Immigration Enforcement and Labor Supply: Hispanic Youth in Mixed-Status Families

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Between 2014 and 2018, U.S. Immigration and Customs Enforcement (ICE) conducted approximately half a million arrests in the interior of the country—an effort that overwhelmingly affected Hispanic immigrants and, in many cases, their US-born children. It is estimated that 97 percent of immigrants deported during this period were of Latino descent,[1] and over 140,000 of those deported had US-born children.[2] Furthermore, approximately 4.1 million US-born children still live in a family where at least one parent is unauthorized (Capps, Fix and Zong, 2016). While the enforcement of immigration policies mainly targets unauthorized immigrants, it also strains the socioeconomic wellbeing of US citizens, many of whom are children. Previous research finds that intensified immigration enforcement impacts US citizens' labor outcomes, political engagement, poverty rates, and participation in social programs.[3] Yet, our understanding of the relationship between immigration policy and US-citizen youth is limited.

Our study addresses this gap in the literature by examining how intensified immigration enforcement impacts the labor supply of US-born Hispanic youth living in mixed-status families.[4] We contend that a sudden increase in ICE arrests—above the expected local trend—stifles labor supply among non-citizen adults in mixed-status families, as unauthorized immigrants respond to the increased risk of apprehension and deportation. We hypothesize that this chilling effect ultimately induces US-born youth in these homes to enter the labor force in an attempt to mitigate short term reductions in household income. We test this hypothesis using data from the 2014–2018 basic monthly Current Population Survey (CPS) and exogenous variation in the geographic and temporal distribution of ICE arrests observed for each MSA and month during this period.

Our analysis provides evidence that the intensification in immigration enforcement activities, as captured by a sudden increase in local ICE arrests, has led to an increase in the labor supply of

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[1] See: U.S. Immigration and Customs Enforcement (2020)

[2] ICE bi-annual reports to Congress, e.g., `https://www.hsdl.org/?view&did=817380`. Accessed October 2020.

[3] See, for example, Amuedo-Dorantes and Bansak (2014); Amuedo-Dorantes and Lopez (2017); Amuedo-Dorantes, Arenas-Arroyo and Sevilla (2018); Amuedo-Dorantes and Bucheli (2020); Bohn, Lofstrom and Raphael (2015); East et al. (2018); Orrenius and Zavodny (2015); Watson (2014).

[4] Mixed-status families, as described in the literature, have been characterized as families where at least one member's immigration status differs from all other members.

US-born Hispanic adolescents (age 15 to 18) living in mixed-status families. We also observe a notable differential response by gender. Specifically, the shift in labor supply among adolescent women was concentrated along the extensive margin (labor force participation), while the shift in labor supply among adolescent men was concentrated along the intensive margin (hours worked). In addition to the labor and immigration literature, [5] our work contributes to an emerging literature on the unintended consequences of immigration enforcement on US-citizen adolescent youth. To our knowledge, this is the first study to examine how immigration arrests shift labor supply behavior of US-citizen Hispanic adolescent youth in mixed-status families.

I. Data

The data analyzed in this study comes from the 2014–2018 basic monthly Current Population Survey (CPS). Our sample consists of US-born adolescent youth between the ages of 15 and 18 observed within an metropolitan statistical area (MSA) made available in the CPS.[6] We focus on labor force participation and hours worked in the previous week as the main outcomes of interest; but, also interrogate ethnicity, nativity, citizenship, and family characteristics. Although the CPS does not survey immigration status, respondents are asked to report their country of birth and U.S. citizenship. We use this information to identify US-born children living in a mixed-status family if at least one of the child's parent(s), also observed in the same household, is not a US citizen.

In Table 1, we present summary statistics for our CPS sample of US-born children across mixed-status family typology. Column 1 contains the characteristics of US-born children in non-mixed-status families, where each parent reported being a US citizen.[7] Column 2 contains the characteristics of US-born children in mixed-status families, where at least one parent is not a US citizen. The estimates indicate that US-born children in non-mixed-status families participate in the labor force at higher rates; however, US-born children in mixed-status families work on average two hours longer. Additionally, US-born children in mixed-status and non-mixed-status families experienced 20 percent unemployment over our observation period. In terms of demographic characteristics, we see that 16.5 percent of children in non-mixed-status families identify as Hispanic, while 76.2 percent of US-born children in mixed-status families identify as Hispanic. Both age and gender are no different across the two groups.

