

# Mexican migration flows and agricultural labor markets in the U.S.

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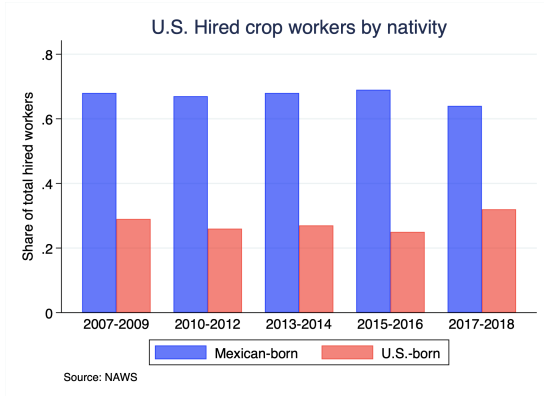
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# Mexican migrants and U.S. agricultural labor markets

- 2 out of 3 hired farmworkers in the U.S. were born in Mexico.



- Mexican migration to the U.S. is in decline since 2005.
- Prevalence of labor shortages is high.

# Mexican migrants and U.S. agricultural labor markets

- Last few years have exacerbated these trends...

## *Farmworkers, Mostly Undocumented, Become 'Essential' During Pandemic*

Immigrant field workers have been told to keep working despite stay-at-home directives, and given letters attesting to their "critical" role in feeding the country.



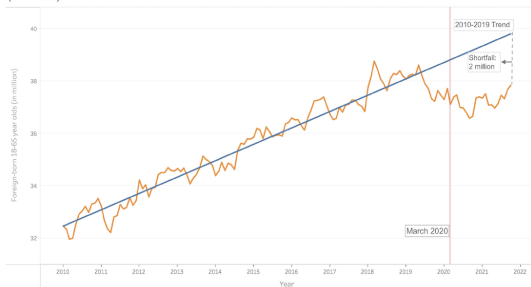
A strawberry field in California's Salinas Valley. Carlos Chavarria for The New York Times



By Miriam Jordan

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## WORKING-AGE FOREIGN-BORN POPULATION (2010-2021)



Source: U.S. Bureau of Labor Statistics, and Current Population Survey, U.S. Census Bureau

EconoFact econofact.org

Source: Peri & Zaiour, 2022.

## This paper:

- How do agricultural labor markets in the U.S. adjust to changes in migration flows from Mexico?
  - Type of employment and wages
  - Direct-hires; Contract labor; Guest seasonal workers
- **How:** Instrument for migration inflows with of violent shocks at origin with preexisting migration networks.
- We find important differences between short- and long-run responses.

## Conceptual Framework: Martin (2017) 4-S strategy

Employers may adapt to lower immigration rates following 4 broad paths:

- *Satisfy*: Faster wage growth.
- *Stretch*: Expansion of labor-market intermediaries (Taylor & Thilmany, 1993).
- *Supplement*: Increases in H-2A guest-worker requests.
- *Substitute*: Increased mechanization; shifts away from labor-intensive crops.

# Measuring migration inflows from Mexico:

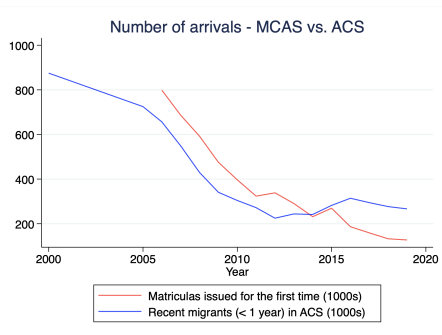
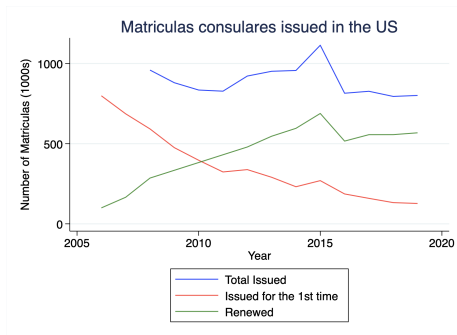
## *Matrículas Consulares de Alta Seguridad (MCAS)*



- ID card issued by Mexican Consulates regardless of migratory status.
- Accepted as proof of identity by most states & local authorities.
- Records municipality of birth and county of residence.
- $\approx$  5 million *new* cards issued between 2006–2019

