

Immigrants' Legal Status and Firms: Evidence from the 2007 EU Enlargement

[Vittoria Dicandia](#)

Federal Reserve Bank of Cleveland

[Silvia Vannutelli](#)

Northwestern University and IPR

Version: September 25, 2026

DRAFT

Please do not quote or distribute without permission.

Abstract

The authors study how firms and workers adjust when previously restricted migrants gain full and portable work rights in a labor market with substantial informality. They exploit the 2007 EU accession of Bulgaria and Romania, which granted unrestricted work rights to Italy's largest migrant group. Using matched employer–employee administrative data and an IV-DID design, the authors find that firms suddenly and persistently shift employment composition toward EU07 workers, compressing the native employment share without reducing native hiring or increasing separations. They don't detect any significant change in wages for either natives or EU07 workers. For migrants, this null effect reflects offsetting compositional shifts as newly observed and incumbent EU07 workers enter the formal workforce with different wage trajectories. Consistent with a shift in bargaining power toward workers, EU07 migrants experienced significant gains in job mobility and job security. Overall, the evidence suggests that removing legal restrictions reshaped firms' personnel choices and altered migrants' employment relationships, improving their outside options, bargaining position, and access to more secure jobs.

1 Introduction

Most countries restrict migrants' labor-market access, often by requiring employer-sponsored visas. While intended to protect native workers, such rules can distort labor markets, especially where informality is sizeable, by limiting mobility, compressing outside options, and allowing employers to extract rents from workers whose legal status depends on the firm or who work outside the formal sector. It is therefore unsurprising that there is a large policy debate on whether relaxing work-authorization requirements can reduce informality and promote fairer competition in the labor market. Yet evidence on the effects of such policy changes on firms and workers remains scant, mainly for two reasons. First, large policy changes that substantially relax these restrictions are rare. Second, data that allow researchers to study the consequences of these policies for migrant workers, native workers, and firms simultaneously are not commonly available.

We overcome these limitations by studying the effects of the 2007 European Union (EU) enlargement that admitted Romania and Bulgaria, which we collectively refer to as EU07, into the Italian labor market. This event represents a major relaxation of migrants' labor-market restrictions, and it is particularly relevant for Italy because Romanians are its largest immigrant group, in part due to the strong language similarity between the two countries.¹

The enlargement changed EU07 workers' labor-market access through two margins: an internal margin, affecting workers already present in Italy, and an external margin, through new entry. On the internal margin, some workers were formally employed under permits tied to a sponsoring employer, limiting mobility and weakening outside options; others worked informally and lacked formal labor-market access altogether. In both cases, workers' ability to bargain with firms was constrained by the absence of unrestricted work rights. The enlargement relaxed these constraints, making work authorization portable and allowing existing employment relationships to be reorganized through mobility, formalization, or contract upgrading. The external margin operated through labor-supply expansion: new EU07 workers arriving from abroad after accession carried no prior constrained employment relationship and entered the Italian labor market freely. We develop a simple conceptual framework that maps both margins into

¹Over 1 million Romanians reside in Italy to date, representing a fifth of the total foreign-born population (Istat, 2023).

distinct predictions and use these to discipline the interpretation of the empirical results.

We exploit unique administrative matched employer-employee data from Italy to study the firm-level consequences of the 2007 EU enlargement, focusing on a balanced panel of firms between 2004 and 2009. Given the administrative nature of the data, our analysis covers the universe of formal employment relationships, but is unable to capture informal employment.

Our empirical strategy combines the natural experiment induced by the EU enlargement in 2007 with an instrument capturing the presence of (informal) migrants across labor markets. Specifically, we exploit a difference-in-differences design to compare the evolution over time of outcomes of firms located in local labor markets that were differently affected by the enlargement, based on differences in the pre-existing presence of EU07 migrants.

Because migrants might endogenously sort into areas with good economic opportunities, we instrument the local change in the EU07 employment share around the 2007 enlargement with local exposure to the 2002 amnesty, an unexpected large-scale regularization that legalized roughly 640,000 informal workers (Devillanova et al. 2018). Local labor markets with larger amnesty-driven increases in EU07 shares in 2002 had both a larger pre-existing stock of EU07 workers, including informal workers whose legal status changed in 2007, and more established migrant networks.

The amnesty-based instrument captures pre-enlargement exposure to EU07 workers already embedded in local labor markets, including both those in informal employment and those formally employed under employer-tied permits. Local labor markets with larger amnesty-driven increases in EU07 shares in 2002 had a larger stock of workers whose mobility, formal labor-market access, and bargaining position could change once work authorization became portable in 2007. At the same time, these areas may also have had stronger EU07 networks and may therefore have attracted additional EU07 workers after accession. The IV should therefore be interpreted as capturing local exposure to the legal-status shock broadly, not as disentangling by itself the potentially different effects of legal status change for workers already present in Italy from those of new arrivals.

Event-study estimates confirm parallel pre-trends across more and less exposed labor markets and detect no significant effect of the instrument on firm-level outcomes prior to 2007, with one exception (the EU07 hire rate, discussed in Section 6.1.2).

We investigate whether firms change their relative personnel composition between migrants and natives. We find a sharply positive annual change in the EU07 employment share concentrated in 2007, with annual changes returning to approximately zero in subsequent years. The annual change in the native employment share is correspondingly negative in 2007 and also normalizes thereafter. This pattern is a direct prediction of our framework: the legal-status change made EU07 workers closer substitutes for native workers, leading firms to shift employment composition towards EU07 workers and thus compress the native employment share.

The hiring and separation patterns clarify the mechanics of this reallocation. Annual changes in native hire and separation rates are unaffected, consistent with a reallocation driven by EU07 employment growth rather than native displacement. Changes in EU07 hire rates spike sharply in 2007 and normalize thereafter, pointing to a one-time adjustment at the internal margin rather than a persistent increase driven by new arrivals. Changes in EU07 separations also rise sharply in 2007 and normalize thereafter, though less than hires: overall, firms expanded their EU07 workforce, while workers gained mobility across employers. Separations from existing employers point to pent-up mobility among EU07 workers previously constrained by employer-tied permits. Such mobility is consistent with improved outside options and weakened firm-level monopsony power, in line with the mechanism studied by Naidu et al. (2016) in the United Arab Emirates.²

We then turn to wages and employment contracts. Neither native nor EU07 workers show significant changes in firm-level wages, but the two nulls carry different information. The native null points to an adjustment operating through workers already present in Italy: a large new-arrival inflow would typically place downward pressure on native wages, which we do not observe. The interpretation of the EU07 null result calls for more caution. Firm-level averages may combine offsetting forces: wage gains for incumbent EU07 workers and compositional dilution as newly formalized or newly arrived workers enter at below-incumbent pay. To separate individual gains from compositional dilution, we turn to a worker-level analysis of EU07 incumbents. We find

²Naidu et al. (2016) study a reform that relaxed restrictions on job-to-job transitions for migrant workers, focusing on a setting that differs from ours both in terms of labor-market structure and in terms of the nature of the shock. Italy, unlike the UAE, has a sizeable informal labor market. The National Institute of Statistics reports that in 2007 the value-added that could be imputed to informal labor markets amounted to approximately 102 billion euros, corresponding to 6.6 percent of the country's GDP (Istat (2010)). Furthermore, the reform we analyze has a much wider scope, since it eliminates visa requirements for migrants from Romania and Bulgaria, rather than just affecting job-to-job transitions.

that they experience wage gains and sort into higher-paying employers, as reflected in rising AKM firm fixed effects, confirming that individual gains exist even where firm-level averages show no effect.

The primary firm-level evidence of improved employment terms is found in contract types. The EU07 permanent-contract share annual changes increases significantly in 2007 and normalize afterwards. Thus, the level remains elevated through the end of the sample, reflecting a durable improvement that takes hold immediately rather than growing gradually. This outcome is especially informative because permanent contracts are costly non-wage amenities. Firms are unlikely to offer them immediately to unknown new arrivals whose match quality they have not yet learned, especially if new inflows expand available labor supply (Boeri and Garibaldi 2007, Bratti et al. 2021, Hoffmann et al. 2022). The contract response is therefore more consistent with firms retaining, formalizing, or upgrading workers already known to them or reachable through established networks. While the specific contract margin is shaped by Italian employment-protection law, the underlying mechanism extends beyond this institutional context: improved outside options can translate into more secure employment terms.

We conclude the empirical analysis by studying heterogeneity across firms to shed light on the mechanisms behind these responses. Our framework predicts that firms with stronger pre-existing links to EU07 or migrant labor should face lower costs of adjusting to the legal-status shock, whether by recruiting new EU07 workers, retaining incumbent workers, or formalizing and upgrading existing employment relationships. We use three proxies for firms' pre-existing access to EU07 or migrant labor: participation in the 2002 regularization, prior formal EU07 employment, and manager nationality. The largest effects are concentrated among firms that participated in the 2002 amnesty, where pre-existing informal migrant employment relationships were most plausible. The permanent-contract gains are also largest in these firms, reinforcing the view that the legal-status change improved not only EU07 workers' employment access, but also the terms on which firms retained them. Firms with prior EU07 employment and migrant-managed firms show similar, though generally smaller, patterns, consistent with broader access to EU07 or migrant labor networks. Overall, firms with established relationships with EU07 workers faced lower adjustment costs and greater pressure to retain them once those workers held credible outside options, and the accompanying permanent-contract gains suggest that the legal-status change improved not only EU07 workers'

employment access, but also the terms of those employment relationships. Taken together, the heterogeneity evidence is more consistent with the internal margin driving the adjustment, though network access could also have facilitated some recruitment of new arrivals through the external margin.

We perform an extensive set of robustness checks. Using the full administrative universe of INPS firms, we find that more exposed local labor markets do not exhibit differential firm entry or exit, showing no evidence that firm composition biases the balanced-panel estimates. We also show that the findings hold consistently across alternative specifications and instruments, including alternative definitions of exposure, controls for later EU07 inflows and contemporaneous non-EU07 labor-supply changes, and shift-share instruments based on pre-amnesty settlement patterns.

Taken together, the evidence shows how a permanent relaxation of migrants' labor-market restrictions reshaped firms' workforce composition and the terms of employment, while generating gains for affected workers along mobility and job-security margins.

We contribute to three strands of literature. First, we provide new evidence on how lifting labor restrictions affects the labor-market outcomes of migrant workers. While previous work has documented the consequences of amnesties (Fasani 2015, Elias et al. 2025, Di Porto et al. 2025), temporary work restrictions (Fasani et al. 2021) or changes in visa requirements (Naidu et al. 2016), we focus on a permanent, portable change in migrants' legal status that affected the largest immigrant group in the country. Unlike employer-tied regularizations, which formalize workers within existing employment relationships without granting portable legal status, the EU enlargement enabled workers to move freely across employers.³ In this respect our setting most closely resembles Cascio and Lewis (2019), who study the IRCA 1986 amnesty — another episode that granted permanent, portable legal status to previously undocumented workers; unlike their focus on fiscal outcomes in personal income tax data, we trace firm-side

³Closest to our setting, Di Porto et al. (2025) study the 2002 Italian amnesty using matched employer–employee data from the same country and institutional environment. The key difference is the nature of the legal status granted: the amnesty conferred temporary, employer-tied permits that formalized workers within their existing firm, whereas the 2007 enlargement granted permanent, portable status. Our framework predicts that portable legal status alters the margins of adjustment: rather than displacing other migrants, EU07 expansion compresses the native employment share without evidence of native displacement, while the wage losses migrants experience under employer lock-in are replaced by total wage gains for incumbent EU07 workers, with sorting into higher-paying employers accounting for part of this gain. This contrast is borne out in our results, which supports interpreting the enlargement as a change operating through workers' outside options rather than a standard amnesty.

adjustments in employment, contracts, and wages using matched employer–employee records.

Second, we broaden the scope of firm-level evidence on immigration in two directions. Existing employer–employee matched studies in this literature focus predominantly on high-skilled workers (Mitaritonna et al. 2017, Ottaviano et al. 2018, Doran et al. 2022, Signorelli 2024) or on specific visa programs (Amuedo Dorantes et al. 2023); the broader literature documenting the effects of low-skill immigration on wages and employment relies primarily on aggregate or industry-level data (Ottaviano and Peri 2012, Dustmann and Glitz 2015), which cannot identify how outcomes co-move within firms. Our setting, a large-scale, status-wide legalization studied with matched employer–employee data, fills both gaps simultaneously.⁴ Moreover, by covering hiring, separations, wages, and contract type, we can trace how a legal shock of this kind propagates from workforce composition through to contract quality, providing a comprehensive account of firm adjustment across all margins of the employment relationship.

Third, our results contribute to the growing literature on monopsony power arising from legal restrictions on worker mobility (Amior and Manning 2025). Johnson et al. (2025) show how enforceable non-compete agreements compress workers’ outside options and reduce job-to-job moves; our results provide the mirror image: a loosening of legal constraints strengthens workers’ outside options, increases job-to-job mobility, and raises the permanent-contract share.

2 Institutional context

Italy, traditionally known for its emigrant population, has recently experienced a significant demographic transformation, now attracting a substantial influx of foreign workers. The percentage of foreign-born residents increased significantly from just 1 percent in the early 1990s to 9.4 percent by 2026 (Istat 2026). The institutional context in which this transformation has unfolded shapes the organization of migrant labor in Italy. Migrants’ access to legal work is governed by an employer-sponsored permit system based on annual quotas, temporary residence, and renewal requirements. This system provides the relevant baseline for understanding the 2007 EU enlargement, which moved Romanian and Bulgarian citizens from non-EU status to EU citizenship,

⁴The Italian National Institute of Statistics reports that only 11.6 percent of foreigners aged 15–64 hold a university degree in 2024 (Istat 2025). This estimate does not include data on undocumented workers, which is likely to further decrease the share of highly educated migrants.

and carried associated labor-market implications.

2.1 Immigration regulation

Economic migrants in Italy are subject to a demand-driven permit system governed by Laws *40/1998* and *189/2002*. Each year, the government determines the number of available permits by region and contract type, distinguishing between seasonal and non-seasonal work, and may restrict access to migrants from specific countries.

The system is employer-mediated. Firms must submit permit applications prior to the migrant's arrival. Once the application is approved, the sponsored migrant may enter the country and work legally for two years, renewable for an additional two years. Should they lose their job, migrants have six months to secure alternative employment, after which they must leave. The temporary and employer-tied nature of these arrangements shapes workers' mobility, legal security, and bargaining position.

Since the system's introduction, work permit quotas have consistently been set well below demand. In 2006, for example, the quota was set at 170,000, yet over 500,000 applications were submitted. This persistent gap has sustained a large stock of undocumented workers and made access to legal employment highly rationed.

To address this gap, Italy, like other European countries, has periodically introduced exceptional one-off permit allocations outside the regular quota, distributed through designated "click-days" on which applications are processed in order of receipt (Pinotti 2017). These general amnesties allow undocumented workers to obtain temporary work permits. Applications, however, must be submitted by employers, and a successful outcome grants the same employer-tied status as under the regular quota system. The number of individuals affected by these legalization episodes has increased over time. The most recent amnesty prior to the 2007 EU enlargement occurred in 2002 and was the largest in Italy's history, resulting in approximately 640,000 foreign workers transitioning from the informal labor market into formal employment.

The permit regime described above applies only to non-EU nationals. EU citizens are instead covered by the principle of free movement, which gives them the right to live and work in other member states without employer sponsorship, work permits, or labor-market authorization requirements.⁵

⁵Some accession rounds were subject to transitional restrictions. For example, the United Kingdom and Germany limited access to their labor markets for workers from some Eastern European accession countries for a temporary period after the 2004 EU enlargement.

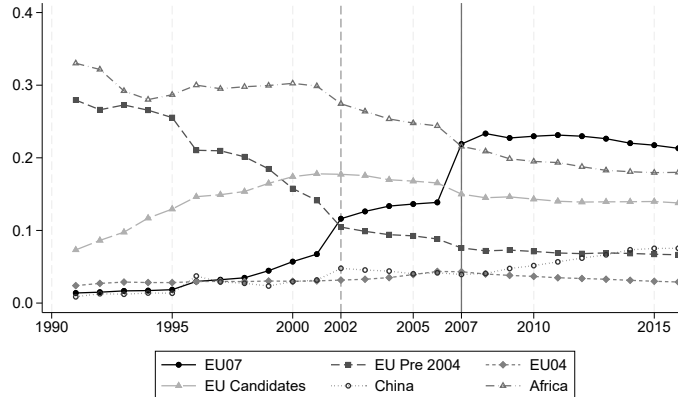
Thus, EU enlargements differ fundamentally from quota permits and amnesties alike. Rather than tying workers to a sponsoring employer and limiting their job mobility (Naidu et al. 2016), EU citizenship confers permanent, portable standing: workers may change jobs freely, face no departure requirement, and obtain legal status regardless of prior employment history. These distinctions generate different predicted effects on firms and workers, which we formalize in Section 3.

The two largest EU enlargements occurred in 2004 and 2007. In 2004, ten new member states joined.⁶ Romania and Bulgaria followed in 2007. The 2004 enlargement had a limited impact on the Italian labor market, as most workers from the new member states migrated to countries with stronger labor markets. Romanian workers, by contrast, were already the dominant foreign group in Italian formal employment prior to 2007, owing to strong linguistic similarities between the two countries. Romania's entry into the EU in 2007 built on this established presence: inflows to Italy surged in the immediate aftermath, far exceeding even those to Germany (the largest EU labor market), which remained gradual and contained throughout the same period (Figure A1).