Finally, we gather month-by-county ICE arrests data, observed between October 2014 and May 2018.[8] Given that most counties are not identified in the CPS public use file, we cross-walk ICE

[5] See, for example, Amuedo-Dorantes and Bansak (2014); Kostandini, Mykerezi and Escalante (2014); Bohn, Lofstrom and Raphael (2015); Orrenius and Zavodny (2015); Amuedo-Dorantes, Arenas-Arroyo and Sevilla (2020).

[6] We restrict the sample to MSA given that our identification strategy relies on local ICE arrests that we aggregate to the MSA level.

[7] Note this includes US-born and naturalized citizens.

[8] Used in our analysis to capture respondents' overall exposure to immigration enforcement in a period in which several federal, state, and local immigration policies were active across the country, mainly Secure Communities and the Priority Enforcement Program

arrests observed at the county level to the MSA. All ICE arrests that occurred between 2014 and 2018 are illustrated across MSA in Figure 1. To capture sudden changes in local ICE arrests, we compute a 'shock' when the number of arrests in MSA m at time t increases by one standard deviation above the 6-month moving average.[9] This approach addresses concerns of potential MSA-specific trends in immigration enforcement.

II. Methodology

The objective of our empirical strategy is to identify the effect of immigration enforcement on the labor supply of US-born adolescent youth. We leverage geographic and temporal variation in the sudden increase in immigration arrests conducted by ICE agents across MSAs and months. Our strategy assumes that shocks in immigration arrests are exogenous to our variable of interest, namely Hispanic youth labor outcomes, and unobserved MSA characteristics that may drive both labor outcomes and sudden changes in ICE arrests. Notably, the validity of our results does not depend on level differences in immigration enforcement intensity across MSAs, rather the unexpected change in arrests above the local 6-month trend.

The main threat to our identification relies on plausible reverse causality, whereby the sudden change in ICE arrests is explained by Hispanic youth labor force participation at the MSA level. We examine whether this is the case, using data from the American Community Survey (ACS), by regressing the number of annual immigration enforcement shocks on MSA-specific characteristics, including Hispanic labor outcomes, overall unemployment rate, adolescent youth labor force participation, and demographic characteristics. We find that the number of ICE arrests shocks in a given year is only predicted by the share of the MSA population that is Hispanic. As Table 2 indicates, none of the results estimated from several model specifications suggest that immigration arrests are endogenous to either overall or adolescent labor supply.

We further assume that immigration arrests, targeted towards unauthorized immigrants in a given locality, primarily impact families where at least one family member is not a US citizen. Thus, we expect that the effects of immigration enforcement US-born adolescent youth's labor supply will be isolated to individuals who live in mixed-status households. Given this context, and the proportion of Hispanic children in mixed-status families presented in our summary statistics, we expect the treatment effects to be concentrated on US-born Hispanic adolescent youth in mixed-status families. As a falsification exercise, we estimate the impact of immigration arrest shocks on the labor outcomes

(PEP), 287(g) agreements, E-Verify mandates, and omnibus immigration laws (Amuedo-Dorantes and Bucheli, 2020). The implementation of these policies led to the detention and deportation of approximately 480,000 immigrants across the country during the 44 months included in our study. The data was obtained from TRAC.

[9] We standardize the MSA$\times$month number of arrests ($A_{t,m}$) using the moving average. ($\mu_{k=6,m}$) and moving standard deviation ($\sigma_{k=6,m}$) for the preceding 6-month period ($k=6$), where $Z_{t,m} = \frac{A_{t,m}-\mu_{k=6,m}}{\sigma_{k=6,m}}$

of adolescent youth living in non-mixed-status families.

