0.82
N	392473	391622	389933
<i>D: Hours Worked, Women with Kids Under 6</i>			
Secure Communities	-0.115 (0.196)	0.428* (0.227)	0.284 (0.844)
SC * Intensity	-3.449* (1.803)	-1.232*** (0.298)	-0.792 (1.035)
Mean Y	28.78	28.78	28.78
Mean Intensity	0.06	0.62	0.81
SD Intensity	0.06	0.29	0.08
$\beta$ -Mean Int	-0.31	-0.33	-0.36
$\beta$ -1 SD Higher Int	-0.52	-0.68	-0.42
N	392473	391622	389933

Notes: Data are from the 2005-2014 American Community Survey. The sample includes U.S. citizen mothers with a college degree or more aged 20-64. The model includes PUMA fixed effects, year fixed effects, PUMA-year controls, PUMA characteristics trends and demographic controls. The PUMA-year controls include: labor demand controls, housing price controls, and 287(g) programs at the PUMA level. The PUMA characteristics trends include interactions of time trends with the change in PUMA characteristics between 2000 and 2005 (this includes changes in the following: the PUMA-level labor force participation rate, unemployment rate, and housing prices, the share of the PUMA that are citizens, black, non-citizens, have children, have young children, work more than 50 and 60 hours, and have a college degree, masters degree, or a Ph.D. as well as the same education categories just for women). The individual demographic controls include: age, number of kids, number of kids under age 6, educational attainment, marital status, and race. The results are weighted using the individual-level weights in the ACS. Standard errors clustered at the PUMA level and shown in parentheses.  
\* p<0.10, \*\* p<0.05, \*\*\* p<0.01

**Table 6:** Effect of SC on Labor Supply of Low Impact Groups

	Work > 0 Hours	Usual Hours Worked
<i>A: High-Skilled Men</i>		
Secure Communities	-0.146 (0.103)	-0.030 (0.064)
Mean Y	93.01	41.29
N	2214982	2214982
<i>B: High-Skilled Women with No Children</i>		
Secure Communities	-0.103 (0.159)	-0.027 (0.085)
Mean Y	87.67	34.85
N	1344120	1344120

Notes: Data are from the 2005-2014 American Community Survey. The sample includes U.S. citizen men and women with a college degree or more aged 20-64. The model includes PUMA fixed effects, year fixed effects, PUMA-year controls, PUMA characteristics trends and demographic controls. The PUMA-year controls include: labor demand controls, housing price controls, and 287(g) programs at the PUMA level. The PUMA characteristics trends include interactions of time trends with the change in PUMA characteristics between 2000 and 2005 (this includes changes in the following: the PUMA-level labor force participation rate, unemployment rate, and housing prices, the share of the PUMA that are citizens, black, non-citizens, have children, have young children, work more than 50 and 60 hours, and have a college degree, masters degree, or a Ph.D. as well as the same education categories just for women). The individual demographic controls include: age, number of kids, number of kids under age 6, educational attainment, marital status, and race. The results are weighted using the individual-level weights in the ACS. Standard errors clustered at the PUMA level and shown in parentheses. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01

**Table 7:** Effect of SC on High-Skilled Mothers' Labor Supply by Whether Living in State of Birth

	Work > 0 Hours	Usual Hours Worked
<i>A: Any Kids</i>		
Secure Communities	-0.178 (0.212)	0.012 (0.100)
SC * State Birth $\neq$ State Resid	-0.334* (0.189)	-0.213** (0.086)
Mean Y	83.00	31.12
Fraction State Birth $\neq$ State Resid	52.07	52.07
N	1212842	1212842
<i>B: Kids Under 6</i>		
Secure Communities	-0.500 (0.380)	-0.266 (0.168)
SC * State Birth $\neq$ State Resid	-0.310 (0.344)	-0.147 (0.146)
Mean Y	78.98	28.78
Fraction State Birth $\neq$ State Resid	49.29	49.29
N	392473	392473

Notes: Data are from the 2005-2014 American Community Survey. The sample includes U.S. citizen mothers with a college degree or more aged 20-64. The model includes PUMA fixed effects, year fixed effects, PUMA-year controls, PUMA characteristics trends and demographic controls. The PUMA-year controls include: labor demand controls, housing price controls, and 287(g) programs at the PUMA level. The PUMA characteristics trends include interactions of time trends with the change in PUMA characteristics between 2000 and 2005 (this includes changes in the following: the PUMA-level labor force participation rate, unemployment rate, and housing prices, the share of the PUMA that are citizens, black, non-citizens, have children, have young children, work more than 50 and 60 hours, and have a college degree, masters degree, or a Ph.D. as well as the same education categories just for women). The individual demographic controls include: age, number of kids, number of kids under age 6, educational attainment, marital status, and race. The results are weighted using the individual-level weights in the ACS. Standard errors clustered at the PUMA level and shown in parentheses. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01