Figure 1 traces the resulting evolution in the composition of migrant workers in formal employment over time.

Figure 1

Share of migrant workers by citizenship over the total of migrant workers



Notes: Authors' calculations from the universe of non-agricultural private-sector workers (INPS data). "EU07" includes workers from Romania and Bulgaria, "EU04" includes migrants from the countries that joined the European Union in 2004, "EU Pre04" includes countries that were EU members prior to 2004, "EU Candidates" include Albania, Bosnia, Croatia, Kosovo, Macedonia, Montenegro, Serbia, and Turkey.

⁶Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, and Slovenia.

The 2002 amnesty drove a first pronounced increase in EU07 workers’ formal share: they were the largest beneficiary group, confirming the depth of the Romanian workers’ established presence in the Italian labor market. The share then surged sharply at the 2007 marker and stabilized in subsequent years.⁷

The EU04 series shows no comparable shift in 2004, consistent with that enlargement’s limited impact on the Italian labor market. Critically, no other group exhibits a similar discontinuity in 2007, confirming that the 2007 pattern is specific to the legal status change conferred by EU enlargement rather than any concurrent labor market shock affecting all groups.

Among the other migrant groups, we label as “EU Candidates” a set of geographically close European countries that had applied for, or been considered for, EU membership by 2007 without a realistic prospect of near-term accession (see figure notes for the full list). Workers from these countries serve as our preferred comparison group given their greater geographic, cultural, and migratory proximity to Romanian and Bulgarian workers relative to the broader non-EU migrant population.

2.2 Labor market institutions

The permit regime described above defined formal employment for non-EU workers. Conditional on formal employment, however, a separate set of labor-market institutions governed the terms under which workers could be hired, paid, and retained. These institutions are important for interpreting the effects of a change in legal status: they shaped how newly formalized workers entered recorded employment relationships, how firms adjusted contracts and wages, and which outcomes are likely to respond in the administrative data.

Wages in Italy are set primarily through national sectoral collective agreements (CC-NLs), which fix binding pay scales and working conditions for each broad sector. Firm-level agreements can supplement but not undercut these rates. This institutional architecture limits the scope for firm-specific and worker-specific wage adjustment, generating effective wage rigidity (Boeri et al. 2021).

Italian labor law also distinguishes between permanent contracts (*contratti a tempo indeterminato*) and fixed-term contracts (*contratti a tempo determinato*). Permanent

⁷While Romanian and Bulgarian migrants were granted immediate freedom of movement in Italy, their access to the labor market in certain sectors faced delays. However, the barriers to access were significantly lower than in the past: employers only needed to notify the prefecture of their intention to hire a migrant, without waiting for formal authorization (Italian Ministry of Interior, 2007)

contracts provide stronger dismissal protection and more stable access to social insurance, while fixed-term contracts offer weaker employment protection and require periodic renewal (Boeri and Garibaldi 2007, Bratti et al. 2021, Hoffmann et al. 2022). Contract type is therefore an important dimension of job quality in the Italian labor market. Consistent with this, workers on permanent contracts earn more than comparable workers on fixed-term contracts, reflecting both the value of longer-term employment relationships and greater scope for rent-sharing (Boeri et al. 2021). In Italy’s dual labor market, new employment relationships typically begin with a fixed-term contract, with conversion to permanent status contingent on an established match between worker and firm (Boeri and Garibaldi 2007, Bratti et al. 2021). More generally, this institutional setting implies that individual bargaining need not operate solely through the real wage. In the Italian context, contract type is one especially relevant margin: moving from a fixed-term to a permanent contract improves job stability and constitutes a concrete gain for workers, even when measured wages respond only weakly.

3 Conceptual Framework

We now introduce a simple framework to organize the empirical predictions and conceptualize how the 2007 EU enlargement affected firms and workers in the Italian labor market. This section summarizes the framework’s logic and main predictions; Appendix A2 develops the underlying model more formally.

Prior to enlargement, Romanian and Bulgarian workers could access formal employment in Italy only through the employer-tied permit regime that governed other non-EU migrants, or they worked informally outside the administrative records. The 2007 enlargement granted them unrestricted access to the Italian labor market, removing prior constraints on mobility and strengthening their bargaining position relative to Italian firms. The consequent employment adjustments fall into two broad groups: an *internal* margin, arising from EU07 workers already present in Italy, employed either informally or formally under employer-tied permits, and an *external* margin, driven by the arrival of Romanian and Bulgarian workers after 2007. Both imply an increase in recorded EU07 employment, but the balance between them shapes the timing and pattern of adjustment across job flows, worker mobility, wages, and contract types, as we discuss below.

The framework has three ingredients. First, legal status matters for production and substitution. We distinguish workers with unrestricted labor-market access from workers whose employment is restricted by permit requirements or informality. After the enlargement, Romanian and Bulgarian workers move from the restricted-status group to the unrestricted-status group, where they are closer substitutes for natives than for non-EU migrants, who remain subject to the old permit regime.

Second, legal status matters for monopsony power. Employer-tied permits limit workers' ability to receive outside employment offers: a competing firm must sponsor a new permit, and job-to-job mobility is therefore costly or infeasible. Firms can then retain tied workers at relatively low compensation. Enlargement removes this restriction, allowing EU07 workers already in formal employment to move across firms, increasing their firm-facing labor-supply elasticity and strengthening their bargaining position. Previously informal EU07 workers also become eligible for formal employment, entering the administrative records as new formal-sector workers.

Third, firms differ in their access to migrant labor. Those with stronger pre-existing links to migrant networks face lower costs of recruiting or formalizing them. In particular, if a firm already employed EU07 workers informally before enlargement, formalizing them is cheaper than recruiting new workers from outside the firm.

These ingredients generate five main predictions. First, EU07 employment should rise after enlargement, reflecting both the formalization of EU07 workers already employed informally and new EU07 hires. Because EU07 workers now compete with natives as close substitutes within the unrestricted-status pool, the native employment share is predicted to decline. By contrast, non-EU migrants remain in the restricted-status pool, so the model predicts no first-order effect on their employment.

Second, EU07 hires and EU07 separations should rise. Hires increase because both previously informal workers become formal employees and because new EU07 workers may enter the Italian labor market. Separations increase for a different reason: formally employed EU07 workers who were previously tied to one employer can now move to better matches.

Third, the wage predictions differ across workers' groups. For EU07 workers already in formal employment, the removal of employer-tied restrictions raises outside options and reduces monopsony power, generating individual wage gains. Newly formalized workers and new immigrants alike enter at the bottom of the formal wage distribution. Given these opposing responses, the impact on average firm-level EU07 wage effect is

ambiguous.

Fourth, enlargement should increase EU07 access to permanent contracts. Before enlargement, permanent contracts were effectively inaccessible to workers whose right to work was tied to a temporary permit. Once EU07 workers acquire portable and permanent labor-market access, firms can offer open-ended contracts. Moreover, because workers place positive value on the job security associated with permanent employment, firms can use permanent-contract offers to retain workers and match outside offers, a margin that was effectively unavailable under tied-permit status. This effect is most pronounced for workers with established employment relationships; new entrants, whether newly formalized or recently arrived, follow the standard Italian pattern of beginning on fixed-term contracts and converting to permanent status only after a period of sustained tenure. The model therefore predicts a rise in the EU07 permanent-contract share and a corresponding decline in the native share of permanent contracts.

Fifth, these effects should be larger and more concentrated at firms with greater pre-existing access to migrant labor, such as firms with prior informal EU07 employment or prior participation in the 2002 regularization. These firms have a stronger incentive to formalize the EU07 workers they already employ, since those workers are now able to seek formal employment elsewhere, and they face lower costs of recruiting and integrating new EU07 workers.

The framework provides the interpretive structure through which empirical patterns reveal which margin is prevalent. The *internal* margin operates on a pre-existing stock of workers: previously informal EU07 workers enter the administrative records, while those formally employed under employer-tied permits gain portable labor-market access and can move across firms. The *external* margin instead operates through a post-enlargement flow of workers entering Italy from abroad. The two margins differ in their dynamics: the internal margin predicts a concentrated adjustment around 2007, including both an increase in recorded hires and a rise in separations as existing matches are reorganized, while the external margin predicts more persistent growth in EU07 employment and hires, with weaker implications for separations since workers entering from abroad carry no prior constrained employment relationship. Their implications for wages and permanent contracts also diverge. The internal margin generates an ambiguous average EU07 wage effect, as incumbent gains are offset by new entrants entering at the bottom of the distribution, while the external margin predicts an unambiguously negative composition effect. On permanent contracts, the internal margin

predicts a clear rise in the EU07 share, as firms use open-ended contracts to retain newly mobile workers, whereas the external margin predicts an ambiguous or negative effect since new entrants begin on fixed-term contracts. Finally, adjustment under the internal margin should be concentrated at firms with prior EU07 employment relationships, while the external margin implies more diffuse entry across the firm distribution. Finally, the framework also clarifies how EU enlargement differs from amnesties and other one-off regularization programs. Both policies can move previously informal workers into formal employment. The key difference is that regularization programs typically grant only partial legal status, often tied to a specific employer or job, whereas EU enlargement granted Romanian and Bulgarian workers unrestricted and portable access to the labor market. Italy’s 2002 amnesty therefore provides a useful benchmark: it expanded access to formal employment, but it did not eliminate employer dependence in the same way as EU citizenship. The framework predicts that an amnesty should generate an initial increase in formal hires among regularized workers, but more limited effects on job-to-job mobility, wages, and permanent contracts. The comparison isolates the role of portability: full legal status changes not only whether workers can be employed formally, but also the terms on which they can move, bargain, and sort across firms.

4 Data and sample

We use high-quality, restricted-access administrative data from the Italian Social Security Institute (INPS): a panel of matched employer-employee records covering the universe of non-agricultural firms with at least one employee.⁸ As these are administrative records of formal employment relationships, the data cover only documented workers; undocumented or informally employed workers are not observed in our sample. For each worker-firm spell, the INPS data report the beginning and end date of the contract, weekly wages, number of weeks worked, type of contract (permanent or fixed-term, full-time or part-time), and broad occupation group within the firm (blue-collar, white-collar, or manager).⁹ The data also report demographic information for

⁸The data therefore exclude public-sector employees (covered by separate pension funds), agricultural workers (subject to a distinct INPS scheme), the self-employed, and domestic workers.

⁹The start date of an employment spell is recorded in the INPS data only from 2005 onward. To ensure consistent identification of hires across the full 2004–2009 panel, we define a hire as a worker newly appearing at a given firm in year t who was not employed at that firm in year $t - 1$.

each worker, such as nationality and age. On the firms' side, we observe the sector and industry in which the firm operates, geographic location, and firm creation and closure dates, which we use to define firm entry and exit.¹⁰

From these data, we construct firm-level measures of employment composition, hiring and separation rates, average wages, and contract type separately for EU07 and native workers.

Throughout the paper, we measure the effects of the EU07 enlargement shock at the local level. To do so, we use *local labor markets* (*Sistemi Locali del Lavoro*), which are non-administrative areas defined by ISTAT based on daily commuting patterns: the boundaries are defined by commuting patterns rather than administrative lines, yet they closely reflect the economic conditions faced by individual firms. These areas are designed to capture regions characterized by a shared labor market.¹¹ Geographic variation across these labor markets provides the identifying variation for our empirical strategy.

4.1 Sample

Our analysis concentrates on the years from 2004 to 2009. We exclude the years prior to 2004 to avoid capturing the dynamic effects of the 2002 amnesty.¹² Conversely, we conclude our analysis in 2009 to prevent including the potential effects of the sovereign debt crisis that began affecting Italy shortly after. We include all workers ages 18 to 64 who worked for at least five weeks in a given year. For each worker, we retain the record of their main job for that year, defined as the highest-paying position; in cases where two jobs offer the same salary, we select the one with the longest duration. Since our primary focus is on firms, we aggregate all information at the firm level.

To ensure a balanced sample, we consider only firms that were present in every year and employed at least one worker during our period of interest (2004-2009).¹³ Our final sample comprises 864,067 firms, representing approximately 56 percent of firms active in 2006 and 35 percent of all distinct firms observed at any point over 2004–2009. Section 7.1 verifies that this restriction does not introduce selection bias: the EU07

¹⁰Codified according to "ATECO 2007," the 2007 Italian classification system for economic activities

¹¹Our analysis uses 610 local labor markets, with one SLL excluded for lack of any registered firm in the administrative records throughout the sample period. The excluded SLL consists of three municipalities with a combined resident population of approximately 10,000 over 2004–2009.

¹²Indeed, Di Porto et al. (2025) show that the firm-level employment and wage effects resulting from the 2002 regularization do not exhibit any further changes after 2003.

¹³Firm-year observations with a missing sector code are dropped from the regression sample.

enlargement had no economically meaningful effect on firm entry or exit at any size class.

Table 1 presents descriptive statistics for the firms in our sample in 2006, the year prior to the EU07 enlargement. On average, firms in our sample employ 10.8 individuals. These firms typically employ 9.8 native workers and 0.1 EU07 workers. EU07 workers earn, on average, wages approximately 10 percent lower than those of their native counterparts. Not all firms employed EU07 workers, yet, a non-negligible share did: 6.4 percent of firms employed one or more EU07 workers. Firms that employed at least one EU07 worker were larger on average, yet the mean wages for native workers were comparable to those in the rest of the sample.

Table 1
Firm-level summary statistics

	Mean Employment	Mean Wages
All workers	10.8 (149.9)	416.1 (140.0)
Native workers	9.8 (140.0)	420.6 (142.8)
EU07 workers	0.1 (2.2)	380.8 (106.7)
Number of firms	864,067	864,067

Notes: Summary statistics for outcomes measured in 2006 for the universe of firms in our balanced sample. Standard deviations in parentheses. Wages are expressed in euros per week. Group-specific means for wages are conditional on firms employing at least one individual of the group.

5 Empirical strategy

We estimate the causal effect of the EU07 enlargement on firm-level outcomes using a first-difference instrumental variable design. The design addresses two related empirical challenges. First, EU07 migrants may have selected into local labor markets experiencing favorable contemporaneous economic shocks; we address this concern by instrumenting exposure to the 2007 EU enlargement with earlier EU07 inflows generated by the 2002 amnesty. Second, firms in high- and low-exposure local labor markets

may have differed in time-invariant baseline characteristics correlated with outcomes; we address this concern by first-differencing our outcomes within firms. Section 5.1 defines the treatment variable and the instrument. Section 5.2 presents the estimating equation. Section 5.3 assesses instrument validity through pre-trend balance tests and evaluates the choice of estimating equation against alternative specifications.