The empirical approach conducted in this study is presented over two models. The first model measures the impact of local ICE arrests shocks on labor supply along the extensive margin. The second model was designed to measure the same relationship, however, along the intensive margin. In the first model, we estimate the probability of labor force participation, $Pr(L_{imt})$, for individual i, in MSA m, at time t using the following logistic regression:

$$Pr(L_{imt} = 1) = \Lambda\left(\alpha S_{mt} + \theta_m + \theta_t + X'_{imt}\beta\right) \tag{1}$$

Labor force participation is represented by the indicator variable L_{imt}, where $L_{imt} = 1$ indicates that individual i, in MSA m at time t, participates in the labor force, and zero otherwise. S_{mt} is an indicator variable that identifies whether there was a shock to ICE arrests in MSA m at time t. The vector X_{imt} includes individual characteristics. Additionally, we account for both MSA fixed effects, θ_m, and time fixed effects, θ_t, measured in year-month periods between October 2014 and May 2018. The former is key to our identification as it controls for MSA-specific characteristics, such as time-invariant immigration enforcement intensity and Hispanic population share. Note that we limit our analysis to immediate labor supply responses contemporaneous to the immigration arrests shock, thus limiting possible household migration responses that would confound our results.

To evaluate the impact of ICE arrests on US-citizen Hispanic youth in mixed-status families, we restrict the sample to US-born citizens and model a three-way interaction between the shock indicator, S_{mt}, a Hispanic ethnicity indicator, and a mixed-status families indicator. We estimate the treatment effect as the cross partial marginal effect of the three-way interaction. All regression estimates using equation 1 are presented as the calculated marginal effects.[10]

In the second model we evaluate the logged hours worked, $\ln h_{imt}$, using the following OLS model:

$$\ln h_{imt} = \alpha S_{mt} + \theta_m + \theta_t + X'_{imt}\beta + \mu_{imt}, \tag{2}$$

Equation 2 is modeled using the same independent variables described in equation 1. While the sample restriction follows the same scheme discussed above, we further limit the sample to include only employed respondents. Note that the covariates to estimate equations 1 and 2 include age, age squared, number of siblings, eldest sibling indicator, school enrollment indicator, parental labor force participation indicator, single parent indicator, as well as MSA and month-year fixed effects.

[10]For instance, the marginal effect for a shock to ICE arrest is calculated as: $\frac{\partial Pr(L_{imt})}{\partial S_{mt}} = \Lambda(\theta_m + \theta_t + \alpha S_{mt} + X'\beta)[1 - \Lambda(\theta_m + \theta_t + \alpha S_{mt} + X'\beta)]\alpha$

III. Findings

Table 3, Panel A contains our primary results from our analysis of labor supply among US-born adolescent youth age 15 to 18. Columns 1 through 3 contain the results for labor force participation (extensive margin) and columns 4 through 6 the results for logged hours worked (intensive margin). The pooled-sample results in Panel A reveal that a sudden and exogenous shock to ICE arrests increases labor force participation by approximately 4-percentage points among US-born Hispanic youth in mixed-status families. We also find that this effect is most likely attributable to US-born adolescent Hispanic women, age 15 to 18, in mixed-status families. The results in Column 2 were estimated using a split sample restricted to women, revealing that US-born adolescent Hispanic women in mixed-status families increased their labor force participation by approximately 5-percentage points in response to a shock in ICE arrests. Results from the split sample of men are positive, but not statistically significant.

Along the intensive margin, the results in column 4, Panel A reveal that a shock to ICE arrests led to an overall increase in the hours worked among US-born Hispanic adolescent youth by approximately 20 percent. We also find that the number of hours worked among US-born adolescent Hispanic men in mixed-status families increased by approximately 18 percent. Results from the split sample of women are positive, but not statistically significant.

Our identification strategy requires that the labor effects of ICE arrests are isolated to US-citizen adolescents in mixed-status families. Thus, if the treatment effects presented in Panel A are correctly identified, we should not observe any changes among US-citizen adolescent youth with US-citizen parents or non-US-citizen adolescents. To test the validity of the first condition, we conduct a simple falsification test by repeating the analysis on the sample of US-born adolescent youth in *non-mixed-status* families. Panel B in Table 3 presents the results of this exercise. As expected, the estimates show no evidence that ICE arrest shocks affect the labor supply of Hispanic adolescents living with US-citizen parents.