**Table 8:** Long-Run Effect of SC around Birth on Labor Supply of High-Skilled Citizen Mothers

	Work > 0 Hours	Usual Hours Worked	Log Weekly Wages
<i>A: Youngest Child Age 3–5</i>			
SC when Youngest Aged 0–2	-0.563*	-0.352***	-0.014**
	(0.297)	(0.135)	(0.007)
Mean Y	79.85	29.20	7.06
P-Value	0.06	0.01	0.05
N	197643	197643	149013
<i>B: Youngest Child Age 6–9</i>			
SC when Youngest Aged 0–2	0.175	0.037	0.007
	(0.586)	(0.269)	(0.015)
Mean Y	83.67	30.87	7.06
P-Value	0.77	0.89	0.62
N	144274	144274	114352

Notes: Data are from the 2005-2017 American Community Survey. The sample includes U.S. citizen mothers with a college degree or more aged 20-64 who gave birth to their youngest child between 2000-2012. The model includes PUMA fixed effects, year (of survey) fixed effects, year of birth of the youngest child fixed effects, PUMA-year controls, PUMA characteristics trends and demographic controls. The PUMA-year controls include: labor demand controls, housing price controls, and 287(g) programs at the PUMA level. The PUMA characteristics trends include interactions of time trends with the change in PUMA characteristics between 2000 and 2005 (this includes changes in the following: the PUMA-level labor force participation rate, unemployment rate, and housing prices, the share of the PUMA that are citizens, black, non-citizens, have children, have young children, work more than 50 and 60 hours, and have a college degree, masters degree, or a Ph.D. as well as the same education categories just for women). The demographic controls include: age, number of kids, number of kids under age 6, educational attainment, marital status, and race. The results are weighted using the individual-level weights in the ACS. Standard errors clustered at the PUMA level and shown in parentheses. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

## A TRAC Data Description

We use data obtained from the Transactional Records Access Clearinghouse (TRAC), which contains one observation for each individual deported under SC between 2008 and 2014. For each individual we have demographic information (e.g. age, gender, country of citizenship), as well as the county of apprehension, and date of removal (not date of apprehension). TRAC obtained this data through Freedom of Information Requests to U.S. Immigration and Customs Enforcement.

We use the data to generate summary statistics of all those deported under SC shown in Appendix Table (A1). Additionally, we use this data to construct the measure of the percent of deportations at the PUMA level for which the most serious criminal conviction was a non-violent crime. We aggregate up the county level information to the PUMA level using a similar weighting process as described in the main text for the SC variable.

## B Control Variables Description

In some regressions, we include controls for labor demand, housing prices, and other enforcement policies described here. First, we construct four Bartik-style measures of labor demand that correspond to the following four demographic groups: 1) all working-age adults, 2) foreign-born working-age adults, 3) working-age women with a college degree or more, and 4) working-age men with a college degree or more. For each group, we calculate the PUMA-level employment by industry, as a fraction of total PUMA employment in 2005. We then apply to these industry shares the changes in national employment for the full national sample of working age adults for each industry over time, to obtain a measure of predicted changes in local labor demand. Second, the housing prices information comes from the Federal Housing Finance Agency and is available at the county by year level. Finally, start and end dates for all 287(g) agreements came from reports published by ICE, the Department of Homeland Security, the Migration Policy Institute, as well as Kostandini, Mykerezi and Escalante (2013), and various news articles. We aggregate up the county housing and 287(g) information to the PUMA level using a similar weighting process as described in the main text for the SC variable.