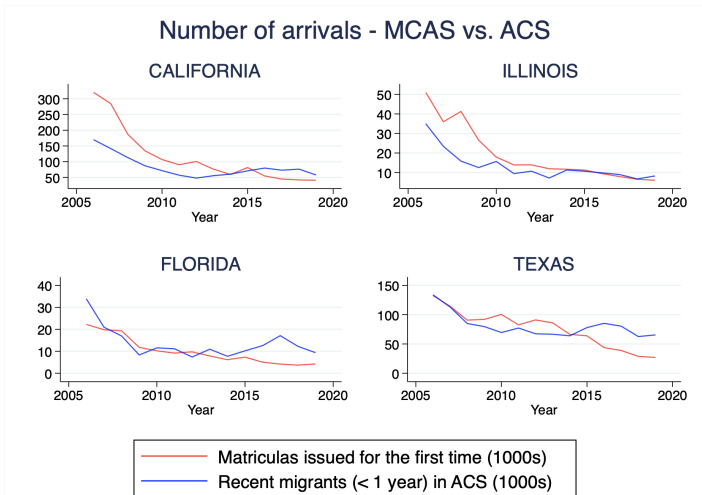
# MCAS vs. ACS

MCAS figures track observed Mexican-born migrant inflows in the ACS:



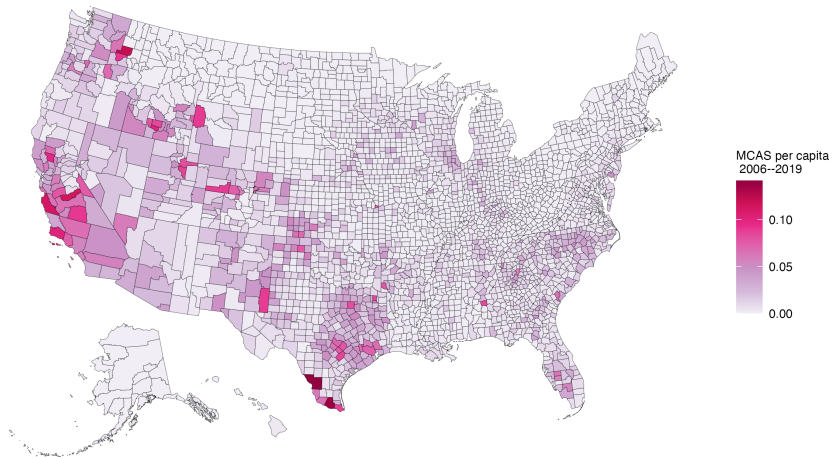
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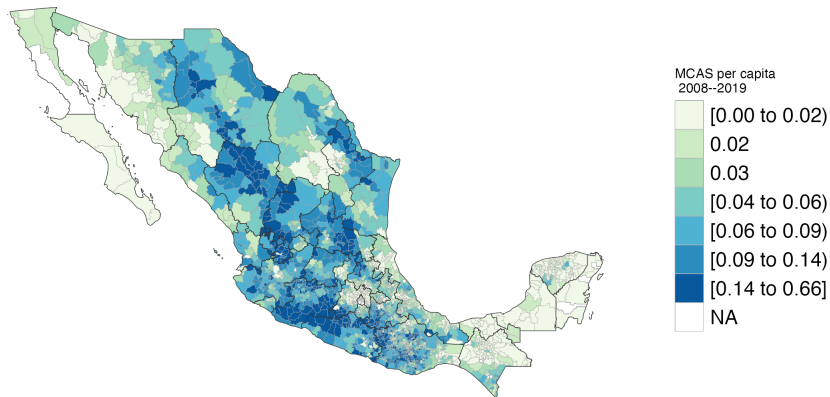




