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SUR L'ÉCONOMIE MONDIALE

Monopsony, Efficiency, and the Regularization of Undocumented Immigrants

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Motivation

- Over 10 million undocumented immigrants live in the United States
  - 23% of the foreign-born population, 3% of the total population
- 4 to 5 million undocumented immigrants live in Europe
  - 20% of the non-EU immigrants, 1% of the total population
- The presence of a sizable undocumented population is central to the debate over immigration policy and raises one major question: What to do with the current stock of undocumented immigrants?
- Several countries have addressed such question by declaring amnesties that regularize the status of undocumented immigrants

Amnesty Programs and Related Literature

France in 1981: After the election of President Mitterrand, « the exceptionnal regularization program » regularized 130,000 immigrants

United States in 1986: The Immigration Reform and Control Act (IRCA) granted amnesty to 2.7 million undocumented persons

Italy in 2002 and Spain in 2005 have also implemented well-known regularization programs, offering legal status to hundreds of thousands of immigrants

What is the economic impact of amnesty programs?

- Several economic studies examined how amnesty programs affected the labor market outcomes of the newly regularized immigrants
- A very few studies examine the labor market impact of an amnesty to *all* workers, or if regularization programs produce economic gains/losses

This Paper

Main question: What impact do amnesty programs have on the labor market and economic growth?

Key idea from the existing literature: Employers have a monopsony power in the undocumented market

- *"Illegality allows employers to exert monopsonistic power over these workers because of their great fear of being reported to immigration authorities, which would lead to immediate deportation"* (Rivera-Batiz, 1999, p. 96)

- Source of monopsony power: Participation in the open labor market may lead to exposure and deportation
  - Undocumented immigrants are less mobile and face restricted job opportunities
  - Strong attachment to their employers, giving them control over wages and employment
  - Two consequences: Exploitation and underemployment (monospony is inefficient!)

Theory

- We parameterize the policy as a decline in the market power of firms
  - Fasani (2015, p. 725): *"Obtaining legal status increases immigrants' bargaining power and reduces the scope for employers to exert monopsonistic power in setting wages."*

- Derive a theoretical framework where profit-maximizing **monopsonistic firms** combine the inputs of high-skill workers, low-skill authorized workers (both natives and legal immigrants), and low-skill undocumented immigrants.

- An amnesty program that reduces monopsony power in the undocumented labor market has three main consequences:
  1. Moderates the inefficiency, leading to a rise in the wages and employment of undocumented immigrants
  2. This expansion spills over to the labor market for authorized persons, increasing their wages and employment
  3. By improving labor market efficiency, a regularization program generate an increase in output, a "regularization surplus"

Summary of Empirical Results

- Empirical application: The 1981 French exceptionnal regularization program
- Our empirical analysis exploits the geographic concentration of the regularized workforce in the Paris region to identify the impact on employment, wages and economic growth
- Positive effects for many groups, especially for the male, low-skill workforce that included most of the regularized immigrants
- The French regularization program increased per-capita GDP by 0.5%
- Conclusion: A regularization program that alleviates or removes the labor market inefficiency due to monopsony can produce economic gains

The French “Exceptional Regularization”

Timing of the Reform

- May 10, 1981: François Mitterrand was elected the first socialist president of the Fifth Republic

- July 23, 1981: French government proposed to implement a large-scale regularization of undocumented immigrants
  - Unexpected reform: **NONE** of the policy measures in the socialist platform mentioned a potential regularization of undocumented immigrants, making it impossible to anticipate the regularization
  - Main goal: "To put an end to the precariousness suffered by many immigrants"

- August 11, 1981: Instructions for regularization

The Reform

- Undocumented immigrants had to satisfy two main criteria to be eligible:
  1. Arrived in France before January 1, 1981
     - The vast majority of undocumented immigrants are visa overstayers
  2. Have a work contract valid for at least a year
     - Using wage slips, bank account transaction, notification from the employer, role of labor unions
     - Two new circulars in Oct.-Nov. 1981 extended the scope of the reform to new categories of foreigners like asylum seekers, household employees, pregnant women, those dismissed because of the request, etc.

- The applications had to be filed directly by the immigrants rather than by the employers (i.e. requests made by immigrants), and the final date for applications was on February, 25, 1982

- Once the request for regularization was accepted, the immigrant was given a one-year work permit (can be renewed for at most three additional years)