## C Alternative Definition of Undocumented Immigrants

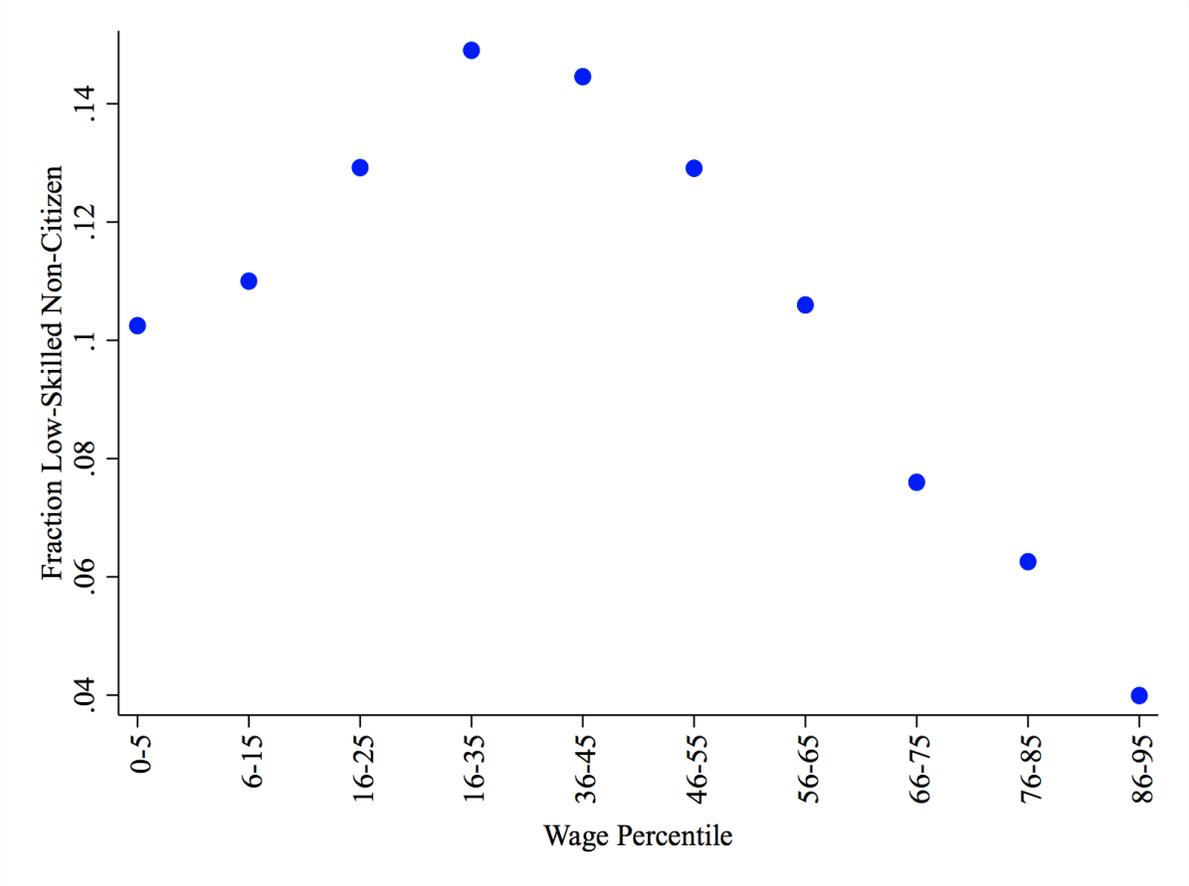
In Appendix Table (A10) we follow as closely as possible the definition of undocumented immigrants proposed by Borjas (2017). We approximate this method by defining likely undocumented immigrants as non-citizens who meet the following requirements: a. arrive after 1980; b. do not receive Social Security or SSI income; c. not a veteran; d. does not work in public administration, or occupations that require licensing (lawyer, registered nurses, physicians); e. Not from Cuba. Finally, we drop non-citizens with a citizen or legal immigrant spouse, according to the above restrictions. Relative to the Borjas method, due to data limitations, we cannot base our definition on the receipt of Medicaid or Medicare benefits, the receipt of public housing or rental subsidies, and we do not use a complete list of occupations that require licenses. This Borjas definition results in a larger and more educated sample of likely undocumented than our main measure of low-skilled non-citizens.<sup>31</sup>

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<sup>31</sup>This description is similar to that in East et al. (2018).