# We can measure migration inflows at the county level...

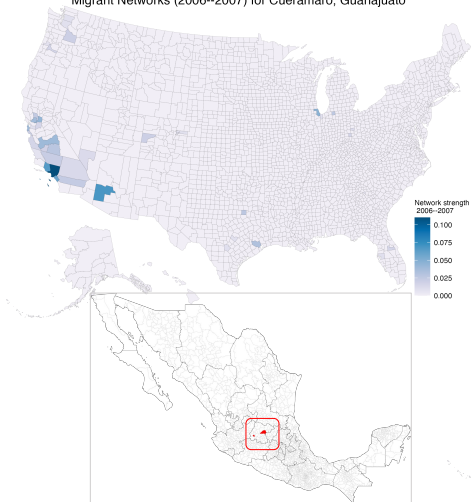


# Outflows at the municipality level...

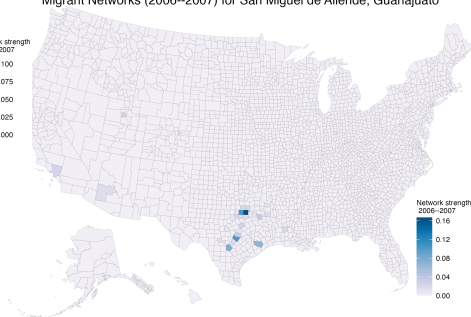


# ...and municipality-county migration networks

Migrant Networks (2006--2007) for Cuernamaro, Guanajuato

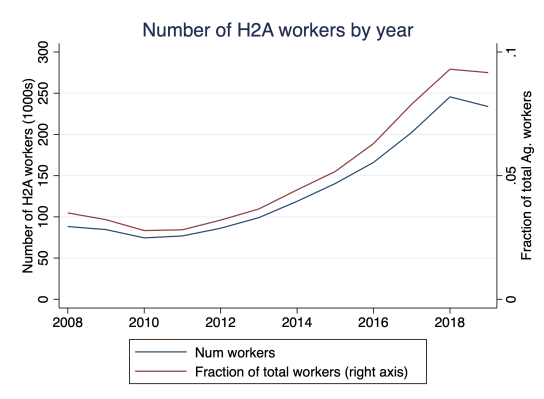


Migrant Networks (2006--2007) for San Miguel de Allende, Guanajuato



- Wages and Employment: QCEW
  - NAICS 111: “Crop production Workers” → Direct hires.
  - NAICS 115: “Agriculture support activities” → Contract workers.
  - Sample: For each industry, counties that have information for *all* quarters throughout (2008–2019).
  
- H-2A requests: Department of Labor
  
- Violence: Mexican National Statistics Office (INEGI).

# H-2A Temporary Agricultural Workers



Employers must:

- Demonstrate that there are not enough U.S. workers available.
- Show that employing H-2A workers will not adversely affect native wages.
- (Sometimes) provide housing and transport.

## Methodology

For industry  $i$  in county  $c$  in year  $t$ , specify a regression in differences:

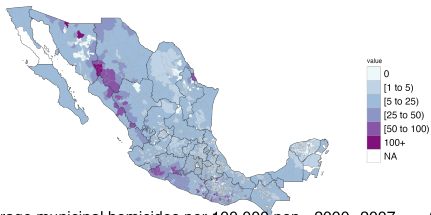
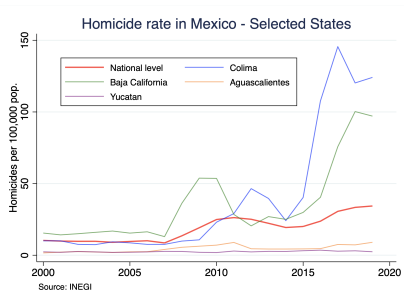
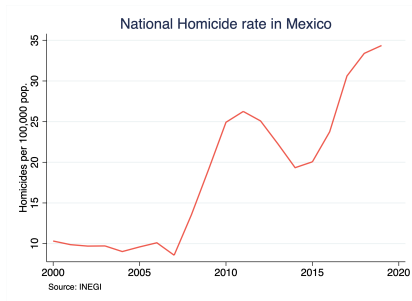
$$\Delta y_{c,t}^i = \beta_0 + \beta_1 \left( \frac{\Delta \text{Migrants}_{c,t}}{\text{Population}_{c,t^0}} \right) + X'_{c,t} \gamma + \delta_t + \mu_c + \varepsilon_{c,t}$$

To isolate supply-driven changes,  $\frac{\Delta \text{Migrants}_{c,t}}{\text{Population}_{c,t^0}}$  is instrumented by

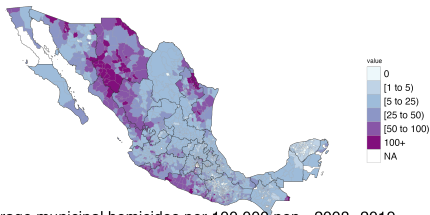
$$Z_{c,t} \equiv \frac{1}{\text{Pop}_{c,t^0}} \sum_m [\text{Homicides}_{m,t} \times \text{Network}_{m,c}]$$

Identification: Mex violence only affects US ag labor markets through its effect on migration.

# Violence in Mexico



Average municipal homicides per 100,000 pop - 2000--2007



Average municipal homicides per 100,000 pop - 2008--2019

## Violence in Mexico and emigration rates

For Mexican municipality  $m$  in year  $t$ :

$$\frac{\text{Migration}_{m,t}}{\text{Pop}_{m,t^0}} = \alpha_0 + \alpha_1 \left( \frac{\text{Homicides}_{m,t}}{\text{Pop}_{m,t^0}} \right) + \delta_t + \gamma_m + \varepsilon_{m,t}$$

	(1)	(2)	(3)	(4)
	Emigration rate	Emigration rate	Emigration rate	Emigration rate
Homicides per capita	0.9561*** (0.1759)	1.2932*** (0.1878)	-0.2133 (0.1784)	0.2832** (0.1376)
Constant	0.0050*** (0.0001)	0.0111*** (0.0002)	0.0052*** (0.0000)	0.0112*** (0.0002)
Observations	29232	29232	29232	29232
Year FE	No	Yes	No	Yes
Municipality FE	No	No	Yes	Yes

Standard errors clustered at the municipality level. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.10$ .