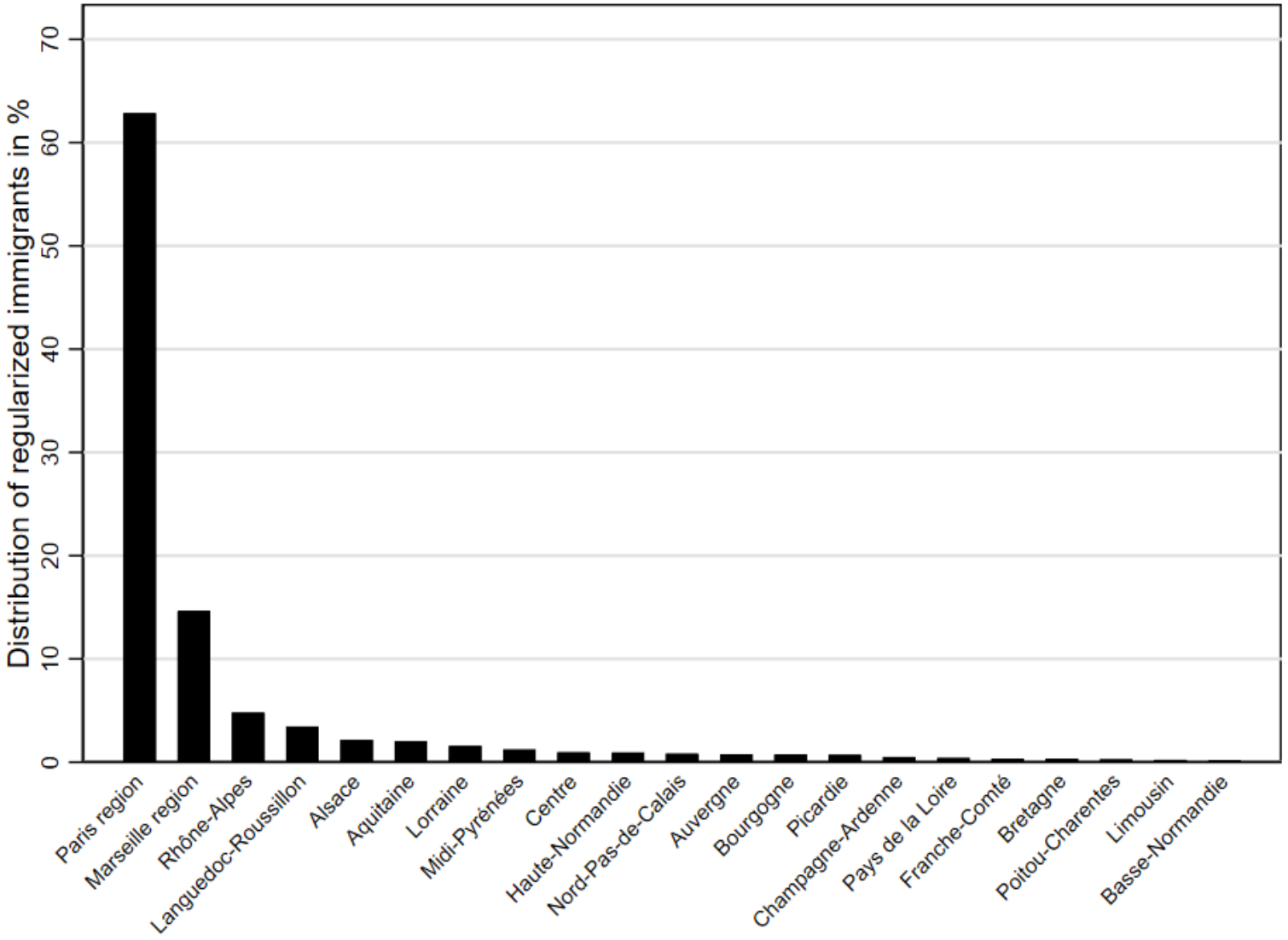
- Employers were given an amnesty until February 25, 1982 (no sanctions), but the reform increased penalties for firms that hire undocumented workers after this date

The newly regularized immigrants

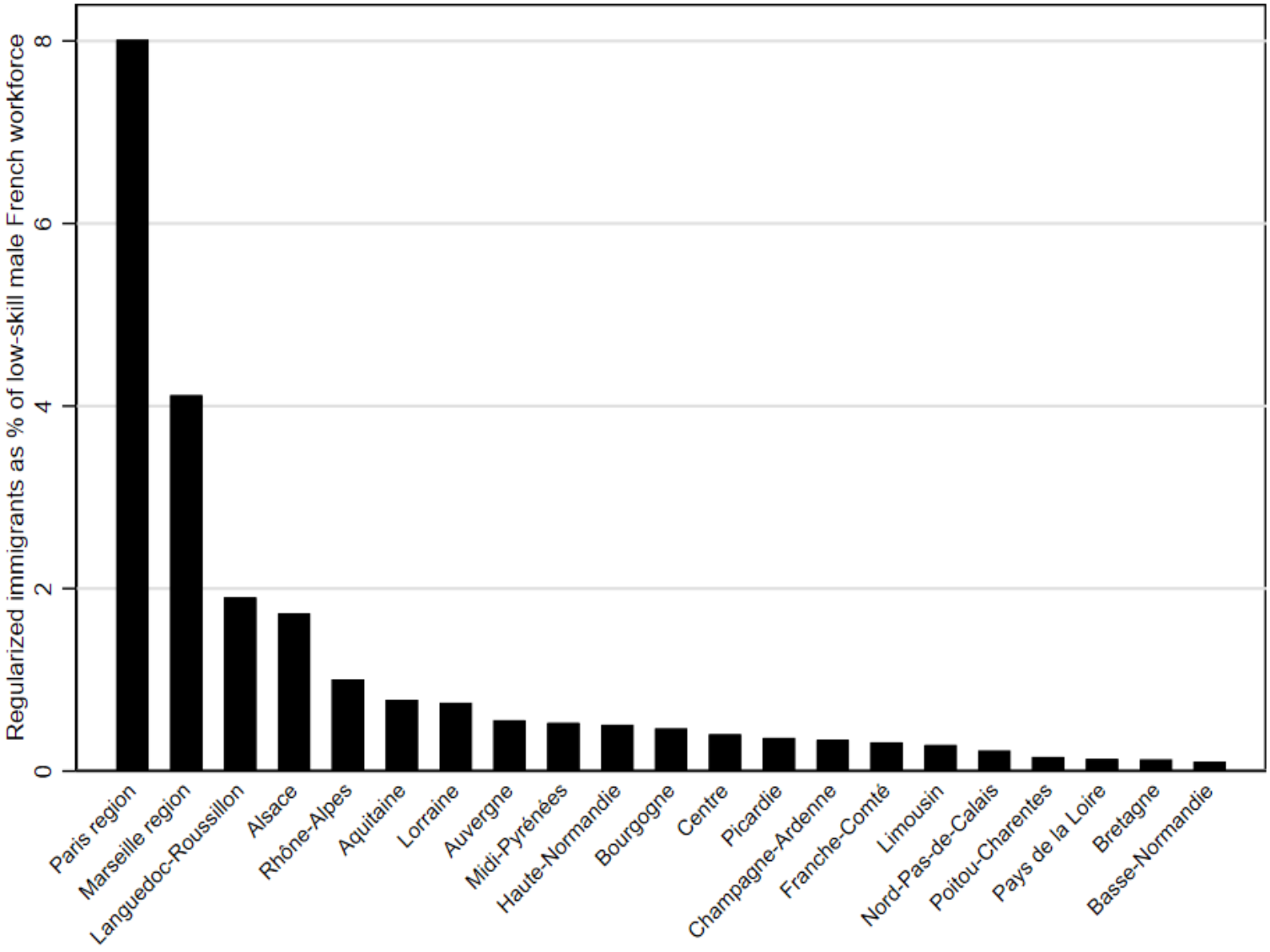
- By June 30, 1983, 149,226 undocumented immigrants had applied for legalization, and **131,360 of them were legalized**
  - 12 percent of the non-French workforce (about 1 percent of all workers)