Finally, we verify the validity of the second identifying assumption by gauging whether the impact of ICE arrests on labor supply is unique to US-born adolescent youth. Given that non-citizen children face the same limitation as their non-citizen parents, it is expected that the labor supply of non-citizen adolescent youth will remain unaffected or potentially decrease during periods of intensified immigration enforcement. To investigate this, we evaluate equations (1) and (2) using a sample of non-citizen youth and find that shocks in ICE arrests did not affect the labor supply of this group (Table 3, Panel C). This suggests that our estimated effects in Panel A are not driven by MSA-specific economic conditions or other local characteristics, as they would have affected other groups as well. Overall, these results support our main findings that ICE arrests affect the labor supply of US-born

Hispanic adolescent youth living in mixed-status families along the intensive and extensive margins.

IV. Discussion

The existing literature shows that intensified enforcement of US immigration policies has affected both immigrants and their US-born children across various dimensions. This study, shows that ICE arrests lead to an increase in labor force participation and hours worked among US-born Hispanic adolescent youth living in mixed-status families. Using local data on immigration-related arrests between 2014–2018 and data from the CPS, we estimate an increase in ICE arrests by one standard deviation increased labor force participation by approximately 4-percentage points and hours worked by 20 percent.When evaluated across gender, we find that these estimates are mostly driven by US-born Hispanic adolescent women along the extensive margin and US-born Hispanic adolescent men along the intensive margin. It is plausible that this shift in labor supply behavior in response to ICE arrests is attributable to a reduction in labor supply among non-citizen parents as opposed to an increase in labor market opportunities or market wages for adolescent youth.

We consider these treatment effects to be lower-bound estimates for two reasons. First, we model labor supply responses that occur contemporaneously to the ICE arrest shock. Thus, estimates only capture the immediate change in labor supply. Second, we are unable to determine mixed-status families in terms of immigration status using the CPS data. Our treatment group includes US-born children whose parent(s) are non-citizens, but their immigration status may be authorized or unauthorized. While the treatment (a sudden increase in ICE arrest) is identified, the treatment group (mixed-status families) includes some families that may be unaffected by the treatment. Evidence from our falsification test suggests that the labor supply of US-born children in *non-mixed status families* was not affected by ICE arrests. It is reasonable to assume that labor supply among US-born children, whose non-citizen parent(s) are authorized, is also unaffected by ICE arrests. However, more research is needed.

TABLE 1—SUMMARY STATISTICS: US-BORN ADOLESCENT YOUTH (AGE 15 TO 18)

	Non-Mixed-Status Families	Mixed-Status Families
	(1)	*(2)*
Labor force participation (%)	0.211	0.151
	(0.001)	(0.003)
Hours worked last week	18	20
	(0.075)	(0.264)
Unemployment Rate (%)	0.202	0.200
	(0.003)	(0.008)
Hispanic (%)	0.165	0.762
	(0.001)	(0.003)
Age	16	16
	(0.003)	(0.008)
Women (%)	0.489	0.489
	(0.001)	(0.004)
Observations	153,495	18,463

Notes: This table presents the summary statistics for a sample of US-born adolescent youth between the ages of 15 and 18 observed in the CPS. Columns 1 and 2 split the sample between US-born adolescent youth who were observed to live in a non-mixed-status or mixed-status family. The standard errors for each mean or proportion are presented below the respective estimate in parentheses.

TABLE 2—ENDOGENEITY CHECK: DOES HISPANIC LABOR FORCE PARTICIPATION PREDICT IMMIGRATION ENFORCEMENT SHOCKS?