5.1 Treatment variable and instrument

Our chosen treatment variable is the absolute change in the share of EU07 workers between 2006 and 2007, measured relative to the 1991 local population, held fixed throughout the analysis. Using the 1991 population as the denominator serves two purposes: it avoids confounding from endogenous population growth during the study period, and, since immigration to Italy was negligible in 1991, it ensures that the baseline is uncontaminated by subsequent settlement patterns that may themselves be correlated with local economic conditions. The chosen measure follows the local-labor-market approach in the immigration literature. Card (2001) provides the classic framework: immigrant inflows vary across cities and are scaled by the pre-existing size of the local population, so that the measure captures the intensity of the labor-supply shock rather than the absolute size of the city. This normalization is also used in later local-labor-market studies that define immigration shocks as changes in immigrant population relative to initial population (Ortega and Verdugo 2022, Edo and Özgüzel 2023). Card and Peri (2016) further clarify why the relevant object is the immigrant inflow shock, rather than a contemporaneous immigrant share, since current shares can change both because immigrants arrive and because the native population or employment base changes. In our setting, this choice is consequential: pre-enlargement EU07 stocks were negligible in many local labor markets, making some normalizations distort rather than reveal the distribution of the labor-supply shock.¹⁴

The spatial distribution of EU07 migrants following the 2007 enlargement may not be entirely exogenous to local economic conditions: areas experiencing positive demand

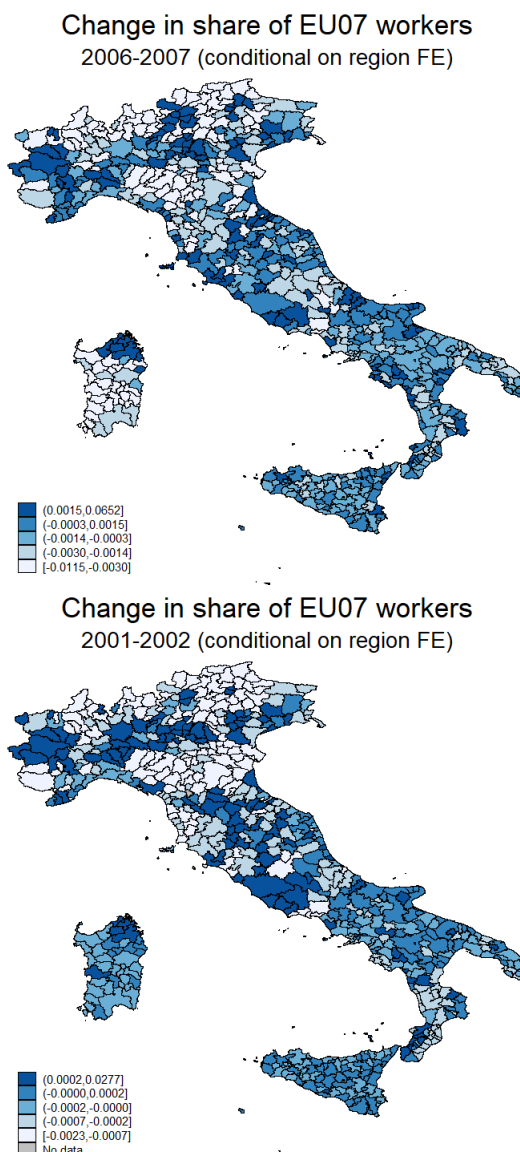
¹⁴Two natural alternatives would be unscaled changes and percentage growth rates. Unscaled changes are mechanically correlated with local market size, confounding treatment intensity with geography. Percentage growth rates are instead distorted by near-zero baseline stocks: local labor markets with virtually no pre-enlargement EU07 workers can register extreme growth rates despite negligible absolute changes. Figure A3 in the appendix illustrates this point. After partialing out region fixed effects, growth-rate maps display a wider and less interpretable range of values, as well as a weaker correspondence between the 2001–2002 and 2006–2007 episodes, than maps based on population-scaled changes.

shocks might simultaneously experience more formalization and generate improvements in firm outcomes through unrelated channels. We therefore instrument the 2006–2007 change in EU07 share with the analogous change from the 2002 general amnesty, a nationwide regularization policy open to all undocumented workers regardless of country of origin, that produced a sudden, policy-driven increase in the documented EU07 workforce across Italian local labor markets. We construct the instrument analogously to the treatment variable: it is the change in the EU07 worker share between 2001 and 2002, scaled by the same 1991 local-population denominator. The intuition for its validity is that the geographic distribution of newly legalized workers in 2002 was driven by a national policy shock interacting with historical settlement patterns and pre-existing migration networks. While local exposure to the 2002 regularization could potentially reflect persistent local labor demand or local employer practices, our first-difference specification combined with local-labor-market, region-by-year, and sector-by-year fixed effects absorbs these persistent and regional confounds. Conditional on these controls, the 2002 policy shock should affect 2006–2007 firm outcomes exclusively through its impact on local EU07 labor exposure. We assess this assumption formally using pre-trend diagnostics in Section 5.3 and alternative shift-share instruments in Section 7.3.¹⁵

Figure 2 displays the geographic distribution of both measures across Italian local labor markets. Since our specification controls for region-specific trends, the maps show changes after partialing out region fixed effects, so that the patterns correspond directly to the within-region variation exploited in estimation; unconditional maps appear in Figure A2. The residualized maps reveal substantial within-region heterogeneity during both episodes. Crucially, areas with relatively high residualized inflows during the 2002 amnesty also tend to display relatively high residualized inflows during the 2006–2007 enlargement, providing visual support for the first-stage relationship.

¹⁵Both the treatment variable and the instrument are winsorized at the 1st and 99th percentile of their respective distributions. This is a standard robustness measure that limits the leverage of observations at the tails of the distribution on the first-stage and reduced-form estimates, without discarding any local labor markets from the sample.

Figure 2
Changes in the Share of Migrants Across Local Labor Markets

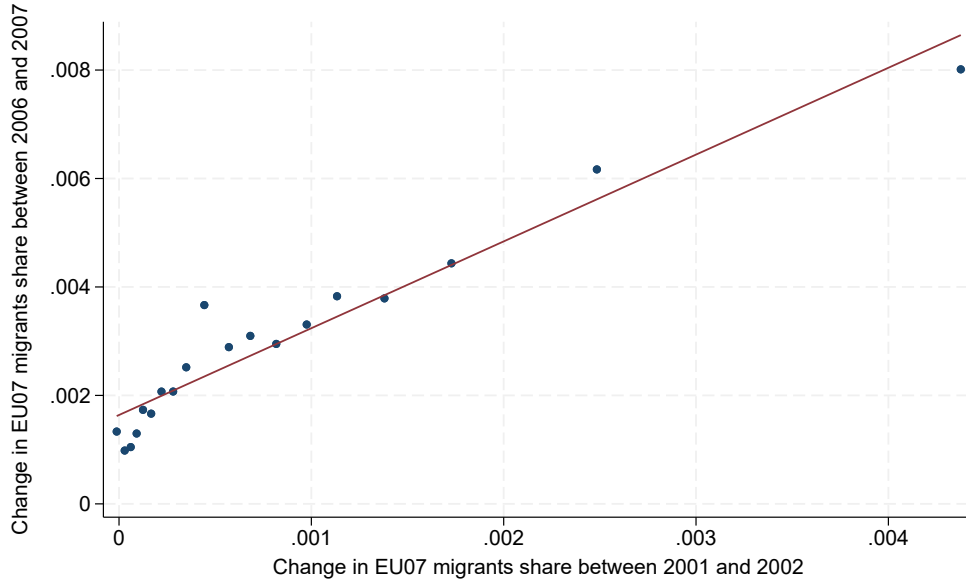


Notes: The maps show local labor markets in Italy, with changes in EU07 migrant share residualized with respect to region fixed effects (within-region variation only). Changes are measured relative to the 1991 local labor market population. Positive values denote local labor markets that experienced above-average inflows relative to their regional mean. Unconditional maps (without region partialling) are shown in Figure A2 in the appendix.

Figure 3 complements Figure 2, plotting the binned relationship between the amnesty-induced change in the EU07 worker share in 2001–2002 and the EU-enlargement-induced change in the EU07 worker share in 2006–2007. The figure shows a strong,

positive first-stage relationship: local labor markets with larger amnesty-era EU07 inflows systematically received larger inflows after the 2007 EU enlargement. First-stage regressions confirm the relevance of the instrument, with an F -statistic of 181.52, well above conventional thresholds for weak instruments.

Figure 3
First-Stage Relationship Between Past and Current Migration Shocks



Notes: Binned scatter plot showing the correlation between the change in EU07 migrant share due to the 2002 general amnesty (x-axis) and the change in EU07 migrant share between 2006 and 2007 (y-axis). Both variables are measured as changes in the share of EU07 workers relative to the 1991 total local labor market population. Each dot represents a bin of local labor markets. Both variables are winsorized at the 1st and 99th percentiles. The upward-sloping relationship illustrates the strong first-stage relevance of the amnesty-based instrument.

5.2 Empirical specification

To identify the dynamic effects of the EU07 enlargement shock, we implement a first-difference IV specification within a dynamic difference-in-differences framework.¹⁶

Specifically, we regress the change in outcome Y for firm f between years t and $t - 1$ on

¹⁶First-differencing firm outcomes directly aligns the dependent variable with the treatment, a change in EU share; it also removes time-invariant firm heterogeneity that would otherwise confound cross-area comparisons of levels.

interactions between year indicators and local exposure to the 2007 EU enlargement:

$$\Delta Y_{ft} = \sum_{\substack{t=2005 \\ t \neq 2006}}^{2009} \beta_t D_t \times \Delta \text{ShareEU07}_{l,0607} + \delta_{dt} + \delta_{st} + \delta_{rt} + \delta_l + \varepsilon_{ft} \quad (1)$$

$\Delta \text{ShareEU07}_{l,0607}$ is our treatment variable, instrumented by $\Delta \text{ShareEU07}_{l,0102}$, δ_{dt} are year-specific effects for pre-shock firm size,¹⁷ δ_{st} are sector-by-year fixed effects,¹⁸ δ_{rt} are region-by-year fixed effects for Italy's 20 administrative regions, δ_l are local-labor-market fixed effects, and ε_{ft} is the error term. Firm size is captured by a dummy equal to 1 for firms with 15 or more employees in 2006 and 0 otherwise, reflecting the distinct labor regulations applied to small versus medium and large firms.¹⁹ Standard errors are clustered at the local-labor-market level, the level at which treatment varies. The interaction for $t = 2006$ is omitted, so all coefficients are interpreted relative to the 2005–2006 change in the outcome, immediately before the EU enlargement.

5.3 Instrument validity and specification checks

We assess the credibility of the empirical strategy using pre-trend and balance tests for instrument validity, together with specification checks that compare our preferred first-difference design to alternative specifications. Additional robustness checks, including alternative instruments and alternative outcome specifications, are deferred to Section 7, after the main results.

We start by examining whether the amnesty-based instrument is correlated with pre-existing local labor-market trajectories. The identifying concern is that areas more exposed to the 2002 regularization may have already been on different employment or wage trends before the 2007 enlargement. While aggregate EU07 formal employment

¹⁷That is, year dummies interacted with a size indicator defined in 2006, the year prior to the enlargement, so that the right-hand side contains no post-shock, potentially endogenous measure of firm size.

¹⁸Sectors are defined using ATECO 2007 codes: 1. Mining and Manufacturing; 2. Water and Energy; 3. Construction; 4. Commerce; 5. Transportation; 6. Hospitality and Restaurants; 7. Professionals and Communication/Real Estate Services; 8. Services including Education, Health, and Entertainment; 9. Personal and Business Support Services.

¹⁹Specifically, firms with fewer than 15 employees in Italy benefit from a more flexible regulatory environment, allowing for easier hiring and firing. In contrast, firms with 15 or more employees are bound by stricter labor laws, including more complex dismissal procedures, higher severance costs, and additional protections for workers against layoffs (Article 18, Law 300/1970, as amended by Law 92/2012 and Legislative Decree 23/2015).

was stable through 2006, with no unusual rise before the January 2007 accession (Figure 1), the most relevant test for our empirical strategy is whether the local variation used for identification predicts pre-period outcomes.²⁰

Following Mitaritonna et al. (2017) and Hernandez Martinez (2025), Table A1 assesses whether the geographic variation in the amnesty-based instrument is systematically related to pre-existing SLL characteristics or pre-enlargement trends in labor market outcomes. Each column reports the coefficient from a stacked regression in which the dependent variable is the amnesty-based instrument, $\Delta Share_{EU07,l,0102}$, and the explanatory variable is the indicated pre-period annual first-difference at the $SLL \times sector \times year$ level, absorbing year, sector, and region fixed effects with standard errors clustered at the SLL level. Because $\Delta Share_{EU07,l,0102}$ varies only at the SLL level, it is repeated across every sector cell within an SLL; the coefficient is therefore a sector-cell-weighted estimate of the relationship between the instrument and pre-period sectoral trends, and SLL-level clustering accounts for the resulting within-SLL repetition of the dependent variable. This specification exploits the richer sector-level variation in pre-period trends and is consistent with the structure of the main regressions. We examine changes in EU07 and native employment shares, native and EU07 wages, and average firm size. Panel A stacks annual first-differences over 2002–2006, while Panel B stacks annual first-differences over 1992–1997.

These results support the validity of the instrument. Native and EU07 employment shares, native and EU07 wages, and average firm size do not systematically predict the instrument in either the pre-enlargement period (Panel A) or the historical period (Panel B). The only exception is the EU07 employment share in Panel A, which has a marginally significant negative coefficient. SLLs where the 2001–2002 amnesty produced a larger increase in the EU07 share had less additional organic growth in that share over 2002–2006, as the pool of informal EU07 workers eligible for formalization had already been largely absorbed by the amnesty. This reflects the amnesty’s own one-time nature rather than a pre-existing, amnesty-independent local trend, consistent with its absence in Panel B, a historical period with no analogous 2002 stock adjustment. Overall, this evidence supports the interpretation that the amnesty-based instrument is orthogonal to pre-existing local labor-market trajectories.

²⁰This absence of aggregate anticipation is also consistent with statistics from the International Migration Database of the OECD (2024), which show that the annual inflow of Romanian migrants to Italy in 2006 was approximately 40,000 individuals, substantially lower than the levels observed in the two following years.

While Table A1 provides evidence consistent with instrument validity, balance tests cannot rule out all unobserved confounders. Section 7.2 therefore implements two alternative shift-share instruments based on Card (2001). These instruments interact national EU07 inflows with the pre-existing geographic distribution of EU07 workers in INPS records, measured either in 2001, the last pre-amnesty year, or in 1991, ten years earlier. Because these instruments do not rely on the 2002 amnesty shock and anchor the historical settlement pattern at different points in time, consistency across specifications helps address the concern that the results are driven by features specific to the amnesty episode.

We also complement the conceptual case for first-differencing in Section 5.2 with an empirical check on the behavior of regression residuals. Figure A5 compares residual autocorrelation from the first-difference and levels specifications. Residuals from the first-difference model exhibit no significant serial correlation, whereas residuals from the levels model remain positively autocorrelated. This pattern supports the use of first differences, since the levels specification leaves more persistence in the unexplained component of firm outcomes.

Finally, we compare the first-difference estimates to those from a within-firm event-study specification. The two estimators answer related but distinct questions: first-difference coefficients capture annual changes, while within-firm event-study coefficients capture level differences relative to an omitted base period. A large post-2007 within-firm coefficient is therefore consistent with a one-time 2007 jump followed by near-zero annual first differences. Figure A6 in the appendix shows that the main employment patterns are robust to this alternative estimator.

6 Results

We begin by examining how firms adjusted the composition of their workforce after EU enlargement, focusing on the relative employment of EU07, native, and other migrant workers. We then turn to wages and contract types, studying whether EU07 workers' newly acquired labor-market rights translated into gains in compensation or job security, and whether native workers were affected along the same margins.

Throughout the analysis, workers from EU candidate countries provide a natural placebo group, as their legal status did not change in 2007. We report the full set of placebo results in Appendix A.1.4 and refer to them alongside the corresponding

main findings.

Following the dynamic difference-in-differences design in equation 1, we report the coefficients on the interactions between year indicators and the treatment variable. For each outcome, we present both OLS and IV estimates. In all figures, the y-axis reports estimates of corresponding β coefficients; the outcome variable is specified in the figure caption and notes.²¹

Because the specification is estimated in first differences, these coefficients should be interpreted as effects on annual changes in the outcome. The omitted year is 2006, so each coefficient measures how the change in a given year differs from the pre-enlargement change between 2005 and 2006. A post-2007 coefficient close to zero therefore does not imply that the level effect has disappeared. Rather, it indicates that the outcome stopped changing at an abnormal rate and resumed its pre-enlargement trajectory, leaving any earlier level change in place. Cumulative effects on levels can be obtained by summing the post-enlargement first-difference coefficients. Readers who prefer to interpret effects as cumulative level changes from the pre-enlargement baseline may refer to Table A2 in Appendix A.1.3.

6.1 Employment

Because our main workforce-composition outcomes are measured as shares of total firm employment, we begin by examining changes in the denominator. Total firm employment increased in more-exposed local labor markets in the year of enlargement. The 2007 first-difference coefficient is positive and statistically significant (Figure A4), while the 2008 and 2009 coefficients are smaller and imprecisely estimated. This pattern points to a one-time adjustment in firm size rather than a persistent year-on-year expansion.

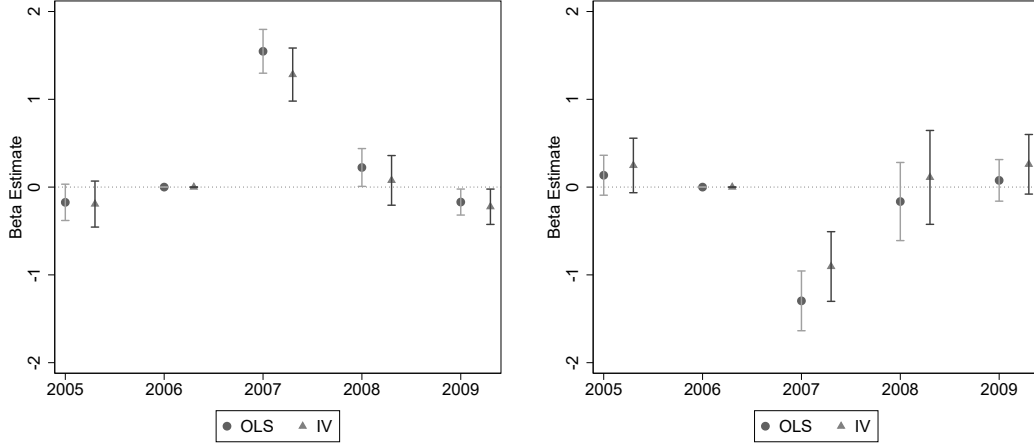
6.1.1 Workforce Composition

Having established that total employment increased only at the time of enlargement, we next examine how the composition of that employment changed. Figure 4 reports employment shares by country-of-origin group, measured as fractions of total firm

²¹Outcomes measured in asinh, specifically, total firm employment, average native wages, and average EU07 wages, are winsorized at the 1st and 99th percentile within each calendar year after taking first differences. Employment shares, hire rates, separation rates, and permanent contract shares are not winsorized, as these outcomes are bounded between 0 and 1 and are therefore less susceptible to extreme values.

employment. These estimates show which groups accounted for the post-enlargement adjustment and whether the increase in EU07 employment was accompanied by changes in firms' reliance on native or other migrant workers.