- **Socioeconomic characteristics of the newly regularized immigrants:**
  - North African countries (45%), Portugal (13%) and Turkey (9%)
  - Men (83%); Young (80% below 32); Employed (95%)
  - Low-skilled: Blue-collar occupations in the construction and manufacturing sectors, shop employees, personal service workers (hotel and restaurant industry, or in domestic services)

Distribution of the regularized immigrants across regions



Regularized imm. relative to low-educated male French workers



Theory

Monopsony Model with Three Inputs

The concave linear homogeneous production function is $\boldsymbol{Q = f(L_H, L_A, L_U)}$

- High-skill workers (L_H)
- Low-skill workers authorized to work (L_A)
- Low-skill undocumented immigrants (L_U)

Labor supply function for each group ($i = H, A, U$): $\boldsymbol{L_i = P_i\, w^{1/\epsilon_i}}$

- $\epsilon_i \geq 0$ is the inverse labor supply elasticity and measures the monopsony power
- Firms have greater monopsony power over undocumented workers ($\epsilon_U > \epsilon_H$; $\epsilon_U > \epsilon_A$)
- Inverse supply function is $\boldsymbol{w_i = P_i^{-\epsilon_i} L_i^{\epsilon_i}}$

The FOC to the firm's profit-maximization problem require that the VMP equals the MC, or:

- $f_i = (1 + \epsilon_i) P_i^{-\epsilon_i} L_i^{\epsilon_i} = (1 + \epsilon_i) w_i$
- $\boldsymbol{w_i = f_i/(1 + \epsilon_i)}$

Regularization and Marginal cost

- Consider a policy that only reduces monopsony power in the undocumented labor market, or a decline in the value of the elasticity ϵ_U

- **Key result:** The marginal cost of an undocumented (MC_U) is greater the higher the value of the labor supply elasticity (ϵ_U):

$$\frac{dMC_U}{d\epsilon_U} = MC_U\left(\log\frac{L_U}{P_U} + \frac{1}{1+\epsilon_U}\right) > 0$$

- A policy shift that reduces monopsony power in the undocumented labor market reduces $\boldsymbol{MC_U}$
  - Because the policy eliminates the risk of detection, the newly regularized immigrants are more mobile and less attached to their employers
  - It is less costly to employ one extra worker from $\boldsymbol{P_U}$

Employment impact of regularization

- Let R_ϵ be a regularization policy that *reduces* ϵ_U, so that $dL_i/dR_\epsilon = -dL_i/d\epsilon_U$

- The employment of undocumented workers increases:

$$\frac{dL_U}{dR_\epsilon} > 0$$

- This "local" improvement in labor market efficiency spills over to other sectors, increasing the employment of *all* other workers (as well as their wages):

$$\frac{dL_H}{dR_\epsilon} > 0 \, , \; \frac{dL_A}{dR_\epsilon} > 0$$

  - Note: The last two derivatives are positive if undocumented workers are not "very strong" substitutes with other workers.

- In this monopsonistic framework, a regularization policy expands the size of the market and increases employment for all groups

Data

Data

Time period for the empirical analysis: **1975-1988**

Employment data from the French LFS (collected in March)

- No education information before 1978
- Pre-treatment period: 1978-1981, Post-treatment period:1982-1988
- LFS are designed to be representative at the regional level (22 regions)
- No wage data before 1982 in the LFS

Wage data from an administrative file of matched employer-employee (DADS-EDP)

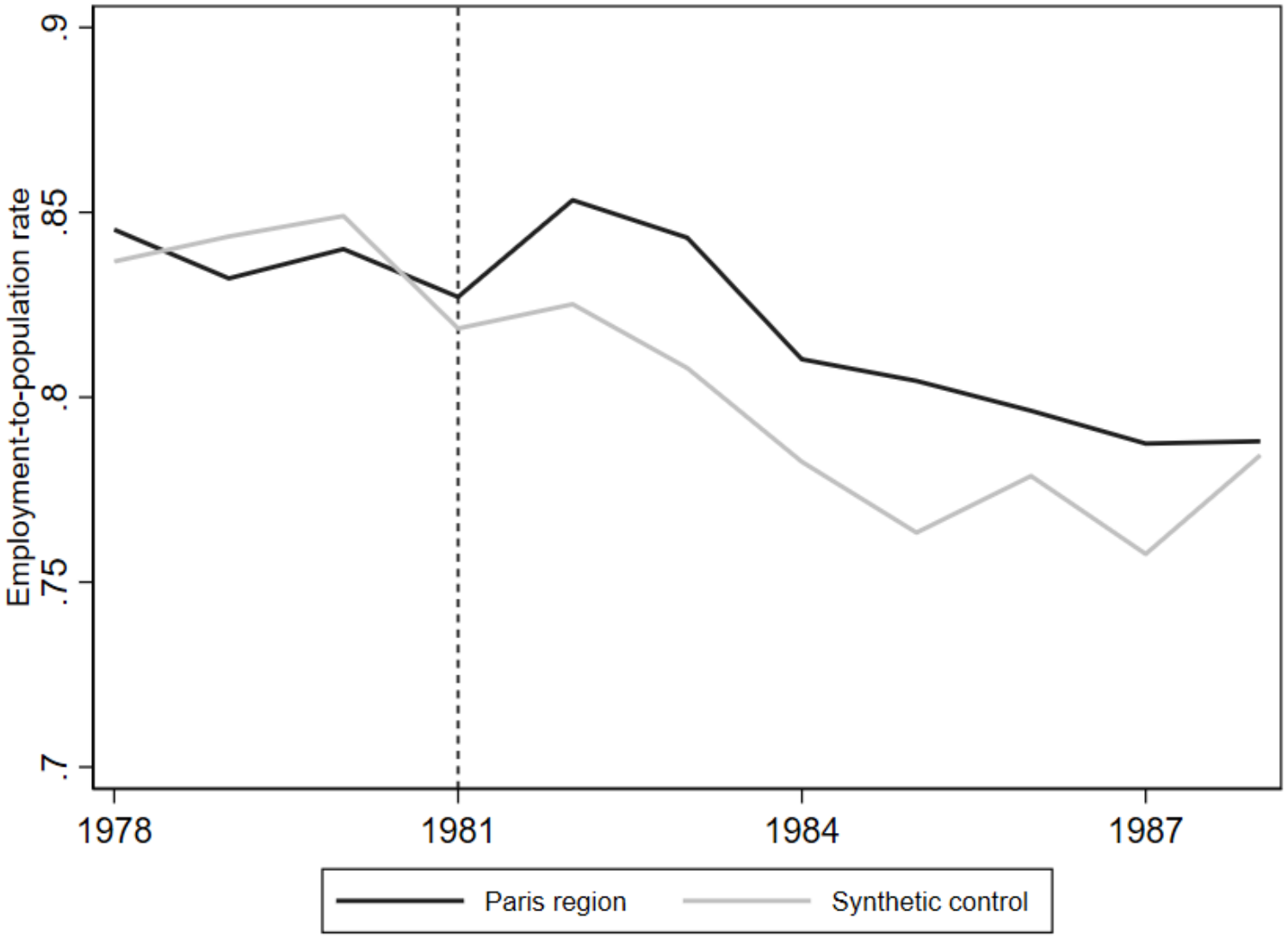
- Only cover legally declared employees (no information for non-employed or illegal persons)
- Mostly focus on the annual wage of full-time workers
- Exclude public sector workers throughout the wage analysis
- The panel structure allows us to track some workers over time