	(1) Number of annual IE shocks	(2) Proportion of year with an IE shock
Hispanic LFP rate	-4.729	-0.394
	(3.011)	(0.251)
Hispanic share in labor force	-15.870	-1.322
	(27.366)	(2.280)
Hispanic unemployment rate	1.067	0.089
	(3.623)	(0.302)
Unemployment rate	-15.746	-1.312
	(13.316)	(1.110)
Adolescent youth LFP rate (16 to 19)	1.991	0.166
	(3.582)	(0.298)
Share of non-US-citizens (2010 ref. pop.)	19.031	1.586
	(26.261)	(2.188)
Share of Hispanics (2010 ref. pop.)	43.396*	3.616*
	(23.182)	(1.932)
Year and MSA FE	✓	✓
Observations	1146	1146
R^2	0.326	0.326

Notes: All specifications include a constant, year fixed effects, and MSA fixed effects. MSA-level immigration enforcement shocks are defined as deviations greater or equal to one standard deviation above the MSA's 6-month moving average in ICE arrests. All variables are aggregated at the MSA×year level. Annual MSA controls were obtained from the 2015–2017 American Community Survey (ACS) 5-year estimates. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

TABLE 3—ICE ARRESTS & LABOR SUPPLY: US-BORN HISPANIC ADOLESCENT YOUTH (AGE 15 TO 18)

Panel A: US-born citizens						
	Labor Force Participation			$\ln(Hours\ Worked)$		
	All	Women	Men	All	Women	Men
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
Enforcement Increase	0.037	0.055	0.024	0.200	0.161	0.187
	(0.019)	(0.025)	(0.028)	(0.085)	(0.138)	(0.108)
Dependent variable mean	0.205	0.219	0.197	2.684	2.645	2.727
Controls	x	x	x	x	x	x
Adjusted R2				0.146	0.148	0.163
No. Obs	171,208	80,774	87,522	28,814	14,887	13,920
Panel B: US-born citizens with citizen parents as a falsification test						
	Labor Force Participation			$\ln(Hours\ Worked)$		
	All	Women	Men	All	Women	Men
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
Enforcement Increase	-0.001	-0.004	0.001	-0.018	-0.007	-0.021
	(0.003)	(0.005)	(0.004)	(0.013)	(0.018)	(0.021)
Dependent variable mean	0.224	0.237	0.212	2.663	2.624	2.706
Controls	x	x	x	x	x	x
Adjusted R2				0.143	0.152	0.162
No. Obs	132,992	63,902	69,012	24,019	12,508	11,500
Panel C: Non US citizens						
	Labor Force Participation			$\ln(Hours\ Worked)$		
	All	Women	Men	All	Women	Men
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
Enforcement Increase	-0.02	-0.049	0.001	0.001	0.094	-0.194
	(0.024)	(0.034)	(0.027)	(0.089)	(0.134)	(0.154)
Dependent variable mean	0.171	0.161	0.190	2.832	2.758	2.896
Controls	x	x	x	x	x	x
Adjusted R2				0.245	0.214	0.31
No. Obs	11,720	5,398	5,795	1,575	714	846

Notes: This table presents the regression results. Results in Panel A were estimated using a sample of US-born adolescent youth between the ages of 15 and 18. Results in Panel B were estimated using a sample of US-born adolescent youth between the ages of 15 and 18 whose parent(s) are US citizens (non-mixed-status families). Results in Panel C were estimated using a sample of non-citizen adolescent youth between the ages of 15 and 18. Columns 1 through 3 in each panel contains the treatment effect estimated in the logit model, where labor force participation is the dependent variable. Columns 4 through 6 in each panel contains the treatment effect coefficient estimated in the log-linear OLS model, where logged hours worked is the dependent variable. The covariates for each model include age, age squared, number of siblings, eldest sibling indicator, school enrollment indicator, parental labor force participation indicator, single parent indicator, as well as MSA and month-year fixed effects. All results were estimated using robust standard errors which were also clustered at the MSA level. The standard errors for each mean or proportion are presented below the respective estimate in parentheses.