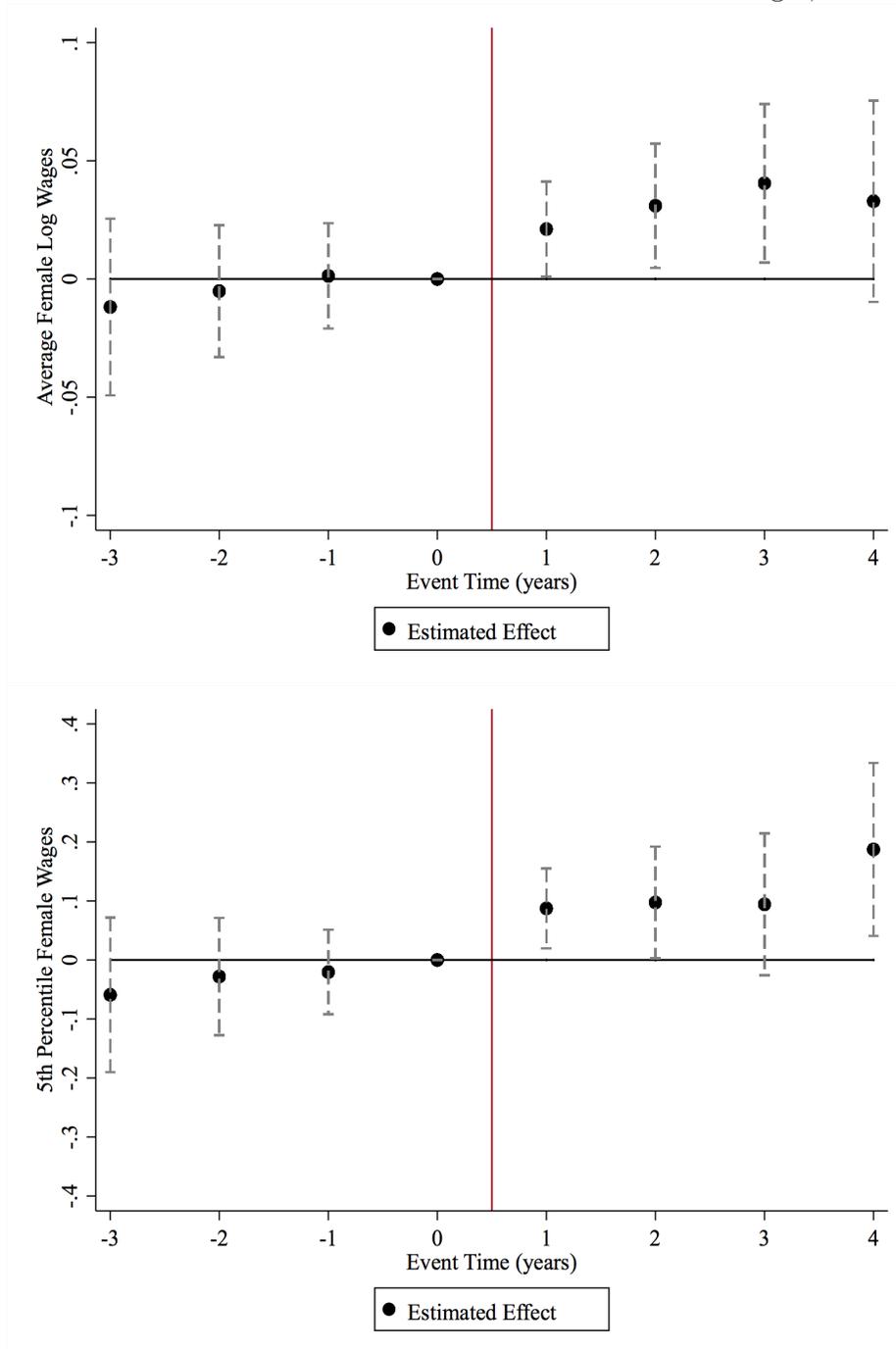
# D Additional Results

**Figure A1:** Fraction of Personal Service Workers who are Low-Skilled Non-Citizens across the Wage Distribution



Notes: Data are from the 2005 American Community Survey. The sample includes all individuals aged 20-64 who report working in the personal service industry or occupation. Fraction of workers in each wage percentile bin (0-5, 6-15, etc) that are low-skilled non-citizens is shown. The results are weighted using individual survey weights.

**Figure A2:** Effect of SC on Female Personal Service Worker’s Wages, Event Study



Notes: Data are from the 2005-2014 American Community Survey. The sample includes all women aged 20-64 who report working in the personal services and the data is collapsed at the PUMA by year level. The model includes PUMA fixed effects, year fixed effects, PUMA-year controls, and PUMA characteristics trends. The PUMA-year controls include: labor demand controls, housing price controls, and 287(g) programs at the PUMA level. The PUMA characteristics trends include interactions of time trends with the change in PUMA characteristics between 2000 and 2005 (this includes changes in the following: the PUMA-level labor force participation rate, unemployment rate, and housing prices, the share of the PUMA that are citizens, black, non-citizens, have children, have young children, work more than 50 and 60 hours, and have a college degree, masters degree, or a Ph.D. as well as the same education categories just for women). The results are weighted by the PUMA population in 2000. Standard errors are clustered at the PUMA level and the 95% confidence intervals are shown by the dashed lines. The horizontal axis denotes “event time” where the omitted year is the year before the first SC policy in the PUMA was implemented.

**Table A1:** Characteristics of Deportees under SC, 2008-2014

Characteristic	Share of Deportees (percent)
Most Serious Criminal Conviction	
None	17.45
Traffic	5.57
Immigration	7.67
DUI	11.50
Marijuana	4.63
Other	53.18
Gender	
Male	97.20
Country of Citizenship	
Latin America	94.53

Notes: Data on deportees comes from individual listings of all deportations under SC from TRAC records described in Appendix A. The most serious criminal conviction may be, but does not have to be, the crime for which the deportee was initially apprehended.

**Table A2:** Correlation of 2000-2005 Changes in PUMA Characteristics and SC Adoption Year

	Mean of Change in Characteristic	Standard Deviation of Change in Characteristic	Regression Estimate
Change % Citizen	0.005	0.023	-1.111 (2.218)
Change % Black	0.001	0.025	-1.450 (1.429)
Change % Labor Force Participation	0.588	2.543	-0.003 (0.015)
Change % Non-Citizen	0.009	0.024	-4.800** (2.048)
Change % with Children Under 6	-0.006	0.024	-2.033 (1.667)
Change % with Children	-0.008	0.030	0.189 (1.310)
Change % Work > 50 Hours if Work	-1.022	2.113	0.026 (0.023)
Change % Work > 60 Hours if Work	-0.432	1.242	-0.019 (0.038)
Change % with College	0.166	0.021	2.707 (2.782)
Change % with Masters	0.010	0.013	7.461 (4.680)
Change % with Ph.D.	0.001	0.008	7.513 (6.468)
Change % Women with College	0.010	0.014	-1.442 (4.130)
Change % Women with Masters	0.007	0.008	5.204 (7.066)
Change % Women with Ph.D.	0.001	0.005	-10.351 (10.737)
Change Unemployment Rate	1.10	1.011	-0.066 (0.042)
Change Housing Prices	47.47	31.217	-0.007*** (0.001)
Mean Y			2011.71
R-Squared			0.06
N			1071

Notes: Data are from the 2005 American Community Survey and 2000 Census.