Sample restriction: The analysis is restricted to individuals aged 18-64, not enrolled at school and not self-employed

Employment Results

The Synthetic Control Approach

Low-educated French men

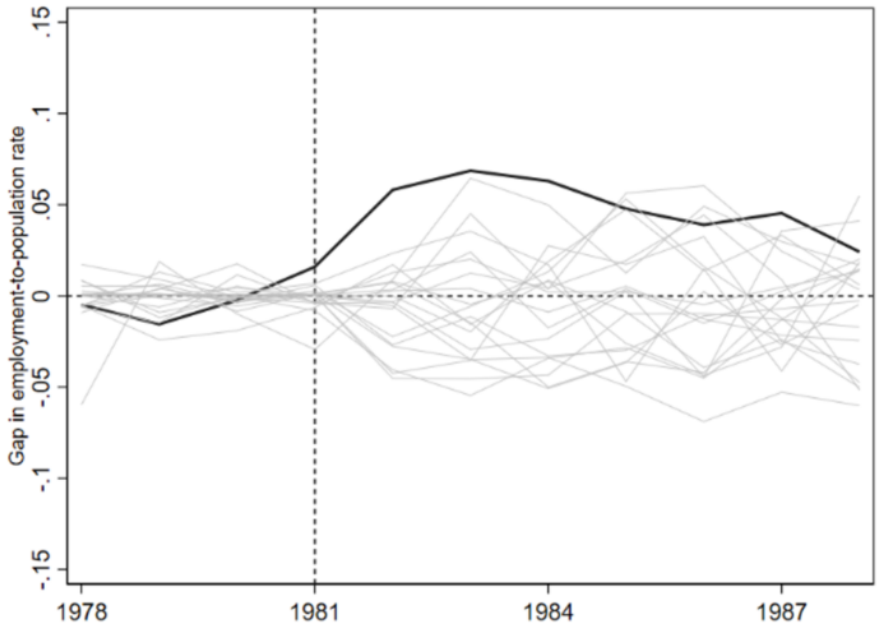


Permutation Tests

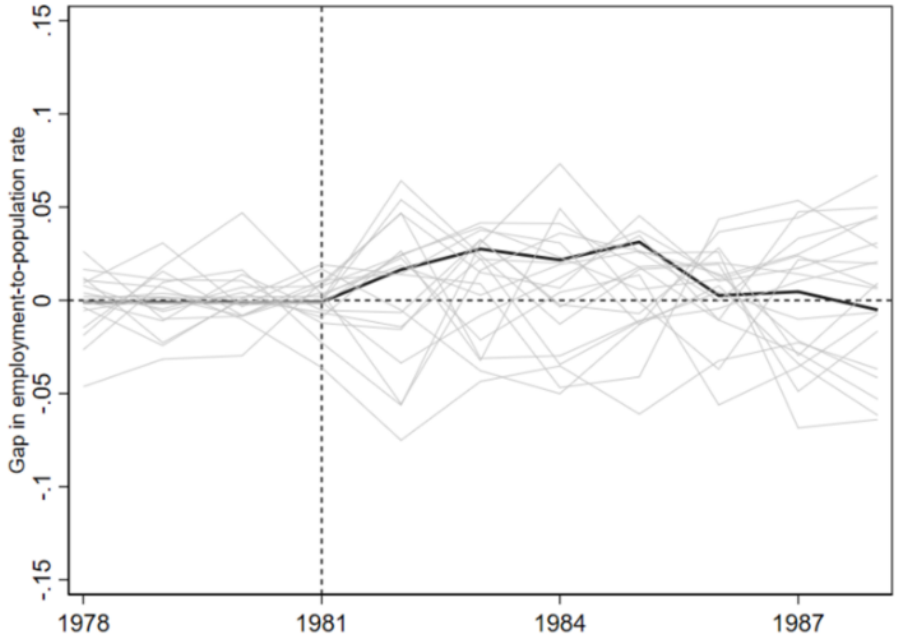
Low-educated French Men

Permutation Tests
French Men

A. Very low-educated group

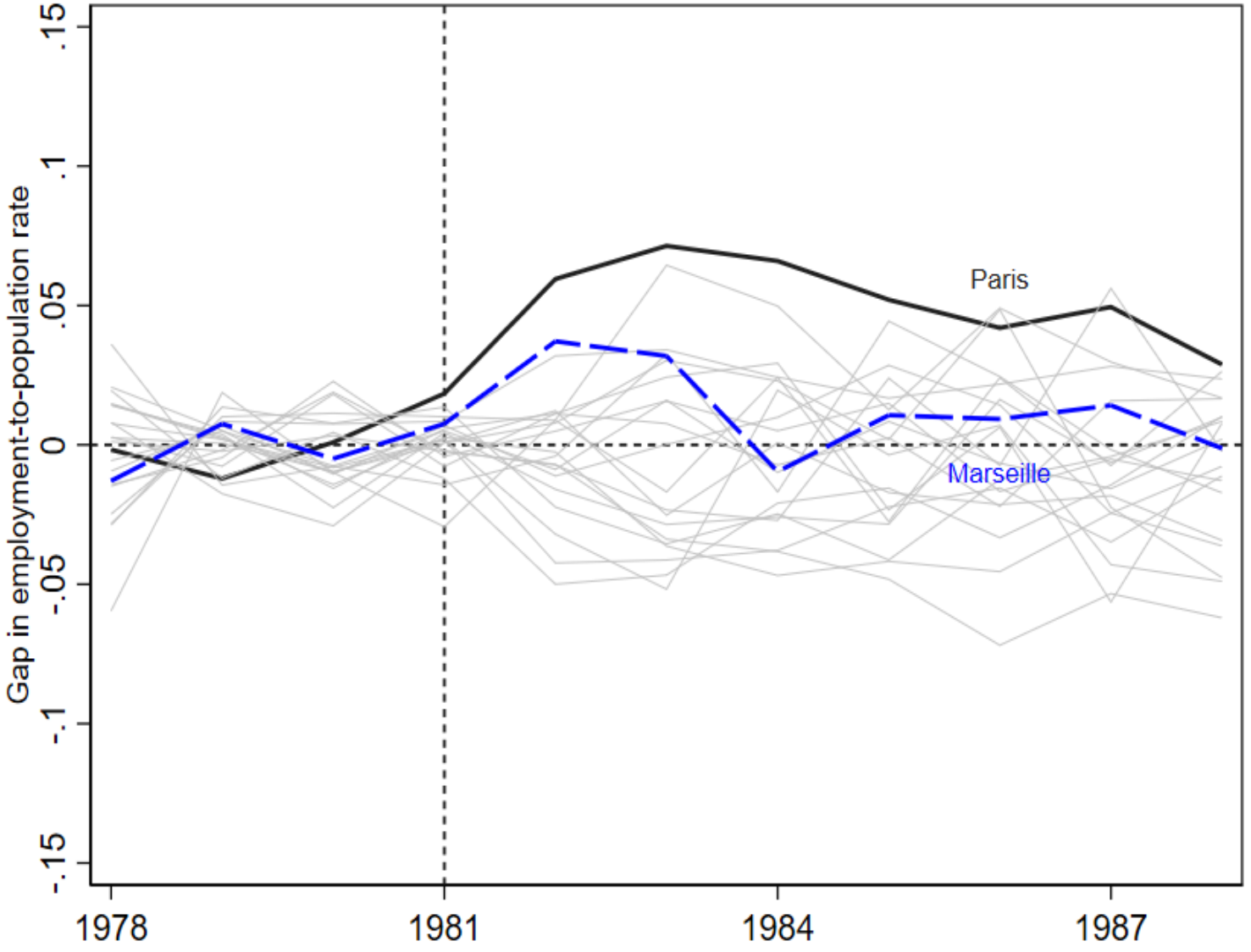


B. High-educated group



Impact of Regularization in the Paris and Marseille Regions

Very low-educated French Men



Impact on employment-to-population ratio, relative to synthetic region

	Men			Women		
	All	French	Non-French	All	French	Non-French
	(1)	(2)	(3)	(4)	(5)	(6)
	A. Low-educated					
1982-1983	0.03**	0.05***	0.05***	0.03*	0.03*	0.04
	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)	(0.05)