- Similar point estimate to Clemens, (2021), who looks at violence-emigration relationship in Northern Triangle countries.



## Instrumental variable - First Stage:

$$m_{c,t} = \alpha + \delta \frac{1}{P_{c,t^0}} \sum_m [\text{Homicides}_{m,t} \times \text{Network}_{m,c}] + \delta_t + \gamma_c + \varepsilon_{c,t}$$

	(1) Migration rate ( $m_{c,t}$ )	(2) Migration rate ( $m_{c,t}$ )	(3) Migration rate ( $m_{c,t}$ )	(4) Migration rate ( $m_{c,t}$ )
$Z_{c,t}^B$	7.6174*** (0.4627)	7.8619*** (0.4857)	-5.3182*** (0.8688)	-4.2718*** (0.7744)
Constant	0.0003*** (0.0000)	0.0007*** (0.0000)	0.0007*** (0.0000)	0.0009*** (0.0000)
Observations	37680	37680	37680	37680
Year FE	No	Yes	No	Yes
County FE	No	No	Yes	Yes

Standard errors clustered at the county level. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.10$ .

- Counties connected to more violent municipalities receive more migrants, but less-so during particularly violent years.

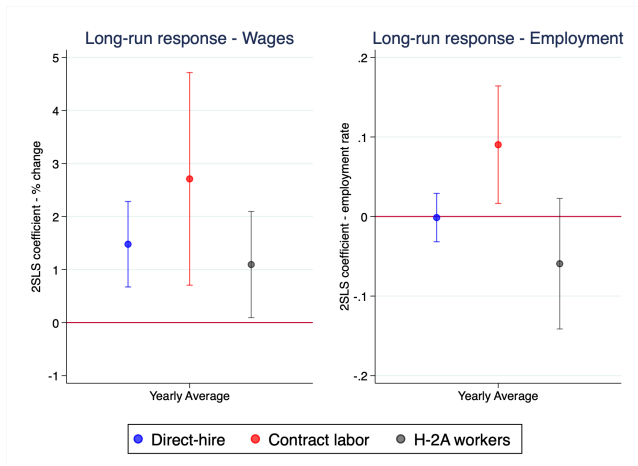
# Short-run Results



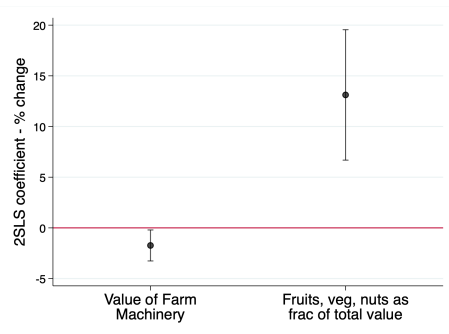
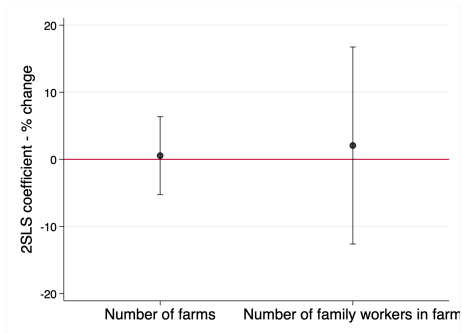
- $\approx 77\%$  of drop in migration flows are offset by H-2A seasonal guest worker requests.

# Long-run Results

$$\Delta y_{c,2008-2019}^i = \beta_0 + \beta_1 \sum_{t=2008}^{2019} \frac{\Delta \text{Migrants}_{c,t}}{\text{Population}_{c,t^0}} + X'_{c,2008-2019} + v_c$$



# Long-run adjustment mechanisms



## Conclusion

- Drops in migration inflows are offset through H-2A requests
- Suggests a very inelastic domestic labor supply.

Long-run results might be due to various mechanisms:

- Tradable sectors may change total output instead (Burstein et al., 2020).
- Flexible capital/labor ratios and complementarities across types of workers (e.g. Clemens et al., 2018).
- Increased competition from other migration-reliant industries (Castillo & Charlton, 2022).

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**Thank you!**  
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