**Table A3:** Most Common Occupations in Personal Services in 2005

Occupation	% of Total Employment in Personal Services	% of Occupation Emp that is LSNC	% of Occupation Emp that is Female LSNC
hairdressers and cosmetologists	19.37	8.03	6.71
housekeepers, maids, butlers, stewards	16.19	36.53	33.88
child care workers	3.55	15.90	15.78
hotel clerks	2.70	3.83	2.53
nursing aides, orderlies, and attendant	2.55	11.16	10.22
supervisors of personal service jobs	2.47	3.22	1.57
laundry workers	2.44	33.19	25.20
managers and administrators	2.28	1.12	0.04
cooks, variously defined	2.27	14.69	5.28
photographers	1.97	1.78	0.28
barbers	1.86	4.63	1.56
waiter/waitress	1.60	13.05	3.99
salespersons	1.57	4.72	2.91
receptionists	1.50	3.01	2.17
supervisors and proprietors of sales jobs	1.15	5.88	3.15
secretaries	1.10	3.39	3.23
pressing machine operators (clothing)	1.09	40.54	28.58

Notes: Data are from the 2005 American Community Survey. The sample includes all individuals aged 20-64 who report working in the personal service industry or occupation. The first column shows the percent of total employment in personal services that comes from each occupation. The second and third columns show the percent of employment in the given occupation that is low-skilled non-citizens and female low-skilled non-citizens, respectively. The results are weighted using individual survey weights.

**Table A4:** Effect of SC on High-Skilled Women's Fertility

	Birth in Last 12 Months (*100)
<i>A: Enforcement- January</i>	
Secure Communities	0.115 (0.101)
Mean Y	5.81
N	1768834
<i>B: Enforcement- Fraction Last Year</i>	
Secure Communities	0.102 (0.120)
Mean Y	5.81
N	1768834

Notes: Data are from the 2005-2014 American Community Survey. The sample includes all U.S. citizen women with a college degree or more aged 20-50. All models include PUMA fixed effects, and year fixed effects. The PUMA-year controls include: labor demand controls, housing price controls, and 287(g) programs at the PUMA level. The PUMA characteristics trends include interactions of time trends with the change in PUMA characteristics between 2000 and 2005 (this includes changes in the following: the PUMA-level labor force participation rate, unemployment rate, and housing prices, the share of the PUMA that are citizens, black, non-citizens, have children, have young children, work more than 50 and 60 hours, and have a college degree, masters degree, or a Ph.D. as well as the same education categories just for women). The individual demographic controls include: age, number of kids, educational attainment, marital status, and race. The results are weighted using the individual-level weights in the ACS. Standard errors clustered at the PUMA level and shown in parentheses. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01

**Table A5:** Effect of SC on Non-Citizens' Labor Supply in Personal Services, Alternative Outcome

	All	Women	Men
<i>A: # Low-Skilled Non-Cit Work in Personal Services / (PUMA Pop in 2005/100,000)</i>			
Secure Communities	4.653 (7.587)	0.857 (6.620)	3.795 (3.565)
Mean Y	279.97	218.05	61.93
P-Value	0.54	0.90	0.29
N	10700	10700	10700
<i>B: # Hispanic Low-Skilled Non-Cit Work in Personal Services / (PUMA Pop in 2005/100,000)</i>			
Secure Communities	0.662 (6.334)	-1.124 (5.877)	1.785 (2.924)
Mean Y	196.52	156.23	40.29
P-Value	0.92	0.85	0.54
N	10700	10700	10700

Notes: Data are from the 2005-2014 American Community Survey. The sample includes individuals aged 20-64 who report being non-citizens, who have at most a high school degree, and who report their current or most recent industry or occupation as personal services. The data is collapsed at the PUMA by year level and the models are weighted by the PUMA population in 2000. All models include PUMA fixed effects, year fixed effects, PUMA-year controls, and PUMA characteristics trends. The PUMA-year controls include: labor demand controls, housing price controls, and 287(g) programs at the PUMA level. The PUMA characteristics trends include interactions of time trends with the change in PUMA characteristics between 2000 and 2005 (this includes changes in the following: the PUMA-level labor force participation rate, unemployment rate, and housing prices, the share of the PUMA that are citizens, black, non-citizens, have children, have young children, work more than 50 and 60 hours, and have a college degree, masters degree, or a Ph.D. as well as the same education categories just for women). Standard errors clustered at the PUMA level and shown in parentheses. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01