1984-1988	0.02**	0.03***	0.08***	0.01	0.02	0.15**
	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)	(0.07)
	B. High-educated					
1982-1983	0.02***	0.02***	0.13***	-0.01	-0.02*	0.21**
	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)	(0.09)
1984-1988	0.01	0.01	0.13**	-0.00	0.00	0.16**
	(0.01)	(0.01)	(0.06)	(0.01)	(0.01)	(0.07)

$$ER_{rt} = \theta_r + \theta_t + \beta_1(Paris \times T_{1982-1983}) + \beta_2(Paris \times T_{1984-1988}) + \varepsilon_{rt}$$

Event-study Analysis

Event-study specification

Alternative strategy exploiting differences in treatment intensity across regions:

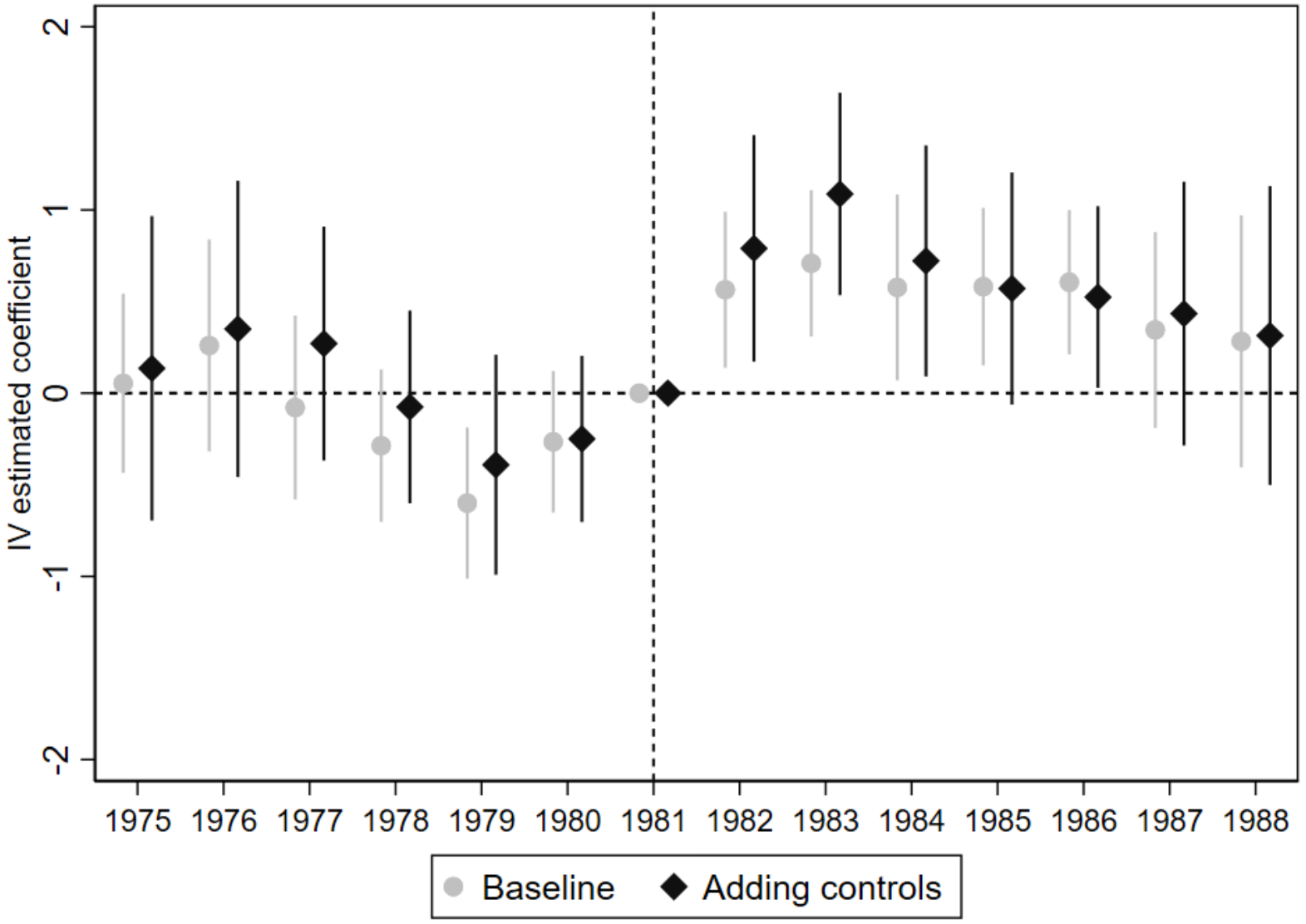
$$ER_{rt} = \theta_r + \theta_t + \sum_{t=1975, t\neq 1981}^{1988} \beta_t \cdot I(year = t) \cdot \boldsymbol{R_r^{1981}} + \varepsilon_{rt}$$