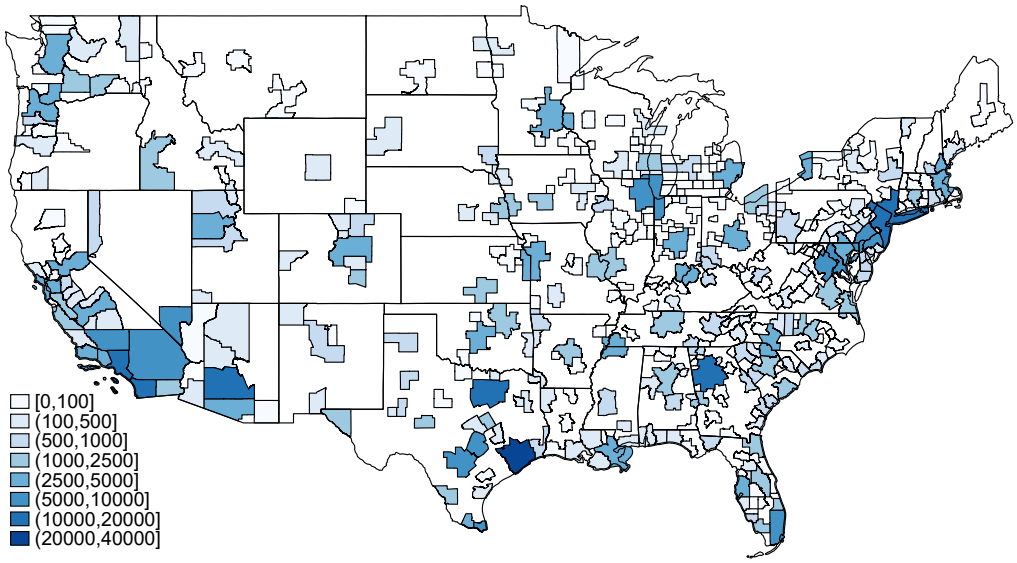


FIGURE 1. ICE ARRESTS BY MSA (OCTOBER 2014–MAY 2018)

REFERENCES

Amuedo-Dorantes, Catalina, and Cynthia Bansak. 2014. "Employment Verification Mandates and the Labor Market Outcome of Likely Unauthorized and Native Workers." *Contemporary Economic Policy*, 32(3): 671–680.

Amuedo-Dorantes, Catalina, and Jose R. Bucheli. 2020. "Immigration Policy and Hispanics' Willingness to Run for Office." *IZA Discussion Paper Series*, No. 13598: 1–45.

Amuedo-Dorantes, Catalina, and Mary J. Lopez. 2017. "The Hidden Educational Costs of Intensified Immigration Enforcement." *Southern Economic Journal*, 84(1): 120–154.

Amuedo-Dorantes, Catalina, Esther Arenas-Arroyo, and Almudena Sevilla. 2018. "Immigration enforcement and economic resources of children with likely unauthorized parents." *Journal of Public Economics*, 158: 63–78.

Amuedo-Dorantes, Catalina, Esther Arenas-Arroyo, and Almudena Sevilla. 2020. "Labor Market Impacts of States Issuing of Driver's Licenses to Undocumented Immigrants." *Labour Economics*, 63: 101805.

Bohn, Sarah, Magnus Lofstrom, and Steven Raphael. 2015. "Do E-Verify Mandates Improve Labor Market Outcomes of Low-Skilled Native and Legal Immigrant Workers?" *Southern Economic Journal*, 81(4): 960–979.

Capps, Randy, Michael Fix, and Jie Zong. 2016. "A Profile of U.S. Children with Unauthorized Immigrant Parents." *Migration Policy Institute*, 1–25.

East, Chloe N, Philip Luck, Hani Mansour, and Andrea Velasquez. 2018. "The Labor Market Effects of Immigration Enforcement." *IZA Discussion Paper Series*, No. 11486.

Kostandini, Genti, Elton Mykerezi, and Cesar Escalante. 2014. "The Impact of Immigration Enforcement on the U.S. Farming Sector." *American Journal of Agricultural Economics*, 96(1): 172–192.

Orrenius, Pia M., and Madeline Zavodny. 2015. "The Impact of E-Verify Mandates on Labor Market Outcomes." *Southern Economic Journal*, 81(4): 947–959.

U.S. Immigration and Customs Enforcement. 2020. *ICE Statistics.* U.S. Department of Homeland Security.

Watson, Tara. 2014. "Inside the Refrigerator: Immigration Enforcement and Chilling Effects in Medicaid Participation." *American Economic Journal: Economic Policy*, 6(3): 313–338.