Figure 4
Firm-level relative employment, EU07 and native workers



Notes: On the y-axis are the estimates of β from specification 1, showing the effect of the interaction of the treatment variable with the time variable on relative employment. Left panel: EU07 relative employment share. Right panel: native relative employment share. Coefficients represent the effect of a one-unit increase in $\Delta Share_{EU07, 2007}$. OLS and IV estimates are shown separately. Standard errors are clustered at the local-labor-market level.

Examining the left panel of Figure 4, we observe a notable and immediate short-run increase in the relative employment of EU07 workers in 2007, precisely when the legal status change took effect. By 2009, the coefficient turns slightly negative, with the year-on-year change falling slightly below its pre-enlargement level; the cumulative effect on EU07 employment share nonetheless remains positive through the end of the analyzed period. The right panel of Figure 4 shows the corresponding effect on the native employment share. The effect is negative and concentrated in 2007, symmetric to the EU07 pattern, with the native share remaining persistently below its pre-enlargement baseline thereafter (Table A2). This is consistent with the prediction of our conceptual framework: portable legal status made EU07 workers closer substitutes for natives within firms, shifting workforce composition toward EU07 workers and compressing the native relative employment share.

Equally informative is the absence of any comparable disruption for EU candidate workers (Figure A7): their employment shares show no equivalent shift in 2007, confirming that the pattern is specific to the change in EU07 legal status rather than a

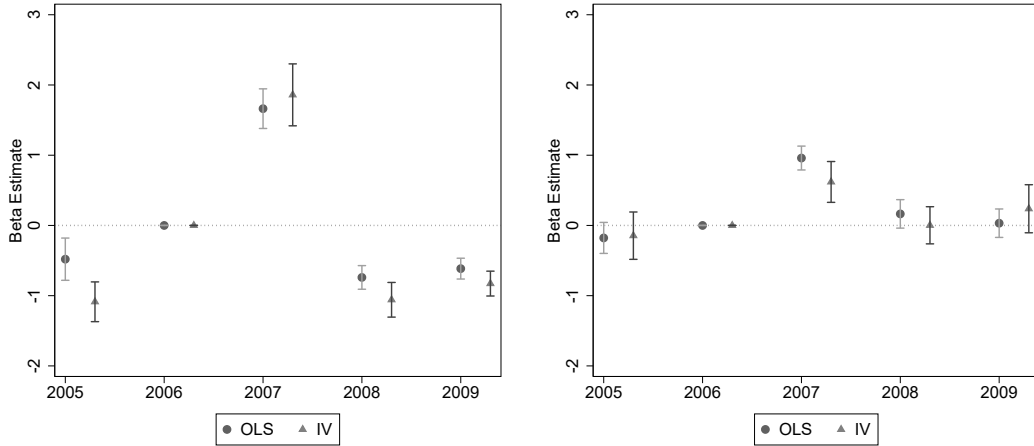
broader trend common to all immigrant groups.

Taken together, the total employment and composition results indicate that firms in more-exposed local labor markets expanded at the time of enlargement, but that the additional recorded employment was concentrated disproportionately among EU07 workers, as opposed to natives.

6.1.2 Hiring and separation dynamics

To better understand the mechanisms driving the overall employment effects documented above, we examine the underlying flows. Figure 5 reports firm-level hiring and separation dynamics for EU07 workers, with both outcomes measured as shares of total firm employment.

Figure 5
Firm-level hires and separations, EU07 workers



Notes: On the y-axis are the estimates of β from specification 1, showing the effect of the interaction of the treatment variable with the time variable on: left hires and right separations for EU07 workers. Coefficients represent the effect of a one-unit increase in $\Delta Share_{EU07, l, 0607}$. OLS and IV estimates are shown separately. Standard errors are clustered at the local-labor-market level.

In the hiring panel, the 2007 coefficient is sharply positive, with 2008 and 2009 estimates returning to be undistinguishable from the 2005 pre-enlargement coefficient. This pattern points to a discrete hiring response at the time of enlargement rather than a continuation of pre-existing dynamics. The pre-2007 trend itself runs counter to this concern: extrapolating the earlier pattern would predict a further decline in 2007, not a sharp increase. The negative estimates in 2005 and again in 2008–2009 therefore reflect a stable differential before and after enlargement, with 2007 as the unique departure.

EU07 separations also rise in 2007, though less sharply than hires, consistent with the net positive employment-share change observed in Figure 4. The joint rise in both margins, followed by normalization, is most consistent with the reorganization of pre-existing employment relationships as the main source of adjustment. New arrivals would instead show hiring gains extending beyond 2007 with no separation response, as they enter the labor market without prior employment ties.

Overall, the firm-level results indicate increased EU07 mobility. The underlying mechanism operates at the worker level: workers whose legal status had been tied to a sponsoring employer should become more likely to move across firms once that constraint is removed. We therefore turn to individual-level regressions testing whether EU07 workers became more likely to change employers in 2007.

We first conduct an individual-level event study of job-to-job transitions among incumbent EU07 workers. For each incumbent-year observation in which the worker was also employed in year $t - 1$, we construct a binary indicator equal to one if the worker is observed at a different employer in year t , and zero otherwise. By construction, the outcome captures only transitions among workers who were already employed, excluding new labor-market entrants and re-entrants from unemployment, and isolates the mobility margin directly affected by the permit-tied constraint. The specification absorbs worker fixed effects, sector fixed effects, and SLL fixed effects. Standard errors are clustered at the SLL level.

To assess whether the within-EU07 time profile reflects the specific legal-status change rather than common trends affecting mobile immigrant workers, we additionally estimate a difference-in-differences specification comparing incumbent EU07 workers to incumbent EU candidate workers, subject to the same employer-tied permit regime before 2007 but whose legal status was unaffected by the enlargement. The specification interacts an EU07 indicator with year dummies, controlling for worker fixed effects, SLL fixed effects, and pre-period age-group and experience interactions; sector-by-year controls are excluded as sector mobility is itself a margin of adjustment endogenous to the treatment.²² The outcome is the binary job-to-job transition indicator for both specifications.

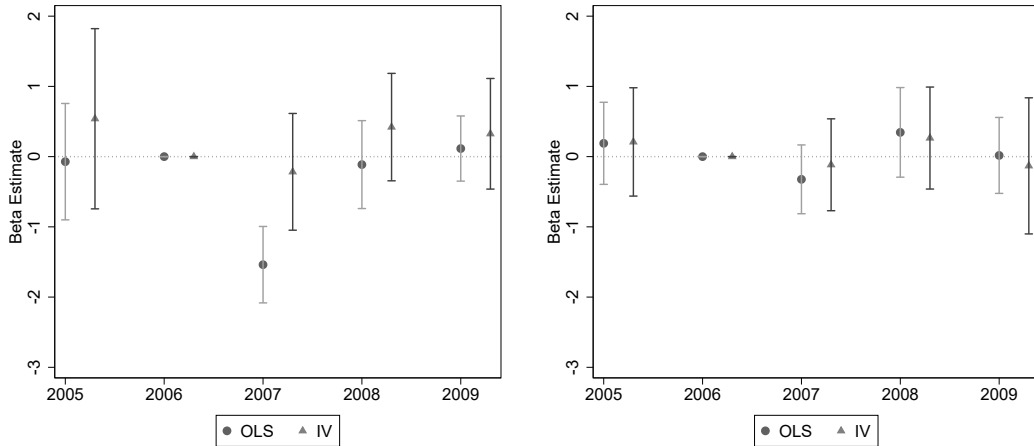
Figure A11 presents both sets of results. The within-EU07 event study (left panel)

²²A worker previously tied to an employer-sponsored permit may, upon acquiring full mobility rights, sort not only to a better firm but also to a different sector. Conditioning on sector-by-year fixed effects would absorb part of this between-sector reallocation channel and systematically understate the treatment effect on transitions.

confirms a clear pattern: the 2005 pre-trend coefficient is small and statistically insignificant, while the 2007 estimate reveals a spike in job-to-job transitions, followed by a sharp decline in 2008 and a negative coefficient in 2009. This pattern is consistent with the pool of workers wishing to change employer being largely exhausted by 2008, leading their individual transition propensities to fall below baseline in 2009 as the matching process stabilized. The difference-in-differences estimates (right panel) replicate this profile: 2007 coefficient is positive and statistically significant, dissipating by 2009. This finding indicates that the transition spike is specific to EU07 workers and not driven by trends common to mobile immigrant workers more broadly.

Returning to firm-level outcomes, Figure 6 examines hiring and separation dynamics for native workers. The change in native hiring and separation rates show null IV estimates

Figure 6
Firm-level hires and separations, native workers



Notes: On the y-axis are the estimates of β from specification 1, showing the effect of the interaction of the treatment variable with the time variable on relative hires and separations for native workers. Coefficients represent the effect of a one-unit increase in $\Delta Share_{EU07,0607}$. OLS and IV estimates are shown separately. Standard errors are clustered at the local-labor-market level.

throughout the post-enlargement period. The OLS estimate for native hiring is large and negative, likely reflecting endogenous sorting of EU07 workers into areas with established ethnic networks or migrant-specific labor demand, which can be negatively correlated with unobserved shocks to native hiring; in this outcome, the IV correction is most visible, attenuating a large spurious negative to a null causal effect. The null effect on native separations is telling: native displacement would have raised separation rates,

and no such rise is observed. Together with the total-employment results documented above, native workers appear to have absorbed the EU07 inflows without significant employment loss.

EU candidate workers exhibit no comparable hiring or separation dynamics (Figure A8), confirming that the labor market churning for EU07 workers is tied specifically to the 2007 grant of mobility rights. Taken together, the individual-level and firm-level evidence confirms a discrete increase in EU07 job-to-job mobility following enlargement, consistent with Naidu et al. (2016), who show that relaxing employer-tied mobility restrictions for migrant workers in the UAE increased job-to-job mobility by weakening employer monopsony power.

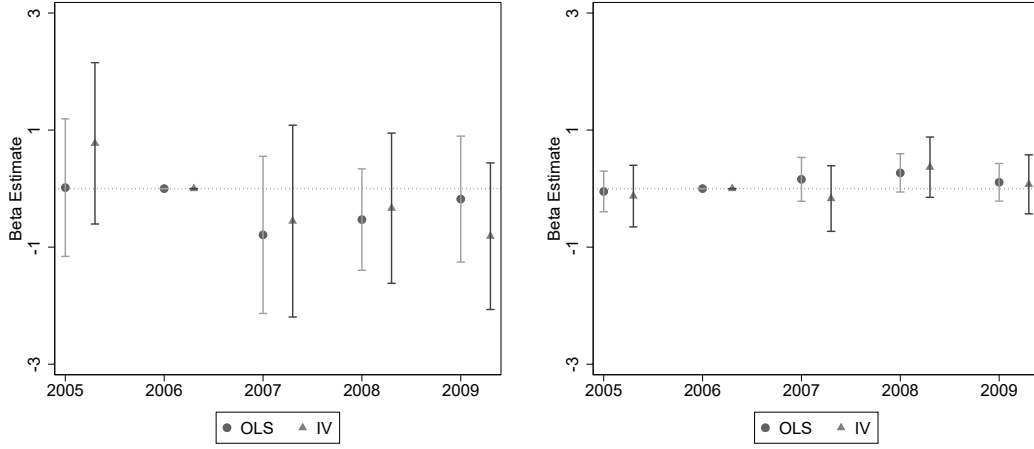
6.2 Wages and types of contracts

Having established that the EU07 enlargement generated significant shifts in employment composition and labor market flows, we now explore how the policy change affected wages and the types of employment contracts offered to workers. These outcomes provide insight into whether the enhanced legal status and bargaining power (Amior and Manning 2025) of EU07 workers translated into tangible economic gains beyond employment opportunities.

6.2.1 Wage Effects

Figure 7 presents evidence on firm-level wages for EU07 and native workers. The IV estimates are uniformly null for both groups across all post-enlargement years.

Figure 7
Firm-level wage, EU07 and native workers



Notes: On the y-axis are the estimates of β from specification 1, showing the effect of the interaction of the treatment variable with the time variable on the average wages (asinh) for EU07 (left) and native workers (right). Coefficients represent the effect of a one-unit increase in $\Delta Share_{EU07_{l,0607}}$. OLS and IV estimates are shown separately. Standard errors are clustered at the local-labor-market level.

As previously discussed, Italy's centralized collective agreements stipulate binding pay scales at the sector level and leave limited scope for local labour market conditions to move wages in either direction (Boeri et al. 2021). In this institutional setting, a null effect on firm-level wages is therefore not surprising. At the same time, collective bargaining compresses wage adjustment without eliminating it entirely. Any residual wage response is likely to operate through different mechanisms for EU07 and native workers, reflecting their distinct positions before and after enlargement.

For EU07 workers, firm-level wages are shaped by two forces that pull in opposite directions. On the one hand, the change in legal status improved the bargaining position of EU07 incumbents who were already formally employed. On the other hand, the firm-level average is subject to substantial compositional dilution: the formalization of previously undocumented workers, together with the potential arrival of new migrants, brings new entrants into the observable wage distribution, likely at wages below those of incumbent formal workers. Whether the aggregate coefficient is null or negative depends on which margin predominates. If the internal margin predominates, both forces operate together and the aggregate coefficient should be close to zero even where individual incumbents gained. If the external margin predominates,

the labor-supply expansion of new arrivals should add further downward pressure on wages, and the aggregate coefficient should turn negative.²³ The individual-level analysis in Section 6.2.2 isolates wage gains for EU07 incumbents that the firm-level average obscures.

The absence of native wage effects also helps identify which margin of adjustment was predominant. Standard models predict downward wage pressure when immigration expands local labor supply (Borjas 2003). If the post-enlargement adjustment had been driven primarily by large inflows of newly arrived EU07 migrants, the associated expansion in local labor supply should have placed downward pressure on native wages. We find no detectable response of native wages in any post-enlargement year, which is more consistent with an adjustment operating through the legal status and formal employment of workers already present in Italy.

Finally, EU candidate workers, who experienced no change in legal status, similarly show no wage response (Figure A9). This placebo result is consistent with the absence of any corresponding shift in their bargaining position.

6.2.2 Worker-level Wage Effects and Firm Sorting

The firm-level null for EU07 wages may reflect a genuine absence of wage effects, or it may conceal opposing forces that cancel in the average. Individual-level analysis allows us to distinguish between the two.

We follow EU07 incumbents, i.e. those already formally employed in 2006, over time, tracking whether their wage trajectories changed after enlargement and whether they moved toward employers with higher AKM firm fixed effects, a measure of between-firm sorting toward higher-paying employers. Together, these outcomes test whether portability translated into individual wage gains and access to better-paying firms. Restricting to incumbents is appropriate for two reasons. First, the mechanism under study is the relaxation of employer-tied permit constraints for workers already subject to them; new entrants after 2007 never faced this constraint, and their inclusion would conflate the response to constraint removal with ordinary labor-market behavior. Second, the composition of new formal-sector EU07 entrants changed fundamentally at the enlargement: pre-2007 new entrants required an employer sponsor to enter formal records; post-2007 observable entrants include both workers arriving freely without a

²³Newly formalized workers may themselves have experienced wage improvements relative to their pre-formalization earnings. Such gains are undetectable in our data, as INPS records cover formal employment only and contain no information on wages earned prior to formalization.

sponsor and previously informal EU07 workers entering formal employment for the first time. Any comparison of new entrants across the threshold would therefore conflate the effect of the legal status change with compositional shifts in who enters formal employment.

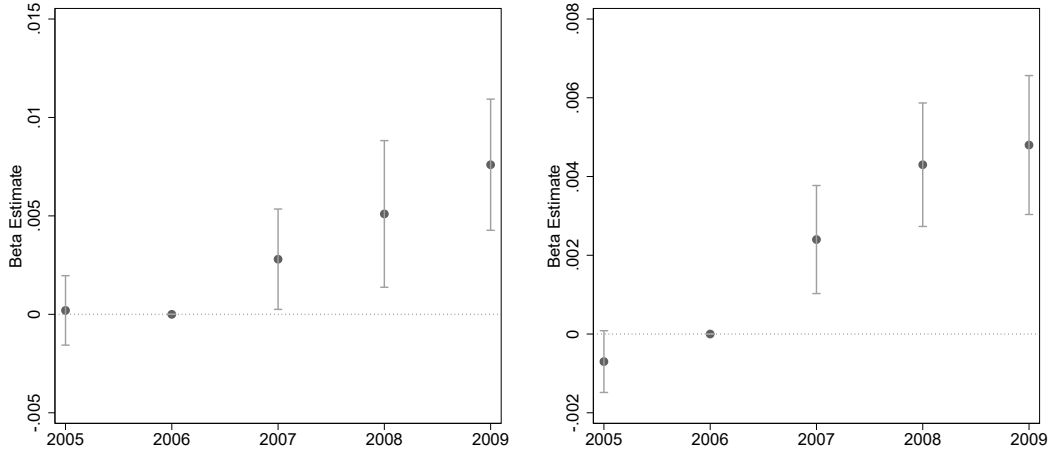
The event study compares EU07 incumbents, tracked over 2004–2009, to EU candidate incumbents defined analogously. The specification includes worker fixed effects and SLL fixed effects. To allow for differential trends by workers’ pre-enlargement characteristics, we interact year dummies with age group, sector indicators, experience, and experience squared, all measured in 2006.²⁴ Standard errors are clustered at the SLL level.