- ER_{rt} is the overall employment-to-population ratio in region r and year t
  - Include three additional waves of the LFS from 1975 to1977
  - The year before the regularization policy (i.e., 1981) is the omitted year

- R_r^{1981} is the share of regularized immigrants in the low-educated workforce in 1981
  - Time-invariant continuous treatment variable

- To correct for the endogeneity of R_r^{1981} , we use a shift-share instrument using the spatial distribution of immigrants from the 1962 census

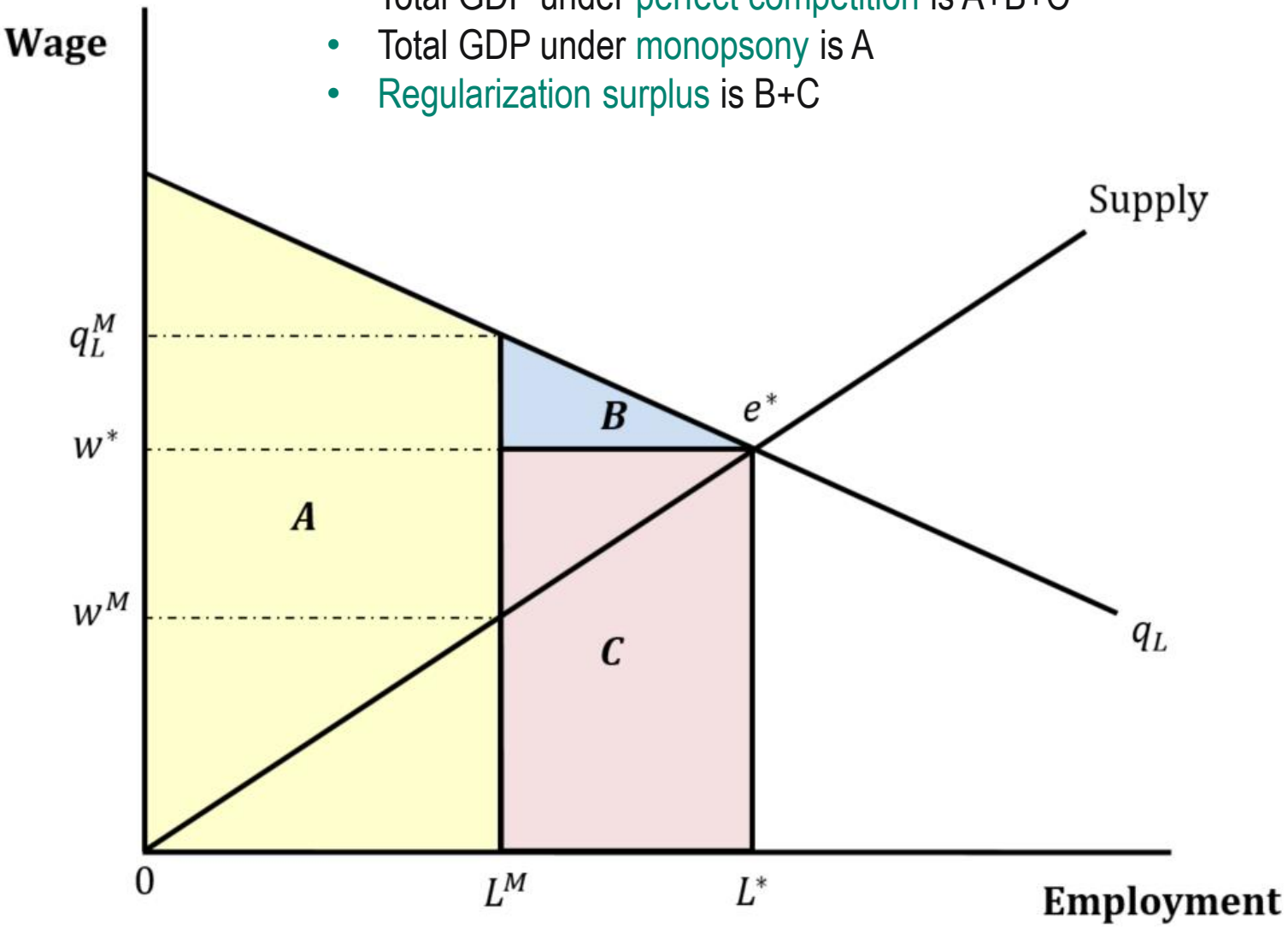
Event-study -- IV estimates



The Regularization Surplus

The Regularization Surplus

- The area under the demand curve measures the output produced by all workers
- Total GDP under perfect competition is A+B+C
- Total GDP under monopsony is A
- Regularization surplus is B+C