**Table A6:** Effect of SC on Female Non-Citizens' Labor Supply in Personal Services, Chilling Effects

	Main	% Nonviolent Dep
<i>A: Low-Skilled Non-Cit Work &gt;0 Hours</i>		
Secure Communities	-0.570 (0.786)	-0.091 (4.846)
SC* % Nonviolent Dep		-0.448 (5.922)
Mean Y	87.79	87.84
Mean Intensity		0.81
SD Intensity		0.07
$\beta$ -Mean Int		-0.46
$\beta$ -1 SD Higher Int		-0.49
N	52330	51311
<i>B: Hispanic Low-Skilled Non-Cit Work &gt;0 Hours</i>		
Secure Communities	-0.772 (1.014)	-1.200 (6.906)
SC* % Nonviolent Dep		0.916 (8.498)
Mean Y	87.13	87.15
Mean Intensity		0.81
SD Intensity		0.06
$\beta$ -Mean Int		-0.46
$\beta$ -1 SD Higher Int		-0.41
N	37130	36434
<i>C: Low-Skilled Non-Cit Usual Hours Work</i>		
Secure Communities	-0.617 (0.389)	2.760 (2.685)
SC* % Nonviolent Dep		-4.097 (3.343)
Mean Y	29.30	29.29
Mean Intensity		0.81
SD Intensity		0.07
$\beta$ -Mean Int		-0.57
$\beta$ -1 SD Higher Int		-0.85
N	52330	51311
<i>D: Hispanic Low-Skilled Non-Cit Usual Hours Work</i>		
Secure Communities	-0.840* (0.491)	2.507 (2.990)
SC* % Nonviolent Dep		-3.990 (3.782)
Mean Y	28.10	28.07
Mean Intensity		0.81
SD Intensity		0.06
$\beta$ -Mean Int		-0.71
$\beta$ -1 SD Higher Int		-0.95
N	37130	36434
<i>E: Log Wage of Female Personal Service Workers</i>		
Secure Communities	0.021** (0.010)	-0.046 (0.058)
SC* % Nonviolent Dep		0.085 (0.070)
Mean Y	5.92	5.92
Mean Intensity		0.81
SD Intensity		0.08
$\beta$ -Mean Int		0.02
$\beta$ -1 SD Higher Int		0.03
N	10700	10490

Notes: Data are from the 2005-2014 American Community Survey. The sample in Panels A-D includes individuals aged 20-64 who report being non-citizens, who have at most a high school degree, and who report their current or most recent industry or occupation as personal services. The sample in Panel E includes all workers in personal services aged 20-64. In Panels A-D, the data is at the individual level and the models are weighted using the individual-level weights in the ACS. In Panel E, the data is collapsed to the PUMA by year level and the models are weighted by the PUMA population in 2000. All models include PUMA fixed effects, year fixed effects, PUMA-year controls, and PUMA characteristics trends. The PUMA-year controls include: labor demand controls, housing price controls, and 287(g) programs at the PUMA level. The PUMA characteristics trends include interactions of time trends with the change in PUMA characteristics between 2000 and 2005 (this includes changes in the following: the PUMA-level labor force participation rate, unemployment rate, and housing prices, the share of the PUMA that are citizens, black, non-citizens, have children, have young children, work more than 50 and 60 hours, and have a college degree, masters degree, or a Ph.D. as well as the same education categories just for women). Standard errors clustered at the PUMA level and shown in parentheses. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Table A7:** Effect of SC on High-Skilled Mothers' Labor Supply, Robustness to Timing

	Work > 0 Hours	Usual Hours Worked
<i>A: Any Kids, January</i>		
Secure Communities	-0.350*	-0.099
	(0.182)	(0.088)
Mean Y	83.00	31.12
N	1212842	1212842
<i>B: Any Kids, Fraction Last Year</i>		
Secure Communities	-0.242	-0.120
	(0.241)	(0.118)
Mean Y	83.00	31.12
N	1212842	1212842
<i>C: Kids Under 6, January</i>		
Secure Communities	-0.659*	-0.341**
	(0.355)	(0.154)
Mean Y	78.98	28.78
N	392473	392473
<i>D: Kids Under 6, Fraction Last Year</i>		
Secure Communities	-0.878**	-0.406**
	(0.441)	(0.196)
Mean Y	78.98	28.78
N	392473	392473

Notes: Data are from the 2005-2014 American Community Survey. The sample includes U.S. citizen mothers with a college degree or more aged 20-64. The model includes PUMA fixed effects, year fixed effects, PUMA-year controls, PUMA characteristics trends and demographic controls. The PUMA-year controls include: labor demand controls, housing price controls, and 287(g) programs at the PUMA level. The PUMA characteristics trends include interactions of time trends with the change in PUMA characteristics between 2000 and 2005 (this includes changes in the following: the PUMA-level labor force participation rate, unemployment rate, and housing prices, the share of the PUMA that are citizens, black, non-citizens, have children, have young children, work more than 50 and 60 hours, and have a college degree, masters degree, or a Ph.D. as well as the same education categories just for women). The individual demographic controls include: age, number of kids, number of kids under age 6, educational attainment, marital status, and race. The results are weighted using the individual-level weights in the ACS. Standard errors clustered at the PUMA level and shown in parentheses. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Table A8:** Effect of SC on High Skill Mothers' Labor Supply, Robustness to Dropping Early SC Adopters