The left panel of Figure 8 reports effects on individual annual wages. These estimates capture the total wage effect for incumbent EU07 workers, including any gains from moving across employers. The right panel reports effects on the AKM firm fixed effect (Abowd et al. 1999), estimated using the pre-shock period 2004–2006. Because this firm component is estimated before enlargement and is time-invariant for each firm, changes in a worker’s observed AKM firm fixed effect over time reflect movement across employers with different wage premia, rather than within-firm wage adjustment.²⁵

²⁴Fixing characteristics at their pre-period values ensures that the specification does not condition on workers’ post-enlargement sector, employer, or other mobility outcomes, which are themselves margins of adjustment that the event study is designed to capture.

²⁵Workers whose current-year employer is not observed in the 2004–2006 AKM estimation sample have no assigned firm fixed effect and are excluded from the right-panel regression only.

Figure 8
Individual EU07 worker wages and firm sorting



Notes: Individual-level event study, EU07 incumbents (a fixed cohort of workers present in 2006, tracked across 2004–2009) relative to EU candidate incumbents defined analogously. Left panel: asinh of individual annual wages. Right panel: AKM firm fixed effect (Abowd et al. 1999), estimated on 2004–2006. Standard errors are clustered at the SLL level.

Individual EU07 wages rose significantly and persistently following the enlargement, with a pre-trend coefficient close to zero and positive significant effects from 2007 onward. The firm-FE panel reveals a complementary pattern: EU07 workers moved into firms paying systematically higher wage premia. The firm-level null is not in tension with these findings: the firm-level wage average pools incumbents, who gained, with newly entering EU07 workers joining formal employment at below-incumbent pay, and this compositional dilution offsets individual-level gains in the aggregate.

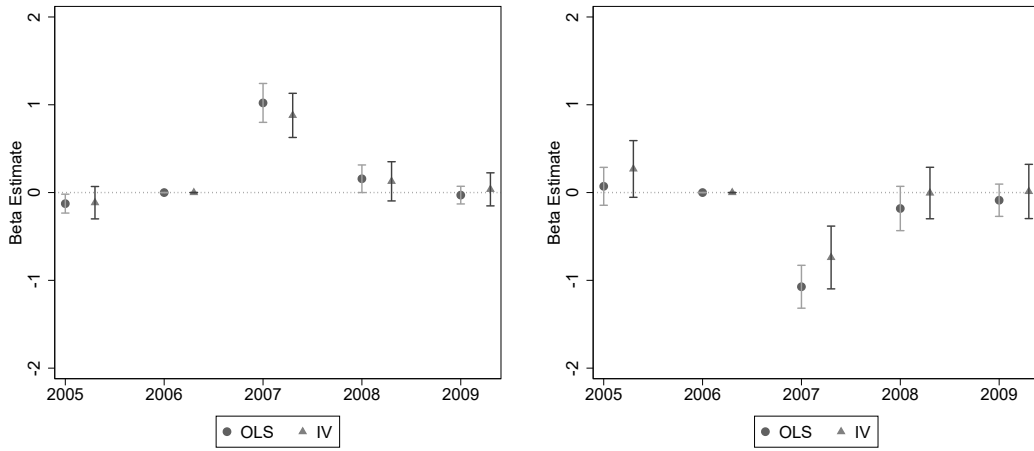
6.2.3 Permanent contracts and employment security

Beyond wages and job mobility, the change in legal status also affected employment security. As discussed in Section 2.2, Italy’s dual labor market draws a sharp legal distinction between permanent, open-ended contracts and fixed-term contracts.

Permanent contracts carry substantially stronger job stability, legal protections, and career prospects than fixed-term arrangements (Boeri and Garibaldi 2007, Bratti et al. 2021, Hoffmann et al. 2022); under the employer-tied permit regime, EU07 workers could not, effectively, obtain them. The 2007 enlargement removed this constraint and strengthened EU07 workers’ outside options and bargaining power to negotiate permanent contracts (Amior and Manning 2025, Naidu et al. 2016). Firms should become

more likely to offer permanent contracts to retain their own EU07 workers and to attract those now free to move from other employers, but not to extend them to newly arrived workers with no prior relationship to the firm or the Italian labor market, whose match quality remained unknown. An increase in permanent contracts is therefore more consistent with an adjustment operating through the internal margin than with a response driven mainly by new entrants.

Figure 9
Share of permanent contracts, EU07 and native workers



Notes: On the y-axis are the estimates of β from specification 1, showing the effect of the interaction of the treatment variable with the time variable on the permanent-contract share of EU07 workers (left panel) and native workers (right panel), defined as group permanent workers divided by total permanent workers at the firm. Coefficients represent the effect of a one-unit increase in $\Delta Share_{EU07_{t,0607}}$. OLS and IV estimates are shown separately. Standard errors are clustered at the local-labor-market level.

Figure 9 shows a significant and sudden increase in the EU07 share of permanent contracts in 2007, defined as the number of EU07 workers on permanent contracts divided by the firm's total permanent-contract pool. The 2008 and 2009 coefficients then decline toward zero, indicating that the annual rate of change reverted to its pre-enlargement baseline after the initial adjustment. As with the employment-share results, this does not imply a reversal in levels; rather, it indicates that EU07 representation among permanent-contract positions increased discretely in 2007 and then stabilized. The right panel shows the corresponding pattern for native workers: a negative and significant 2007 coefficient, followed by estimates close to zero in 2008 and 2009. Because the EU07 and native shares are measured against the same firm-level

permanent-contract pool, the positive EU07 coefficient and negative native coefficient are mechanically complementary.²⁶

The timing and direction of the contract response are consistent with the removal of a pre-existing legal constraint on EU07 workers' access to stable employment relationships. With portable labor-market access, EU07 workers gained the bargaining leverage to negotiate for permanent rather than fixed-term contracts — and the sharp concentration of the effect in 2007, followed by stabilization, points to a stock of existing workers upgrading their contracts in the immediate aftermath of the reform. The external margin offers limited scope for this pattern. As discussed above, firms are unlikely to extend permanent contracts to newly arrived workers whose match quality they have not yet learned. By construction, new EU07 arrivals entering on fixed-term contracts appear in neither the numerator nor the denominator of the permanent-contract share, leaving the ratio largely unaffected. The observed increase is therefore more consistent with improved contract quality for EU07 workers already in the Italian labor market. Finally, EU candidate workers show no comparable shift in permanent contract shares (Figure A10), consistent with the reallocation being driven by the bargaining-power gains specific to EU07 workers' change in legal status and not by supply-side conditions common to migrant groups.

Overall, these results are consistent with the internal margin driving the adjustment. The sharp 2007 increase in permanent contracts suggests that firms adjusted not only the number of EU07 workers they employed, but also the terms on which they retained them. Together with the separation response and the individual-level wage gains for incumbents, the permanent-contract increase is more consistent with a change in the bargaining position of EU07 workers already attached to the Italian labor market, rather than to a response driven primarily by unknown new entrants.

7 Robustness

This section presents a series of robustness checks and validity tests for the main results. Section 7.1 first verifies that the balanced panel restriction does not induce selection

²⁶As an additional check, we re-estimate the contract outcome as the number of EU07 workers on permanent contracts divided by total firm employment, rather than by the firm's total permanent-contract pool. This measure also increases sharply in 2007 and shows no further annual response thereafter, indicating a one-time improvement in EU07 contract incidence rather than only a reallocation within the permanent-contract denominator, consistent with the timing of hires and separations.

bias through differential firm entry or exit. Section 7.2 reports results across alternative specifications, including alternative shift-share instruments.

7.1 Sample validity: firm entry and exit

Our choice of using a balanced panel could introduce bias if the enlargement itself affected firm entry or exit differently across local labor markets. We address this concern directly by testing whether local exposure to EU07 workers predicts changes in firm entry or exit rates.

To maintain consistency with the main specification, we aggregate entry and exit rates to the local-labor-market-by-sector level. Specifically, for each local-labor-market-by-sector cell we compute the entry (exit) rate as the share of entering (exiting) firms over the total number of firms in that cell, using the complete universe of INPS firms. We then first-difference these rates and estimate a dynamic specification analogous to equation 1, with SLL fixed effects, year-by-region fixed effects, year-by-sector fixed effects, and pre-shock cell-level controls for size composition interacted with year dummies. Standard errors are clustered at the SLL level.

The results, presented in Figure A12, reveal no statistically significant effects of the EU07 enlargement on either firm entry or exit rates. The aggregate null is informative but not conclusive, since any extensive-margin response to the enlargement is most plausibly concentrated among micro and small firms, where competitive exposure to newly legalized EU07 workers is most direct; an effect in that segment could be diluted in the aggregate rate by the larger firms for which no such response is expected. To directly assess this, we replicate the analysis separately for micro firms (1–4 employees), small firms (5–14 employees), and medium-large firms (15 or more employees). The results, presented in Figures A13, A14, and A15, show point estimates that are small and statistically indistinguishable from zero across all size classes and years.

We also consider whether the reform encouraged EU07 workers to create their own firms. This margin is not directly observed in the INPS data, which record workers and establishments but do not identify business ownership. We therefore construct an indirect proxy for EU07-owned firms: very small establishments, with 1–4 employees, in which all recorded workers are EU07 nationals. This definition is intentionally restrictive and is most likely to capture cases where the owner is also part of, or closely connected to, the EU07 workforce. In 2006, such firms were rare: they represented less than 1 percent of all establishments and about 1.3 percent of micro establishments,

suggesting that EU07 firm creation was, at most, a limited pre-enlargement margin. Figure A16 shows a sharp increase in the entry rate of EU07-proxied micro firms in more exposed labor markets. The response is concentrated in the year of enlargement: year-on-year changes fall back in 2008 and 2009, although the level of entry remains higher after the initial increase. Exit rates do not display a comparable response. These patterns suggest that legal-status portability may have opened an entrepreneurship margin for EU07 workers. By construction, these newly created firms are excluded from the balanced panel of incumbent firms. However, given their small share of the firm population, any indirect effects on existing firms are negligible. We therefore interpret this result as evidence of a modest firm-creation response among EU07 workers, rather than as a threat to the balanced-panel analysis. The role of these firms as employers, and their broader contribution to immigrant entrepreneurship, lies beyond the scope of our analysis.

7.2 Sensitivity Analysis

We next examine the sensitivity of our main results to specification choices. Table A3 reports results for native and EU07 relative employment across six alternatives. Column (1) reports the reduced-form specification, using the 2002 amnesty-era EU07 share change as the main regressor. Columns (2) and (3) augment the baseline IV with additional controls. Column (2) controls for subsequent EU07 share changes in 2008 and 2009: markets with larger initial shocks might attract further EU07 inflows through network effects, and controlling for these separates the 2007 enlargement effect from later labor supply dynamics. Column (3) instruments for the contemporaneous change in non-EU07 labor supply using the 2002 amnesty-era variation in non-EU07 shares, ensuring the estimates isolate the EU07 effect from correlated inflows of other nationalities covered by the same amnesty.

Column (4) uses $\Delta Share_{EU07,t,0507}$ as the treatment variable, anchoring the base year in 2005 so that any potential anticipatory adjustment occurring in 2006 is attributed to the treatment rather than the baseline.

Columns (5) and (6) employ standard shift-share (SS-IV) instruments (Card 2001), interacting pre-existing EU07 settlement patterns with national-level EU07 inflows; their geographic variation derives from a mechanism entirely independent of the amnesty episode. Column (5) uses 1991 settlement shares, maximizing temporal distance from any pre-enlargement local demand conditions that might correlate with EU07 settle-

ment. Column (6) uses 2001 settlement shares: closer to the enlargement, these yield a stronger first stage while remaining independent of the 2002 regularization that underlies the baseline IV.

Table A3 shows that the 2007 effect on native and EU07 relative employment is significant at the 1% level across specifications, while the 2008 and 2009 coefficients return to magnitudes comparable to the pre-enlargement coefficient in 2005, showing that annual changes revert to their pre-enlargement baseline after the discrete 2007 adjustment.

The shift-share instruments produce estimates that are similar to our baseline specification. Specifically, the 2007 effect remains statistically significant across specifications, with the exception of the shift-share instrument based on 1991 settlement shares for native employment. That estimate is attenuated and insignificant, consistent with the weaker first stage of the 1991 instrument. The 2001 shift-share instrument produces estimates that remain close to the amnesty-based baseline. Because these instruments draw on geographic variation that is independent of the 2002 amnesty episode, this comparison provides a useful test of whether the results depend on the construction of the baseline instrument. The similarity between the two sets of estimates suggests that the main findings reflect local exposure to the EU07 legal-status shock, rather than idiosyncratic features of the amnesty-based instrument.

To further assess whether the results depend on the amnesty-based source of variation, Table A4 reports Hansen overidentification tests combining the baseline instrument with each of the two shift-share instruments, SS-IV (1991) and SS-IV (2001). If the baseline estimates were driven by a violation of the exclusion restriction specific to the regularization episode, the amnesty-based and shift-share estimates should diverge, inflating the J statistic. The test fails to reject the null of joint instrument validity under both specifications.

8 Mechanisms

We now examine whether the enlargement response varies across firms in ways that are informative about the underlying margin of adjustment. One key cross-firm heterogeneity prediction of our framework is that adjustment costs differ with firms' pre-existing links to migrant labor networks. Recruiting costs for EU07 workers vary with firms' prior exposure and informational access to EU07 networks, implying that the response should be heterogeneous across firms.

We use three pre-enlargement proxies for firms’ access to EU07 or migrant labor. Amnesty participation is the closest proxy for firms that may have had informal migrant employment relationships before 2007 and therefore could formalize or stabilize existing jobs at relatively low cost. Prior formal EU07 employment captures direct experience with EU07 workers and EU07-specific network access. Importantly, this second group is not mutually exclusive with the first: firms with EU07 workers before 2007 may include firms that regularized EU07 workers during the 2002 amnesty and continued to employ them formally thereafter. We therefore interpret prior formal EU07 employment as a broader measure of pre-existing EU07 attachment, rather than as a cleanly separate channel from amnesty exposure. The third proxy is manager nationality. Migrant-managed firms may have broader access to migrant labor networks and lower recruitment costs, but this proxy is less specific to EU07 workers and less directly tied to existing EU07 employment relationships. All three measures are defined using only the pre-enlargement period, so that group assignment is not affected by the 2007 policy change. The framework does not require these proxies to generate a strict ranking of effect sizes, since each captures a different dimension of the same latent trait: lower costs of accessing migrant labor. It does, however, predict above-average responses among all three groups if pre-existing migrant connections shaped firms’ adjustment to enlargement. Furthermore, as with the evidence in Section 6, the timing of the response differs across the two margins: the internal margin implies a sharp concentration in 2007 followed by normalization, while a network-mediated external margin would build more gradually.

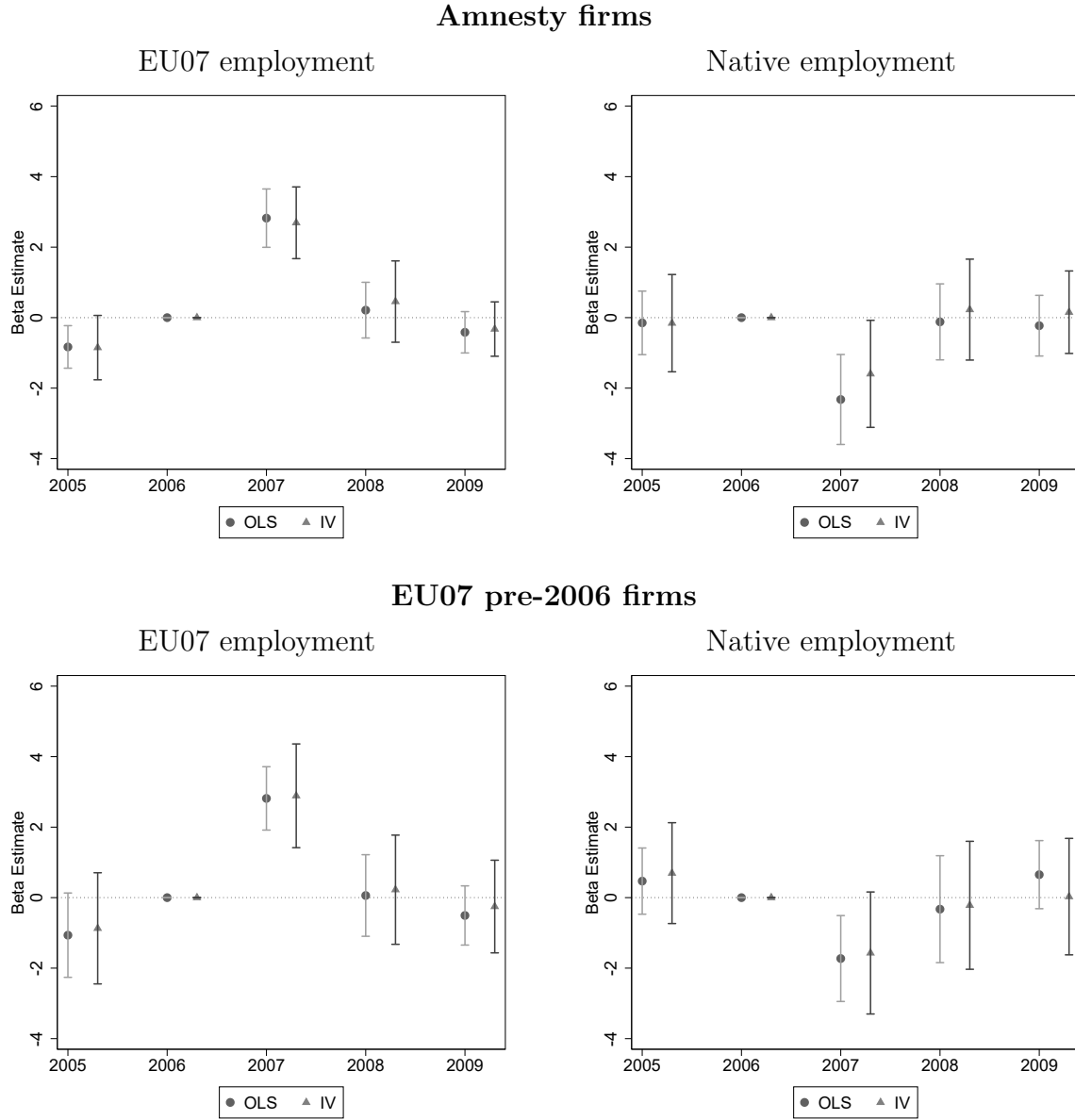
We first compare firms with different forms of prior EU07 exposure. The first group, ‘amnesty firm’, participated in the September 2002 regularization, the same episode used to construct our instrument. This regularization allowed employers to formalize undocumented workers of any non-EU nationality.²⁷ Amnesty participation is our closest firm-level proxy for prior informal migrant employment and therefore for the lowest-cost response to the 2007 enlargement: if firms already had informal EU07 workers or similar informal migrant employment relationships, formalizing or stabilizing those jobs after accession was cheaper than recruiting new workers externally. The second group, ‘EU07 pre-2006 firm’, employed at least one EU07 worker formally before

²⁷Since amnesty applications are not directly observable in the INPS data, we impute amnesty firm status from the timing of worker formalization in the administrative records. A firm is classified as an amnesty firm if at least one non-EU migrant worker first appears in its payroll in September–December 2002, following no recorded employment in January–August of that year. See Di Porto et al. (2025) for further details.

enlargement. As noted above, this measure is a broader, non-exclusive proxy for pre-existing EU07 attachment, capturing both regularized workers and other established EU07 relationships before 2007.