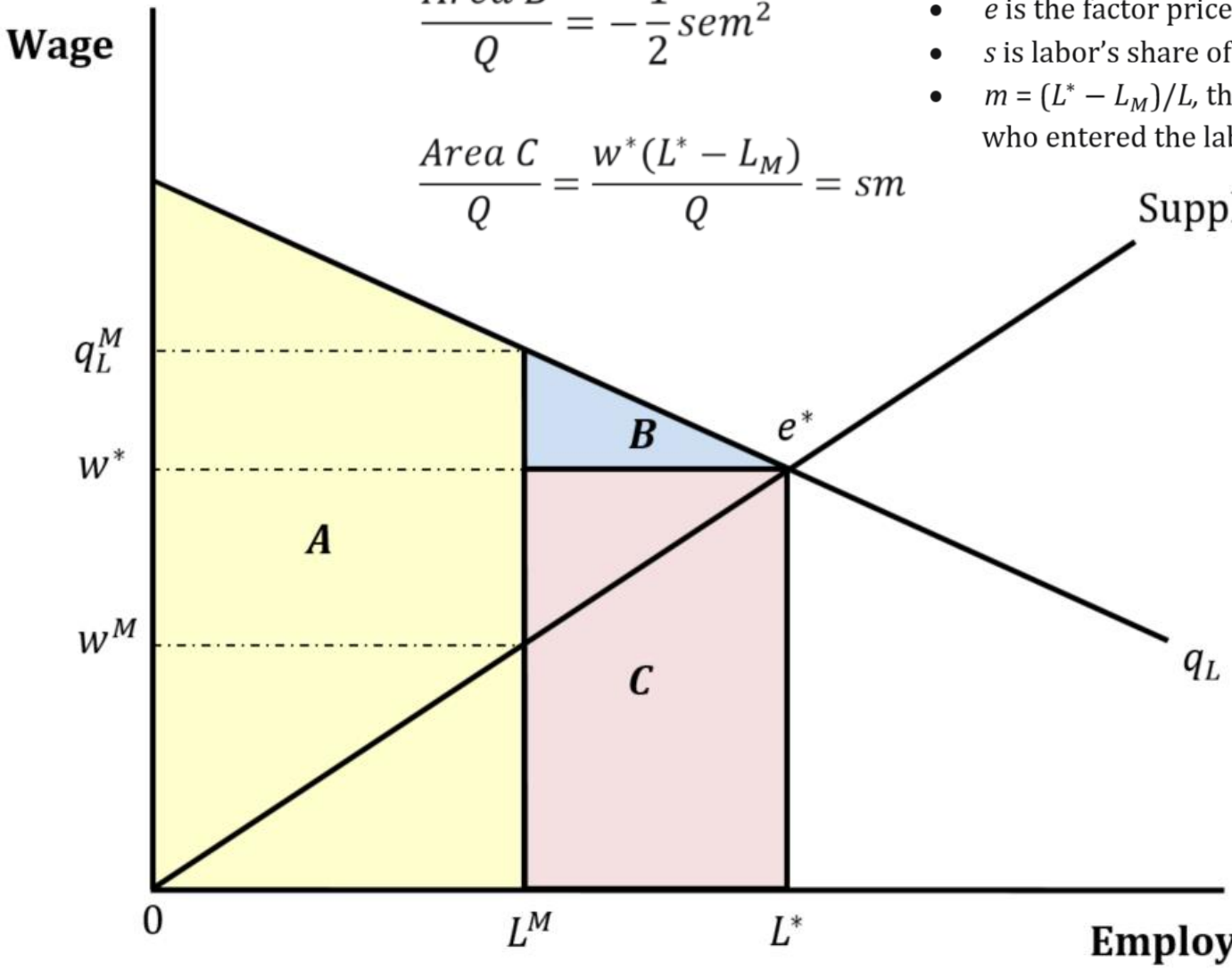


Algebra of Regularization Surplus (Borjas, 1995)

$$\frac{Area\ B}{Q} = -\frac{1}{2}sem^2$$

$$\frac{Area\ C}{Q} = \frac{w^*(L^* - L_M)}{Q} = sm$$

- Q is aggregate output
- e is the factor price elasticity ($e = d \log w / d \log L$)
- s is labor's share of income ($s = wL/Q$)
- $m = (L^* - L_M)/L$, the "supply shock" of new workers who entered the labor market after regularization



Our quantification exercise implies that the regularization program increased French GDP by about **0.4 percent**

Impact on Per-capita GDP Growth Rate

Conclusion

- This paper documents the economic consequences of amnesty programs
- Empirical investigation: The French "Exceptional regularization" in 1981 boosted employment and wages of many groups, as well as per-capita GDP growth rate
- Main interpretation: By reducing monopsony power in the undocumented labor market, a regularization program improves labor market efficiency and generate an increase in output, a "regularization surplus"
- Missing dimensions:
  - Amnesty programs may impact migration incentives in sending countries (i.e. pull effects), potentially creating new inefficiencies
  - Fiscal consequences when evaluating the overall costs and benefits of regularization policies

Thank you!

Extension: Including Taxes

- Regularization may impose new costs on the hiring of undocumented workers as firms must comply with minimum wage legislation or start paying payroll taxes for those workers

- We aggregate all these expenses into a "tax rate" that raises the cost of hiring an undocumented worker by $\tau_U \times 100$ percent:

$$\frac{dMC_U}{dR_{\tau\epsilon}} = k\, MC_U \left[\frac{\tau_U - \epsilon_U}{(1+\tau_U)(1+\epsilon_U)} - \epsilon_U \log \frac{L_U}{P_U} \right]$$

- A sufficient condition for regularization to reduce the marginal cost of an undocumented worker is $\epsilon_U > \tau_U$

Alternative Modelling Assumptions

Monopsonistic competition

- Assume perfect substitution between undocumented workers (L_U) and low-skill authorized workers (L_A)
  - Rise in the number of undocumented workers
  - Substitution effect: Decline in the number of low-skill authorized workforce
  - Overall efficiency effect

Perfect competition (no monopsony power)

- Suppose that the lower cost of hiring undocumented workers arise because firms pay below the minimum wage or do not pay social security contributions
- A regularization raises the marginal cost of employing an undocumented workers, reducing the demand for newly regularized workers
  - Imperfect substitution between L_A and L_U: Total employment decreases
  - Perfect substitution between L_A and L_U: Total employment decreases