	Main	% LSNC Hisp
<i>A: Work &gt;0 Hours, Women with Kids, Full Sample</i>		
Secure Communities	-0.350*	0.244
	(0.182)	(0.288)
SC * Intensity		-0.950***
		(0.356)
Mean Y	83.00	82.99
N	1212842	1210014
<i>B: Work &gt;0 Hours, Women with Kids, Drop Early Adopter</i>		
Secure Communities	-0.215	0.366
	(0.236)	(0.326)
SC * Intensity		-0.972**
		(0.380)
Mean Y	83.42	83.40
N	939415	936587
<i>C: Hours Worked, Women with Kids, Full Sample</i>		
Secure Communities	-0.099	0.264*
	(0.088)	(0.137)
SC * Intensity		-0.587***
		(0.174)
Mean Y	31.12	31.12
N	1212842	1210014
<i>D: Hours Worked, Women with Kids, Drop Early Adopter</i>		
Secure Communities	-0.110	0.263*
	(0.114)	(0.156)
SC * Intensity		-0.634***
		(0.186)
Mean Y	31.10	31.09
N	939415	936587
<i>E: Work &gt;0 Hours, Women with Kids Under 6, Full Sample</i>		
Secure Communities	-0.659*	0.954*
	(0.355)	(0.560)
SC * Intensity		-2.585***
		(0.677)
Mean Y	78.98	78.97
N	392473	391622
<i>F: Work &gt;0 Hours, Women with Kids Under 6, Drop Early Adopter</i>		
Secure Communities	-0.254	1.231*
	(0.459)	(0.627)
SC * Intensity		-2.505***
		(0.737)
Mean Y	79.40	79.38
N	305176	304325
<i>G: Hours Worked, Women with Kids Under 6, Full Sample</i>		
Secure Communities	-0.341**	0.428*
	(0.154)	(0.227)
SC * Intensity		-1.232***
		(0.298)
Mean Y	28.78	28.78
N	392473	391622
<i>H: Hours Worked, Women with Kids Under 6, Drop Early Adopter</i>		
Secure Communities	-0.289	0.441*
	(0.208)	(0.262)
SC * Intensity		-1.231***
		(0.327)
Mean Y	28.76	28.75
N	305176	304325

Notes: Data are from the 2005-2014 American Community Survey. The sample includes U.S. citizen mothers with a college degree or more aged 20-64. The model includes PUMA fixed effects, year fixed effects, PUMA-year controls, PUMA characteristics trends and demographic controls. The PUMA-year controls include: labor demand controls, housing price controls, and 287(g) programs at the PUMA level. The PUMA characteristics trends include interactions of time trends with the change in PUMA characteristics between 2000 and 2005 (this includes changes in the following: the PUMA-level labor force participation rate, unemployment rate, and housing prices, the share of the PUMA that are citizens, black, non-citizens, have children, have young children, work more than 50 and 60 hours, and have a college degree, masters degree, or a Ph.D. as well as the same education categories just for women). The individual demographic controls include: age, number of kids, number of kids under age 6, educational attainment, marital status, and race. The results are weighted using the individual-level weights in the ACS. Standard errors clustered at the PUMA level and shown in parentheses. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01

**Table A9:** Effect of SC on High Skill Mothers' Labor Supply, Robustness to Alternative Housing Price Controls

	Work > 0 Hours	Usual Hours Worked
<i>A: Kids of Any Age, Baseline</i>		
Secure Communities	-0.350* (0.182)	-0.099 (0.088)
Mean Y	83.00	31.12
N	1212842	1212842
<i>B: Kids of Any Age, State Housing Prices</i>		
Secure Communities	-0.362** (0.183)	-0.101 (0.089)
Mean Y	83.00	31.12
N	1213275	1213275
<i>C: Kids of Any Age, State Leave Out PUMA Housing Prices</i>		
Secure Communities	-0.334* (0.184)	-0.091 (0.088)
Mean Y	82.98	31.12
N	1201624	1201624
<i>D: Kids Under 6, Baseline</i>		
Secure Communities	-0.659* (0.355)	-0.341** (0.154)
Mean Y	78.98	28.78
N	392473	392473
<i>E: Kids Under 6, State Housing Prices</i>		
Secure Communities	-0.677* (0.354)	-0.346** (0.154)
Mean Y	78.98	28.78
N	392637	392637
<i>F: Kids Under 6, State Leave Out PUMA Housing Prices</i>		
Secure Communities	-0.625* (0.354)	-0.324** (0.154)
Mean Y	78.98	28.80
N	388302	388302

Notes: Data are from the 2005-2014 American Community Survey. The sample includes U.S. citizen mothers with a college degree or more aged 20-64. The model includes PUMA fixed effects, year fixed effects, PUMA-year controls, PUMA characteristics trends and demographic controls. The PUMA-year controls include: labor demand controls, housing price controls, and 287(g) programs at the PUMA level. The PUMA characteristics trends include interactions of time trends with the change in PUMA characteristics between 2000 and 2005 (this includes changes in the following: the PUMA-level labor force participation rate, unemployment rate, and housing prices, the share of the PUMA that are citizens, black, non-citizens, have children, have young children, work more than 50 and 60 hours, and have a college degree, masters degree, or a Ph.D. as well as the same education categories just for women). The individual demographic controls include: age, number of kids, number of kids under age 6, educational attainment, marital status, and race. The results are weighted using the individual-level weights in the ACS. Standard errors clustered at the PUMA level and shown in parentheses.\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Table A10:** Effect of SC on Female Labor Supply in Personal Services, Alternative Measures of Likely Undocumented