Figure 10 reports heterogeneous effects on relative employment shares. The response is strongest among amnesty firms: EU07 and native employment effects are roughly twice the full-sample magnitudes, concentrated in 2007. EU07 pre-2006 firms also exhibit above-average effects, though smaller in magnitude.

Figure 10
Heterogeneity by past experience with migrants: Employment



Notes: In each panel, the y-axis reports estimates of β_t from specification 1, showing the effect of the interaction of the treatment variable with the time variable on the indicated outcome. Coefficients represent the effect of a one-unit increase in $\Delta ShareEU07_{l,0607}$. OLS and IV estimates are shown separately. Standard errors are clustered at the local-labor-market level.

These employment patterns are consistent with the framework's cost-based prediction. Connected firms respond more because they faced lower costs of accessing EU07 labor after enlargement. At the same time, the sharp concentration of the effects in 2007 is in-

formative about the underlying margin. A gradual inflow of new EU07 workers through migrant networks could generate larger employment responses among connected firms, but it would not naturally predict such a sudden adjustment. The timing instead suggests that the response operated substantially through workers already present in, or closely connected to, these firms.

The wage and contract-type results reinforce this interpretation. Wage effects do not display significant heterogeneity across firm types (Figure A17), which is unsurprising given that firm-level average wages combine incumbent wage gains with a downward pull from newly formalized and newly arrived workers entering at lower pay. By contrast, permanent-contract effects are roughly twice the full-sample magnitude in both groups (Figure A18). These above-average gains in permanent contracts suggest that firms with prior EU07 connections adjusted not only the number of EU07 workers they employed, but also the terms on which they retained or attracted them. Because permanent contracts are costly non-wage amenities, this pattern is more consistent with improved worker bargaining power than with a simple expansion in labor supply of new entrants without any experience in the Italian labor market.

We next examine manager nationality as a broader proxy for access to migrant labor networks. We identify managers using the occupational classification recorded in the INPS administrative data, which includes a distinct code for supervisory and managerial personnel. Because many firms record no formally designated manager, we use the top earner as a proxy for the most senior identifiable employee. A firm is classified as *native-managed* if this employee holds Italian citizenship and no non-native managers are recorded in the same firm. A firm is classified as *migrant-managed* if this employee holds non-EU07 foreign citizenship and no EU07 manager is present.²⁸ Manager type is assigned using only the pre-enlargement period.

The results point in the same direction as the previous heterogeneity exercises. EU07 relative employment rises in 2007 in both native- and migrant-managed firms, with larger effects in the latter (Figure A19). Wage responses remain small and statistically insignificant across both groups (Figure A20). Permanent-contract gains also appear in both groups and are larger in migrant-managed firms (Figure A21). We interpret this pattern as further evidence that the enlargement response was strongest among firms with better access to migrant labor networks. This is consistent with evidence that immigrant managers facilitate immigrant hiring, as in Åslund et al. (2014).

²⁸Firms where the identifiable manager holds EU07 citizenship are excluded from both groups, since these workers are directly affected by the change in legal status under study.

Taken together, the three heterogeneity dimensions help interpret the margin of adjustment. Across all proxies, firms with pre-existing migrant-labor connections display stronger employment responses and larger permanent-contract gains than the full sample. The strong and sudden 2007 response, together with the upgrading of permanent contracts, is more consistent with the internal margin driving the adjustment. New inflows may have contributed to EU07 employment growth, especially through migrant networks, but the full pattern is more consistent with firms formalizing, retaining, or upgrading workers already connected to them than with a gradual expansion driven solely by unknown new entrants.

9 Conclusion

We analyze the impact of Romania’s and Bulgaria’s 2007 accession to the European Union on the Italian labor market. The enlargement generated a permanent change in legal status for a large group of migrants, particularly Romanians, who already had a substantial presence in Italy. We study this episode using administrative matched employer–employee records covering the universe of formal private-sector employment relationships from 2004 to 2009. These data allow us to trace firms’ personnel adjustments, as well as employment, mobility, wages, and contract outcomes for both EU07 and native workers.

We find that firms increased the EU07 share of their workforce after enlargement, with the adjustment sharply concentrated in 2007. The corresponding decline in the native employment share should not be interpreted as a contraction in native employment: it reflects a change in firms’ workforce composition as firm expansion became disproportionately concentrated in EU07 employment. Consistent with this interpretation, native hiring and separations do not display evidence of direct displacement under our preferred IV estimates. Instead, the adjustment operates through EU07 employment growth and a sharp increase in EU07 hires and separations, both concentrated in 2007 and normalizing thereafter. We detect no significant change in firm-level wages for either group, while EU07 incumbents experience individual wage gains and sort into higher-paying firms, as reflected in rising AKM firm fixed effects. EU07 workers also see a sharp increase in their share of firms’ permanent-contract positions.

Taken together, this pattern of results is more consistent with the internal margin

predominating the post-enlargement adjustment, than with a gradual labor-supply expansion through the external margin. Once EU07 workers obtained portable work authorization, firms and workers could reorganize relationships previously constrained by employer-tied status or informality. The heterogeneity results reinforce this interpretation, with the largest effects concentrated among firms with pre-existing migrant connections.

Our results also indicate a shift in market power in favor of EU07 migrants. After enlargement, these workers' ability to remain and work in Italy was no longer tied to a specific employer, a change reflected in the separation pattern documented above and consistent with greater mobility across firms and improved outside options. The firm-level wage null should be interpreted cautiously: firm-level averages combine incumbent wage gains with composition effects from newly formalized or newly arrived workers entering at lower pay, forces that offset one another.

The contract margin provides further evidence of improved employment terms. Permanent contracts are a particularly valuable form of job security in the Italian labor market, and firms are unlikely to extend them immediately to newly arrived workers with no track record in the Italian labor market, whose match quality remains unknown. The increase in permanent contracts is therefore consistent with firms upgrading or stabilizing relationships with EU07 workers they already employed or could attract from elsewhere in the formal labor market.

These findings have implications for immigration policy debates in Europe and the United States, where restrictive visa requirements and employer-sponsored work permits remain central features of migration policy. The results offer three broader lessons. First, legal-status reforms can promote the formalization and stabilization of migrant employment relationships without detectable costs for native workers along the margins we observe. Second, such reforms can also weaken the monopsony power that employer-tied work authorization confers on firms. Third, the gains from removing such restrictions may materialize through non-wage margins, including job mobility and contract security.

Several caveats remain. Our data does not cover informal employment, and therefore we cannot identify whether a worker was previously informal, nor their employment terms before formalization. Beyond this measurement limitation, Italy's labor market combines wage rigidity, a sizable informal labor market, and limited enforcement against informal economic activity, features that shape both the constraints we study

and the margins along which firms and workers could adjust. Moreover, the episode we study precedes the Great Recession, and thus our estimates may not extend to downturns or labor markets with higher native unemployment. Likewise, the migrants in our sample have relatively strong linguistic and cultural ties to Italy, so our findings may not extend to migrant groups facing larger language and integration barriers. Despite these limitations, our analysis provides robust evidence that, under certain conditions, granting migrants permanent and portable work authorization can improve migrant workers' outcomes and facilitate the formalization or stabilization of employment relationships. The results are consistent with restrictive, employer-dependent migration policies allowing firms to extract rents from workers whose outside options are constrained by legal status or informality. These rents erode when migrants gain unrestricted labor-market access, with limited consequences for native workers along the margins we observe. As policymakers debate immigration reform, our findings suggest that reducing legal barriers to work may, in some contexts, improve migrant workers' mobility and job security without the native-worker costs often invoked to justify restrictive, employer-tied systems.

References

- John M. Abowd, Francis Kramarz, and David N. Margolis. High wage workers and high wage firms. *Econometrica*, 67(2):251–333, 1999. doi: 10.1111/1468-0262.00020.
- Michael Amior and Alan Manning. Monopsony and the wage effects of migration. *The Economic Journal*, 2025. doi: 10.1093/ej/ueaf053.
- Catalina Amuedo Dorantes, Esther Arenas-Arroyo, Parag Mahajan, and Bernhard Schmidpeter. Low-wage jobs, foreign-born workers, and firm performance. Technical report, Ruhr Economic Papers, 2023.
- Tito Boeri and Pietro Garibaldi. Beyond the employment contract: Labor market duality in Italy. In Richard B. Freeman and Klaus F. Zimmermann, editors, *The Structure of Labor Markets in Europe: Institutions, Incentives and Outcomes*, pages 233–266. Edward Elgar, Cheltenham, UK, 2007.
- Tito Boeri, Andrea Ichino, Enrico Moretti, and Johanna Posch. Wage equalization and regional misallocation: Evidence from Italian and German provinces. *Journal of the European Economic Association*, 19(6):3249–3292, 2021.
- George J. Borjas. The labor demand curve is downward sloping: Reexamining the impact of immigration on the labor market*. *The Quarterly Journal of Economics*, 118(4):1335–1374, 11 2003. ISSN 0033-5533. doi: 10.1162/003355303322552810. URL <https://doi.org/10.1162/003355303322552810>.
- Massimiliano Bratti, Maurizio Conti, and Giovanni Sulis. Employment protection and firm-provided training in dual labour markets. *Labour Economics*, 69:101972, 2021. doi: 10.1016/j.labeco.2021.101972.
- David Card. Immigrant inflows, native outflows, and the local labor market impacts of higher immigration. *Journal of Labor Economics*, 19(1):22–64, 2001.
- David Card and Giovanni Peri. Immigration Economics by George J. Borjas: A Review Essay. *Journal of Economic Literature*, 54(4):1333–1349, December 2016. URL <https://ideas.repec.org/a/aea/jecclit/v54y2016i4p1333-49.html>.
- Elizabeth U Cascio and Ethan G Lewis. Distributing the Green (Cards): Permanent residency and personal income taxes after the Immigration Reform and Control Act of 1986. *Journal of Public Economics*, 172:135–150, 2019. doi: 10.1016/j.jpubeco.2018.11.005.
- Carlo Devillanova, Francesco Fasani, and Tommaso Frattini. Employment of Undocumented Immigrants and the Prospect of Legal Status: Evidence from an Amnesty Program. *ILR Review*, 71(4):853–881, August 2018. URL <https://ideas.repec.org/a/sae/ilrrev/v71y2018i4p853-881.html>.

- Edoardo Di Porto, Enrica Maria Martino, Paolo Naticchioni, and Silvia Vannutelli. Back to Black? The Impact of Regularizing Migrant Workers. Working paper, 2025.
- Kirk Doran, Alexander Gelber, and Adam Isen. The effects of high-skilled immigration policy on firms: Evidence from visa lotteries. *Journal of Political Economy*, 130(10): 2501–2533, 2022. doi: 10.1086/720467.
- Christian Dustmann and Albrecht Glitz. How do industries and firms respond to changes in local labor supply? *Journal of Labor Economics*, 33(3):711–750, 2015. doi: 10.1086/679684.
- Anthony Edo and Cem Özgüzel. The impact of immigration on the employment dynamics of european regions. *Labour Economics*, 85:102433, 2023. doi: 10.1016/j.labeco.2023.102433.
- Ferran Elias, Joan Monras, and Javier Vázquez Grenno. Understanding the effects of granting work permits to undocumented immigrants. *Journal of Labor Economics*, 2025. doi: 10.1086/730122.
- Francesco Fasani. Understanding the role of immigrants’ legal status: Evidence from policy experiments. *CESifo Economic Studies*, 61(3-4):722–763, 2015.
- Francesco Fasani, Tommaso Frattini, and Luigi Minale. Lift the ban? initial employment restrictions and refugee labour market outcomes. *Journal of the European Economic Association*, 19(5):2803–2854, 2021.
- Victor Hernandez Martinez. Capital-skill complementarity in manufacturing: Lessons from the US shale boom. *European Economic Review*, 178:105072, 2025. doi: 10.1016/j.euroecorev.2025.105072.
- Eran B. Hoffmann, Davide Malacrino, and Luigi Pistaferri. Earnings dynamics and labor market reforms: The Italian case. *Quantitative Economics*, 13(4):1637–1667, 2022. doi: 10.3982/QE1865.
- Istat. La misura dell’economia sommersa secondo le statistiche ufficiali, 2010. URL <https://www.istat.it/wp-content/uploads/2011/01/testointegrale20100713.pdf>.
- Istat. Noi Italia 2025 — stranieri. Istituto Nazionale di Statistica, 2025. URL <https://noi-italia.istat.it/pagina.php?L=0&categoria=4&dove=ITA>. Data refer to 2024.
- Istat. Indicatori demografici. Anno 2025. Technical report, Istituto Nazionale di Statistica, March 2026. URL <https://www.istat.it/comunicato-stampa/indicatori-demografici-anno-2025/>.

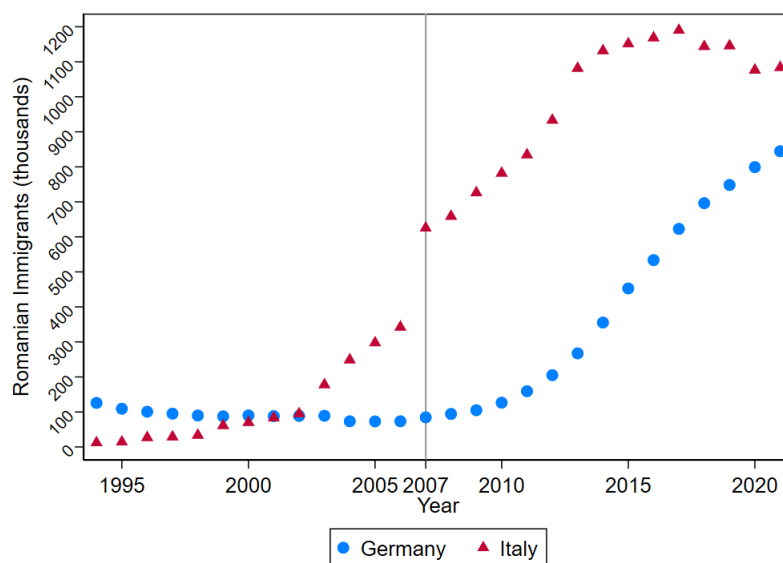
- Matthew S Johnson, Kurt Lavetti, and Michael Lipsitz. The labor market effects of legal restrictions on worker mobility. *Journal of Political Economy*, 133(9):2735–2793, 2025.
- Cristina Mitaritonna, Gianluca Orefice, and Giovanni Peri. Immigrants and firms’ outcomes: evidence from France. *European Economic Review*, 96:62–82, 2017. doi: 10.1016/j.euroecorev.2017.05.001.
- Suresh Naidu, Yaw Nyarko, and Shing-Yi Wang. Monopsony power in migrant labor markets: Evidence from the United Arab Emirates. *Journal of Political Economy*, 124(6):1735–1792, 2016. doi: 10.1086/688877.
- OECD. International migration database, 2024. URL https://data-explorer.oecd.org/vis?df%5Bds%5D=DisseminateFinalDMZ&df%5Bid%5D=DSD_MIG%40DF_MIG&df%5Bag%5D=OECD.ELS.IMD&dq=.W.A.B11._T...&pd=2012%2C&to%5BTIME_PERIOD%5D=false.
- Javier Ortega and Gregory Verdugo. Who stays and who leaves? immigration and the selection of natives across locations. *Journal of Economic Geography*, 22(2):221–260, 2022. doi: 10.1093/jeg/lbab029.
- Gianmarco I. P. Ottaviano and Giovanni Peri. Rethinking the effect of immigration on wages. *Journal of the European Economic Association*, 10(1):152–197, February 2012. doi: 10.1111/j.1542-4774.2011.01052.x.
- Gianmarco IP Ottaviano, Giovanni Peri, and Greg C Wright. Immigration, trade and productivity in services: evidence from UK firms. *Journal of International Economics*, 112:88–108, 2018. doi: 10.1016/j.jinteco.2018.02.007.
- Paolo Pinotti. Clicking on heaven’s door: The effect of immigrant legalization on crime. *American Economic Review*, 107(1):138–168, January 2017. doi: 10.1257/aer.2015.0355.
- Sara Signorelli. Do skilled migrants compete with native workers? *Journal of Human Resources*, 2024. doi: 10.3368/jhr.0922-12535R3.
- Olof Åslund, Lena Hensvik, and Oskar Nordström Skans. Seeking similarity: How immigrants and natives manage at the labor market. *Journal of Labor Economics*, 32(3):405–442, 2014. doi: 10.1086/674985.