Impact on the wage of low-educated French men

	Cross-sectional results					
	All workers		Identification at infinity sample		Panel results	
	Synthetic	All regions	Synthetic	All regions	Synthetic	All regions
	(1)	(2)	(3)	(4)	(5)	(6)
	A. French men					
1984	-0.05***	-0.03*	0.03**	0.03*	0.05*	0.04**
	(0.02)	(0.02)	(0.01)	(0.02)	(0.03)	(0.02)
Wild bootstrap p-value	-	*0.29*	-	*0.32*	-	*0.28*
1985-1988	-0.05**	-0.03**	0.03*	0.03**	0.04	0.03
	(0.02)	(0.02)	(0.01)	(0.01)	(0.03)	(0.02)
Wild bootstrap p-value	-	*0.13*	-	*0.05*	-	*0.17*

Concurrent Policy Shocks

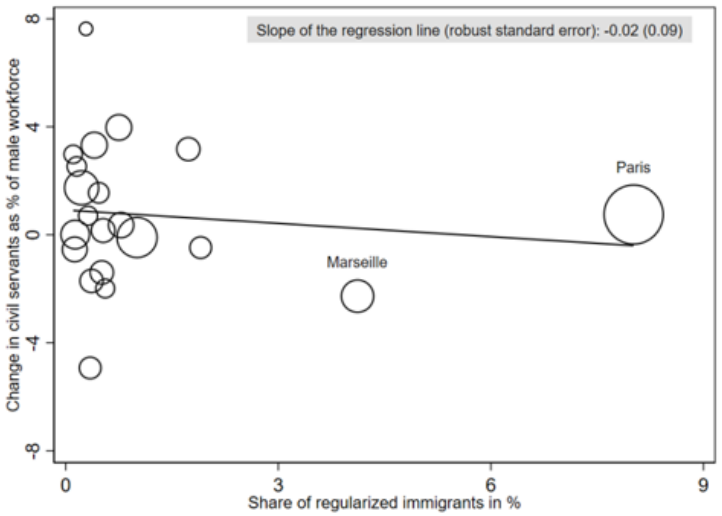
- Although the amnesty program was exogenous and unanticipated, it was accompanied by other **labor market reforms** introduced by the newly elected Mitterrand government
  - The new government hired 200,000 new civil servants
  - The national minimum wage was raised by 10 percent in July 1981
  - The standard working week was reduced from 40 to 39 hours in February 1982

- If these **concurrent policy shocks** also disproportionately affected the Paris region, our estimates may not have been the result of the regularization program

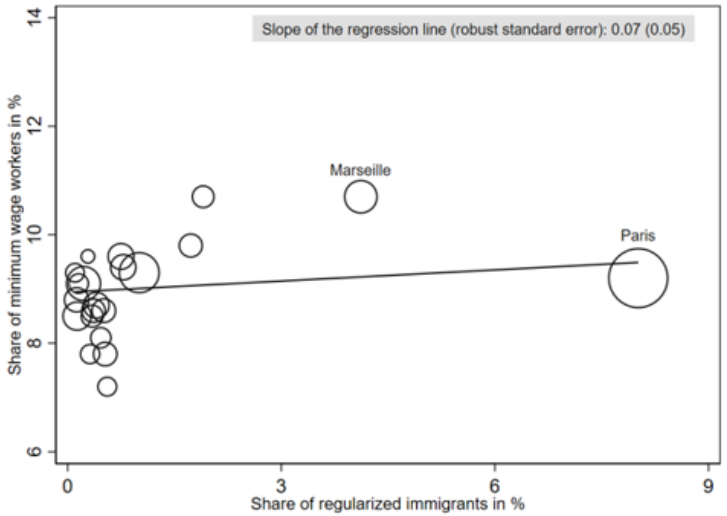
- **The geographic impact of these reforms did not coincide with the geographic impact of the regularization program**
  - None of these reforms could be driving our results

The share of regularized immigrants and the size of male workers in the public sector, paid at the minimum wage or working at least 40 hours

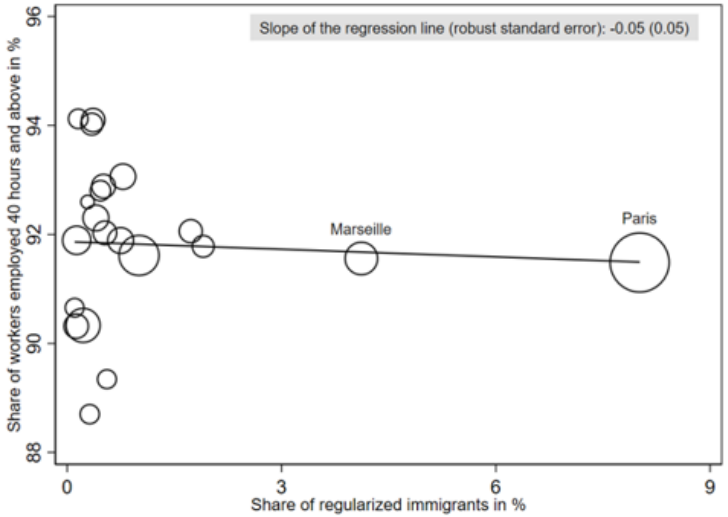
Panel A



Panel B



Panel C



Calculating the Regularization Surplus

Theory-based estimate: The areas B and C represent an increase of 1.4 percent of GDP

$$\begin{aligned}\text{Percent change in GDP} &= \left(\frac{\text{Area B}}{\text{Q}} + \frac{\text{Area C}}{\text{Q}}\right) \times 100 \\ &= \left(-\frac{1}{2}\text{sem}^2 + \text{sm}\right) \times 100 \\ &= \left(-\frac{1}{2} \times 0.7 \times -0.3 \times 0.0056^2 + 0.7 \times 0.0056\right) \times 100 \\ &= 0.4\end{aligned}$$

Alternative method using a regression-based estimate:

$$\text{Percent change in GDP} = \text{Output elasticity} \times \text{Total share of regularized immigrants}$$

- The output elasticity gives the change in the growth rate of per-capita GDP induced by a program that regularizes one percent of the workforce
- Use regional per-capita GDP data to estimate the impact on per-capita GDP growth