	LSNC, arrive 1980+, born in Mexico/Central America	Hispanic LSNC, arrive 1980+	Borjas Approximation
<i>A: Work &gt; 0 Hours</i>			
Secure Communities	0.262 (1.099)	-0.761 (1.056)	0.130 (0.792)
Mean Y	86.73	87.07	90.34
P-Value	0.81	0.47	0.87
N	29061	34027	39975
<i>B: Usual Hours Work</i>			
Secure Communities	-0.272 (0.524)	-0.952* (0.507)	-0.740* (0.405)
Mean Y	27.56	27.96	31.11
P-Value	0.60	0.06	0.07
N	29061	34027	39975

Data are from the 2005-2014 American Community Survey. The sample includes women aged 20-64 who report their current or most recent industry or occupation as personal services. All models include PUMA fixed effects, year fixed effects, PUMA-year controls, and PUMA characteristics trends. The PUMA-year controls include: labor demand controls, housing price controls, and 287(g) programs at the PUMA level. The PUMA characteristics trends include interactions of time trends with the change in PUMA characteristics between 2000 and 2005 (this includes changes in the following: the PUMA-level labor force participation rate, unemployment rate, and housing prices, the share of the PUMA that are citizens, black, non-citizens, have children, have young children, work more than 50 and 60 hours, and have a college degree, masters degree, or a Ph.D. as well as the same education categories just for women). The results are weighted using the individual-level weights in the ACS. Standard errors clustered at the PUMA level and shown in parentheses. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01

**Table A11:** Effect of SC on High-Skilled Mothers' Labor Supply, By Age of Youngest Child

	Work > 0 Hours	Usual Hours Worked
<i>A: Youngest Kid 0-2</i>		
Secure Communities	-0.829* (0.436)	-0.462** (0.200)
Mean Y	78.85	28.73
P-Value	0.06	0.02
N	268524	268524
<i>B: Youngest Kid 3-5</i>		
Secure Communities	-0.241 (0.505)	-0.162 (0.231)
Mean Y	79.65	29.05
P-Value	0.63	0.48
N	179463	179463

Notes: Data are from the 2005-2014 American Community Survey. The sample includes U.S. citizen mothers with a college degree or more aged 20-64. The model includes PUMA fixed effects, year fixed effects, PUMA-year controls, PUMA characteristics trends and demographic controls. The PUMA-year controls include: labor demand controls, housing price controls, and 287(g) programs at the PUMA level. The PUMA characteristics trends include interactions of time trends with the change in PUMA characteristics between 2000 and 2005 (this includes changes in the following: the PUMA-level labor force participation rate, unemployment rate, and housing prices, the share of the PUMA that are citizens, black, non-citizens, have children, have young children, work more than 50 and 60 hours, and have a college degree, masters degree, or a Ph.D. as well as the same education categories just for women). The individual demographic controls include: age, number of kids, number of kids under age 6, educational attainment, marital status, and race. The results are weighted using the individual-level weights in the ACS. Standard errors clustered at the PUMA level and shown in parentheses. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01

**Table A12:** Long-Run Effect of SC around Birth on Labor Supply of High-Skilled Citizen Fathers

	Work > 0 Hours	Usual Hours Worked	Log Weekly Wages
<i>A: Youngest Child Age 3–5</i>			
SC when Youngest Aged 0–2	-0.087 (0.124)	-0.156 (0.098)	-0.010 (0.006)
Mean Y	97.79	45.14	7.55
P-Value	0.48	0.11	0.10
N	162791	162791	152346
<i>B: Youngest Child Age 6–9</i>			
SC when Youngest Aged 0–2	-0.417 (0.290)	-0.289 (0.232)	0.006 (0.014)
Mean Y	97.56	45.03	7.60
P-Value	0.15	0.21	0.68
N	118085	118085	109791

Notes: Data are from the 2005-2017 American Community Survey. The sample includes U.S. citizen fathers with a college degree or more aged 20-64 whose youngest child was born between 2000-2012. The model includes PUMA fixed effects, year fixed effects, year of birth of the youngest child fixed effects. PUMA-year controls, PUMA characteristics trends and demographic controls. The PUMA-year controls include: labor demand controls, housing price controls, and 287(g) programs at the PUMA level. The PUMA characteristics trends include interactions of time trends with the change in PUMA characteristics between 2000 and 2005 (this includes changes in the following: the PUMA-level labor force participation rate, unemployment rate, and housing prices, the share of the PUMA that are citizens, black, non-citizens, have children, have young children, work more than 50 and 60 hours, and have a college degree, masters degree, or a Ph.D. as well as the same education categories just for women). The individual demographic controls include: age, number of kids, number of kids under age 6, educational attainment, marital status, and race. The results are weighted using the individual-level weights in the ACS. Standard errors clustered at the PUMA level and shown in parentheses. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01