A1 Appendix: Additional Tables and Figures

A.1.1 Additional Descriptive and Diagnostic Figures

Figure A1

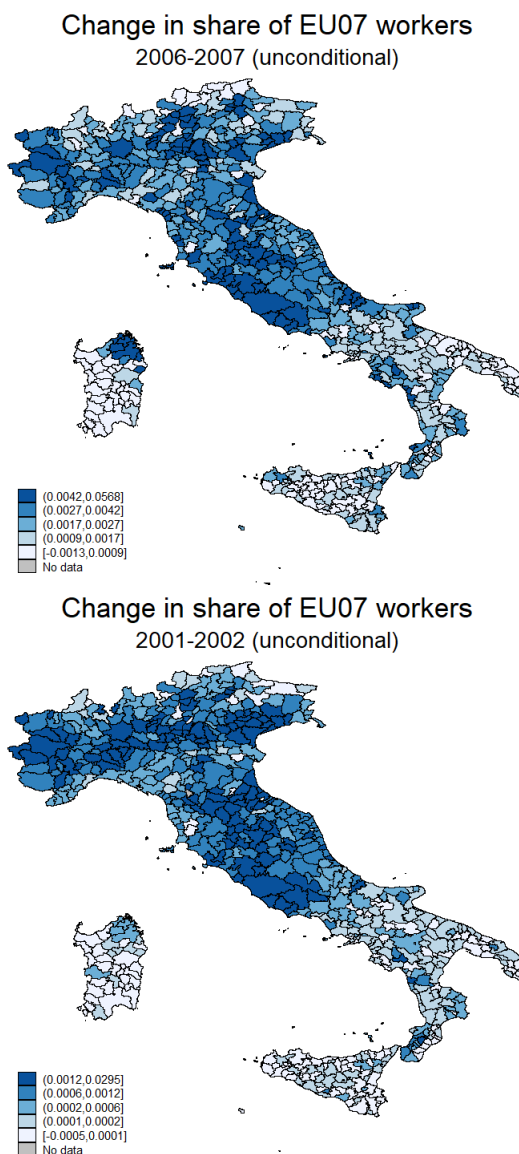
Migrants from Romania, stock as of January 1st of every year



Notes: Data are from the OECD (2024) International Migration Database. Annual migrant stocks are measured as of January 1 of each indicated year.

Figure A2

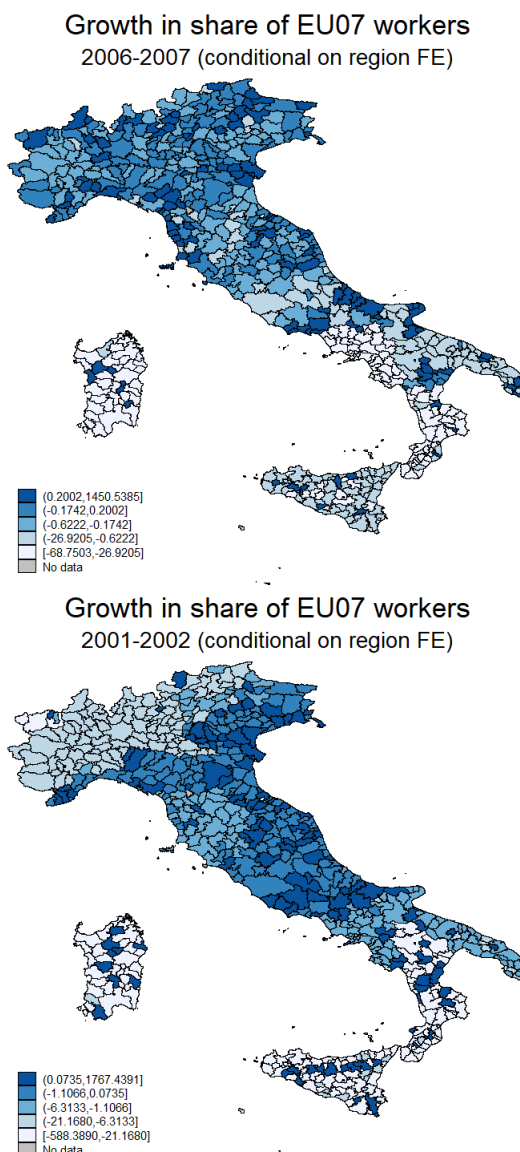
Changes in the Share of Migrants Across Local Labor Markets - Unconditional



Notes: Unconditional versions of Figure 2: changes in EU07 migrant share without partialling out region fixed effects, showing the overall geographic distribution of migrant inflows. Both variables are constructed as changes in the share of EU07 workers relative to the 1991 local labor market population.

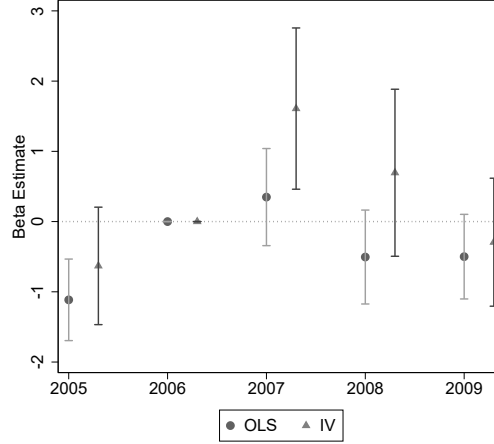
Figure A3

Growth in Share of Migrants Across Local Labor Markets



Notes: The maps show local labor markets in Italy, with growth rates in EU07 migrant share residualized with respect to region fixed effects (within-region variation only). For areas with an initial share of zero EU07 workers, we replace it with 0.000001 to enable the computation of growth rates. This convention mechanically produces very large growth rates when the initial stock is zero or close to zero, even if the absolute increase in EU07 workers is small.

Figure A4
Firm-level total employment (asinh)



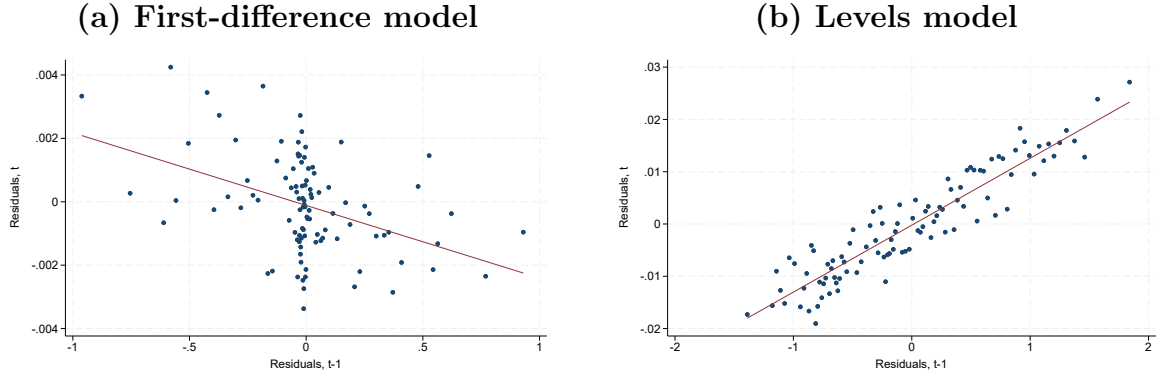
Notes: Firm-level total employment measured in asinh. On the y-axis are the estimates of β from specification 1, showing the effect of the interaction of the treatment variable with the time variable on the asinh of total employment. Coefficients represent the effect of a one-unit increase in $\Delta ShareEU07_{l,0607}$. OLS and IV estimates are shown separately. Standard errors are clustered at the local-labor-market level.

Table A1
Instrument validity: balance tests

	Dependent variable: $\Delta ShareEU07_{l,0102}$				
	EU07 share	Native share	Native wage	EU07 wage	Avg firm size
<i>Panel A: Stacked annual first-differences, 2002–2006</i>					
Stacked FD ($\times 10^4$)	−0.442*	−3.259	0.263	0.144	−0.029
	(0.235)	(2.192)	(0.439)	(0.367)	(0.019)
N	21,568	21,568	21,545	12,664	21,568
<i>Panel B: Stacked annual first-differences, 1992–1997</i>					
Stacked FD ($\times 10^4$)	0.931	−3.208	0.103	−0.386	0.000
	(0.735)	(1.972)	(0.493)	(0.436)	(0.019)
N	5,577	26,361	26,361	5,575	26,381

Notes: Coefficients are multiplied by 10^4 for readability. Each column reports the OLS coefficient from a stacked regression in which the dependent variable is the amnesty-based instrument $\Delta ShareEU07_{l,0102}$ and the explanatory variable is the indicated pre-period annual first-difference, computed at the SLL $\times$ sector $\times$ year level. Panel A stacks annual first-differences over 2002–2006; Panel B stacks annual first-differences over 1992–1997. Standard errors are clustered at the SLL level. * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Figure A5
Test for residual errors autocorrelation

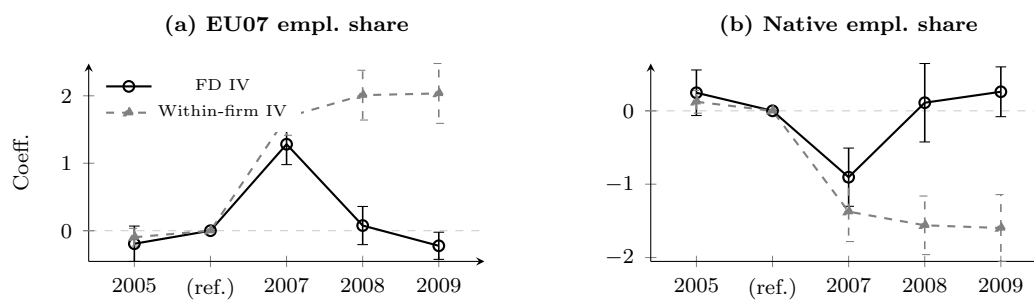


Notes: This figure presents the correlations of binned residuals between two consecutive periods for two different estimation approaches: the first-difference dynamic model in Equation 1 and the standard levels regression model, using total employment as the example outcome. For the first-difference model, the residuals plotted are $\hat{\varepsilon}_{f,2007}$ from the 2007 first-difference equation ($\Delta Y_{f,2007} = Y_{f,2007} - Y_{f,2006}$, y-axis) against $\hat{\varepsilon}_{f,2006}$ from the 2006 first-difference equation ($\Delta Y_{f,2006} = Y_{f,2006} - Y_{f,2005}$, x-axis). For the levels model, the residuals plotted are $\hat{\varepsilon}_{f,2007}$ from the regression of the level $Y_{f,2007}$ (y-axis) against $\hat{\varepsilon}_{f,2006}$ from the regression of $Y_{f,2006}$ (x-axis).

A.1.2 FD vs. Within-firm Estimator: All Outcomes and All Years

Figure A6

FD vs. Within-firm IV: Employment shares



Notes: On the y-axis are the estimates of β from specification (1), showing the effect of the interaction of the treatment variable with the time variable on the employment share of EU07 workers (left panel) and native workers (right panel). Standard errors are clustered at the local-labor-market level.

A.1.3 Baseline-Relative Outcome Specification

Table A2

Baseline-Relative Outcome Specification: IV Event-Study Estimates

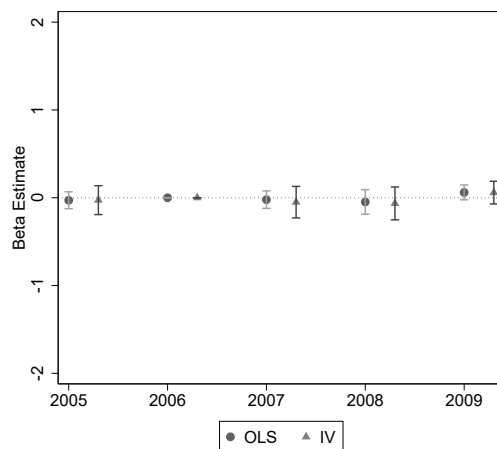
Year	Employment share		EU07	EU07	Avg. wage (asinh)		Perm. contract share	
	EU07	Native	hire rate	sep. rate	EU07	Native	EU07	Native
<i>Pre-period</i>								
2005	0.056	−0.050	−1.043***	−0.030	0.4224	−0.299	−0.024	0.131
	(0.084)	(0.144)	(0.113)	(0.064)	(0.521)	(0.275)	(0.090)	(0.165)
<i>Post-enlargement</i>								
2007	1.837***	−1.548***	0.905***	0.822***	−0.028	−0.624	1.080***	−0.878***
	(0.184)	(0.317)	(0.131)	(0.235)	(0.505)	(0.475)	(0.181)	(0.256)
2008	2.162***	−1.734***	−0.109	0.940***	0.276	−0.599	1.275***	−1.013***
	(0.227)	(0.286)	(0.213)	(0.257)	(0.571)	(0.444)	(0.279)	(0.291)
2009	2.188***	−1.770***	−0.893***	1.294***	0.485	−0.970	1.423***	−1.137***
	(0.268)	(0.319)	(0.285)	(0.258)	(0.578)	(0.707)	(0.306)	(0.330)
<i>N</i>	4,320,335	4,320,335	4,320,335	4,320,335	234,506	4,138,753	4,176,371	4,176,371

Notes: IV event-study estimates. Outcome $\tilde{Y}_{ft} = Y_{ft} - Y_{f,2006}$ is the change in the firm-level outcome relative to the 2006 baseline. Treatment variable is the instrumented change in EU07 worker share 2006–2007; instrument is the change in EU07 worker share 2001–2002. All specifications absorb SLL, year×sector, year×size, and year×region fixed effects. Standard errors clustered at the SLL level (610 clusters) in parentheses. Estimation sample: years 2005, 2007, 2008, 2009; year 2006 is excluded, as $\tilde{Y}_{f,2006} = 0$ by construction and serves as the implicit event-study base period. EU07 and native wage *Ns* are smaller, as these outcomes are defined only for firm-year cells with at least one EU07 (native) worker, respectively. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

A.1.4 EU-Candidate Workers: Placebo Results

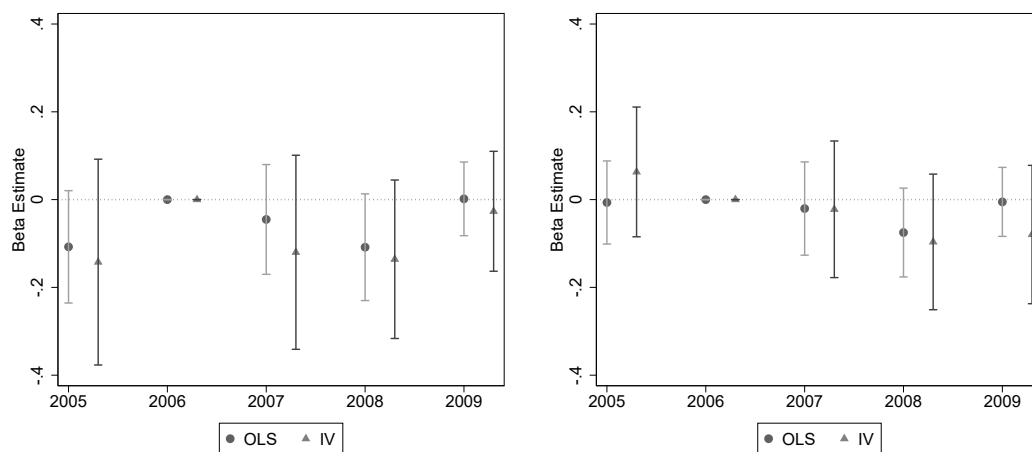
Figure A7

Firm-level relative employment, EU-candidate workers



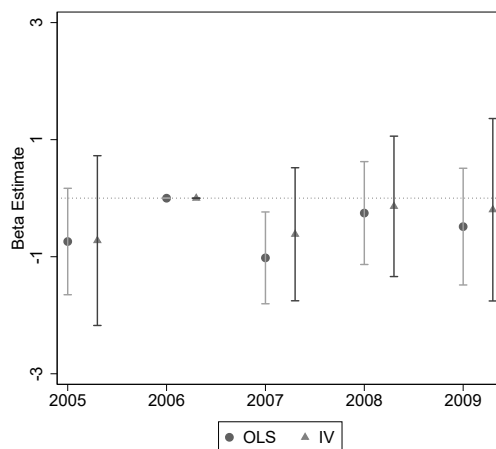
Notes: On the y-axis are the estimates of β from specification 1, showing the effect of the interaction of the treatment variable with the time variable on relative employment for EU-candidate workers. Workers from EU candidate countries did not experience any change in legal status in 2007 and serve as a placebo group. Coefficients represent the effect of a one-unit increase in $\Delta Share_{EU07_{l,0607}}$. OLS and IV estimates are shown separately. Standard errors are clustered at the local-labor-market level.

Figure A8
Firm-level hires and separations, EU-candidate workers



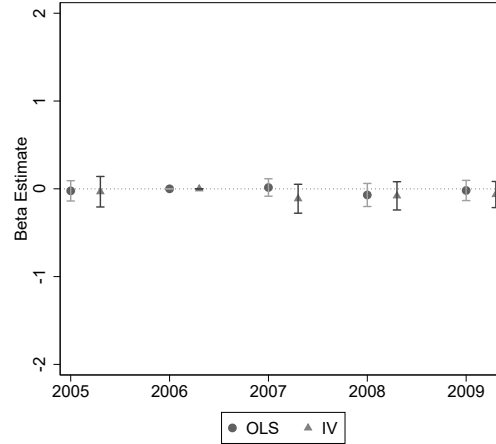
Notes: On the y-axis are the estimates of β from specification 1, showing the effect of the interaction of the treatment variable with the time variable on relative hires and separations for EU-candidate workers. Workers from EU candidate countries did not experience any change in legal status in 2007 and serve as a placebo group. Coefficients represent the effect of a one-unit increase in $\Delta ShareEU07_{l,0607}$. OLS and IV estimates are shown separately. Standard errors are clustered at the local-labor-market level.

Figure A9
Firm-level wages, EU-candidate workers



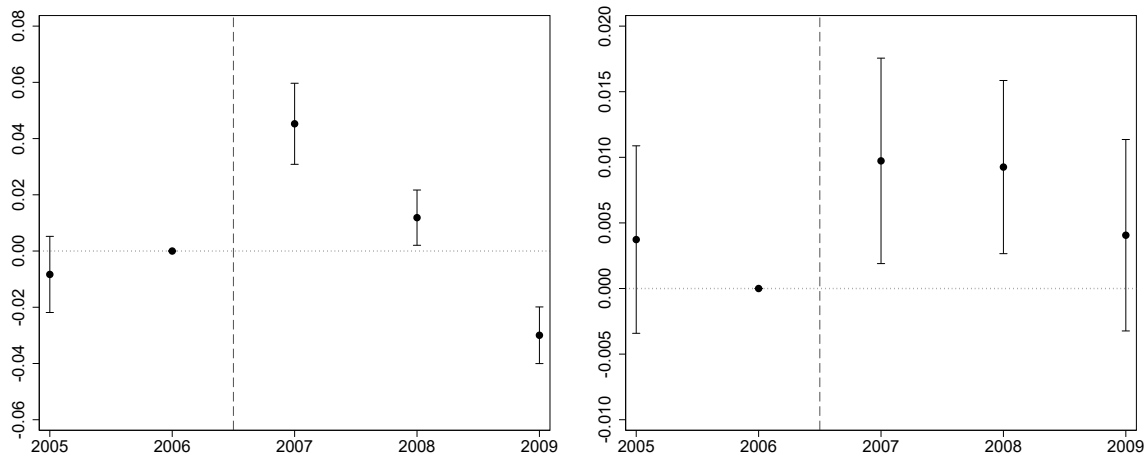
Notes: On the y-axis are the estimates of β from specification 1, showing the effect of the interaction of the treatment variable with the time variable on average wages (asinh) for EU-candidate workers. Coefficients represent the effect of a one-unit increase in $\Delta ShareEU07_{l,0607}$. OLS and IV estimates are shown separately. Standard errors are clustered at the local-labor-market level.

Figure A10
Share of permanent contracts, EU-candidate workers



Notes: On the y-axis are the estimates of β from specification 1, showing the effect of the interaction of the treatment variable with the time variable on the share of permanent contracts for EU-candidate workers, defined as EU-candidate permanent workers divided by total workers on permanent contracts at the firm. Coefficients represent the effect of a one-unit increase in $\Delta ShareEU07_{t,0607}$. OLS and IV estimates are shown separately. Standard errors are clustered at the local-labor-market level.

Figure A11
Individual EU07 job-to-job transitions

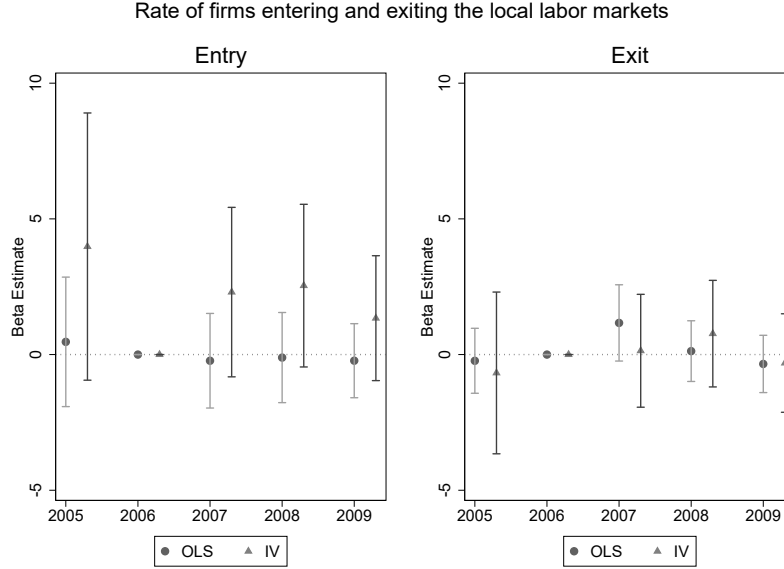


Notes: Individual-level event study of job-to-job transitions among incumbent EU07 workers. Left panel: within-EU07 specification. Right panel: difference-in-differences, EU07 workers vs. EU candidate workers.

A.1.5 Sample Validity: Firm Entry and Exit

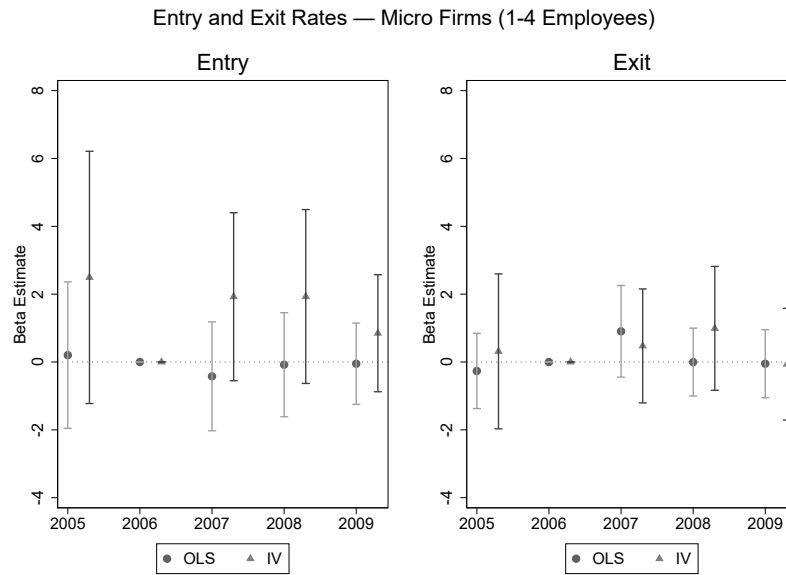
Figure A12

Rate of firms entering and exiting the local labor markets



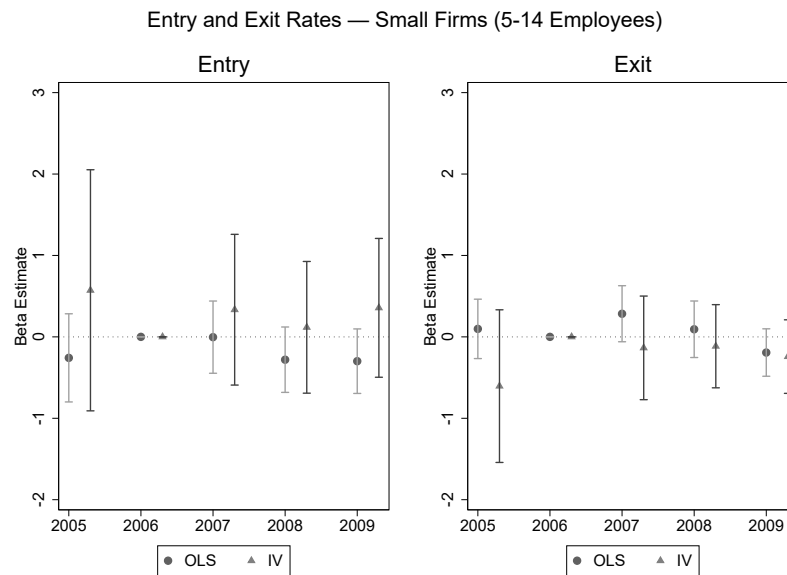
Notes: Each panel shows OLS and IV estimates of β_t from the first-difference specification 1, where the dependent variable is the local-labor-market-by-sector-level rate of firm entry (left) or exit (right), i.e., the share of entering or exiting firms out of all firms in each local-labor-market-by-sector cell. Coefficients represent the effect of a one-unit increase in $\Delta ShareEU07_{l,0607}$. OLS and IV estimates are shown separately. Standard errors are clustered at the local-labor-market level.

Figure A13
Rate of firms entering and exiting, micro firms (1–4 employees)



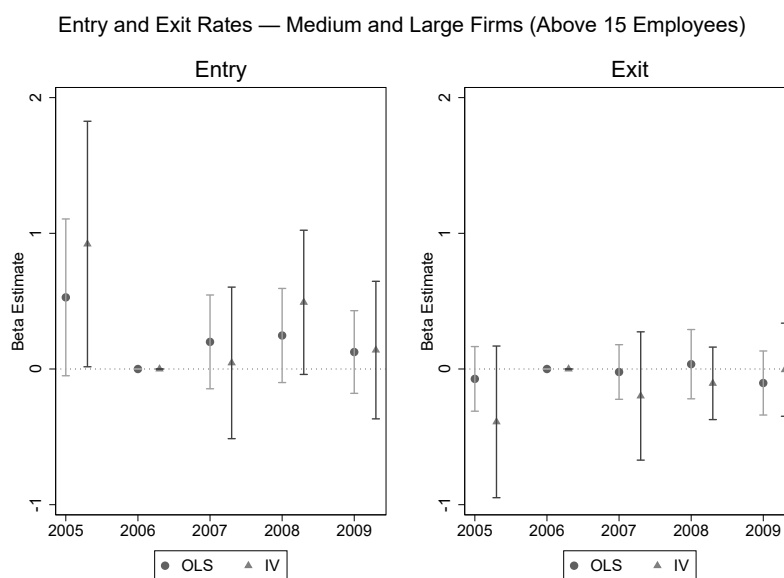
Notes: Same specification as Figure A12, with entry and exit rates computed for micro firms (1–4 employees) as a share of all firms in each local-labor-market-by-sector cell. Coefficients represent the effect of a one-unit increase in $\Delta Share_{EU07_{l,0607}}$. OLS and IV estimates are shown separately. Standard errors are clustered at the local-labor-market level.

Figure A14
Rate of firms entering and exiting, small firms (5–14 employees)



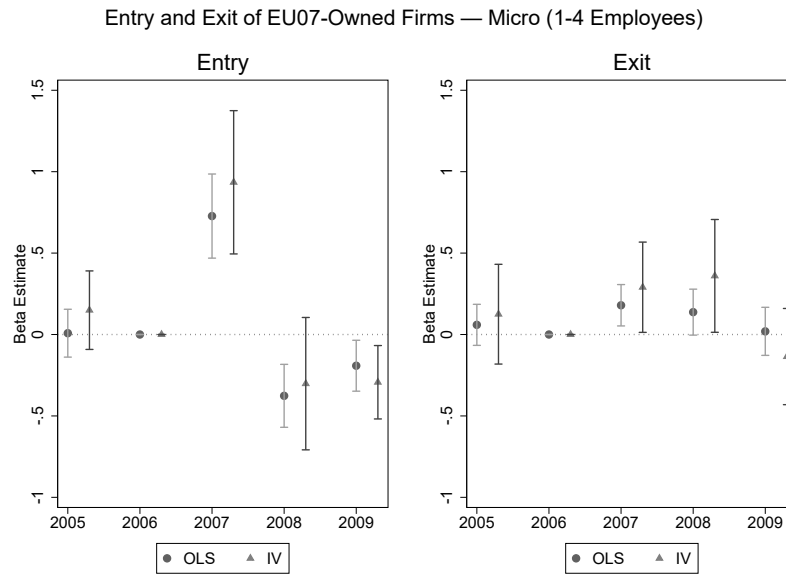
Notes: Same specification as Figure A12, with entry and exit rates computed for small firms (5–14 employees) as a share of all firms in each local-labor-market-by-sector cell. Coefficients represent the effect of a one-unit increase in $\Delta Share_{EU07_{l,0607}}$. OLS and IV estimates are shown separately. Standard errors are clustered at the local-labor-market level.

Figure A15
Rate of firms entering and exiting, medium-large firms (15+ employees)



Notes: Same specification as Figure A12, with entry and exit rates computed for medium-large firms (15 or more employees) as a share of all firms in each local-labor-market-by-sector cell. Coefficients represent the effect of a one-unit increase in $\Delta Share_{EU07,0607}$. OLS and IV estimates are shown separately. Standard errors are clustered at the local-labor-market level.

Figure A16
Entry and exit of EU07-proxied firms, micro firms (1–4 employees)



Notes: Same first-difference specification as Figure A13, restricted to micro firms (1–4 employees) whose entire workforce consists of EU07 nationals, used as a proxy for EU07-owned establishments. Coefficients represent the effect of a one-unit increase in $\Delta Share_{EU07, l, 0607}$. OLS and IV estimates are shown separately. Standard errors are clustered at the local-labor-market level.

A.1.6 Robustness across Specifications and Alternative Instruments: Event-Study Estimates

Table A3

Relative Employment: Native and EU07 Workers: Robustness Checks

	Alternative Specifications					
	(1) Reduced form	(2) +Subseq. controls	(3) +Other imm. controls	(4) Alt. window ($\Delta Share_{EU07_{l,0507}}$)	(5) SS-IV (1991)	(6) SS-IV (2001)
<i>Panel A: Native Relative Employment</i>						
β_{2005}	0.306 (0.207)	0.246 (0.158)	0.214 (0.200)	0.223 (0.144)	0.290 (0.243)	0.268 (0.167)
β_{2007}	-1.122*** (0.238)	-0.905*** (0.202)	-1.154*** (0.263)	-0.820*** (0.183)	-0.431 (0.316)	-0.813*** (0.203)
β_{2008}	0.137 (0.346)	0.291 (0.305)	0.168 (0.312)	0.100 (0.247)	-0.200 (0.377)	0.275 (0.233)
β_{2009}	0.322 (0.226)	0.261 (0.192)	0.286 (0.199)	0.235 (0.157)	0.208 (0.308)	0.415** (0.166)
<i>Panel B: EU07 Relative Employment</i>						
β_{2005}	-0.240 (0.181)	-0.193 (0.134)	-0.197 (0.151)	-0.175 (0.121)	-0.109 (0.162)	-0.209* (0.118)
β_{2007}	1.590*** (0.194)	1.282*** (0.154)	1.570*** (0.211)	1.162*** (0.140)	0.988*** (0.249)	1.144*** (0.161)
β_{2008}	0.095 (0.174)	-0.128 (0.144)	0.096 (0.171)	0.069 (0.131)	0.208 (0.202)	-0.098 (0.138)
β_{2009}	-0.278** (0.139)	-0.105 (0.123)	-0.280** (0.123)	-0.203** (0.093)	-0.101 (0.159)	-0.311*** (0.100)
Instrument	RF	$\Delta Share_{EU07_{l,0102}}$	$\Delta Share_{EU07_{l,0102}}$	$\Delta Share_{EU07_{l,0102}}$	SS-IV	SS-IV
First-stage F	—	181.52	181.52	5,003.76	20.61	57.50
N			4,320,335			

Notes: β_t denotes the year- t interaction coefficient from specification 1. In columns (2)–(6), this is the coefficient on $D_t \times \Delta \widehat{Share}_{EU07_{l,07-06}}$, the IV-predicted treatment. In column (1) (reduced form), the treatment variable is replaced directly by the instrument $\Delta Share_{EU07_{l,0102}}$, so β_t is the coefficient on $D_t \times \Delta Share_{EU07_{l,0102}}$; because the instrument and the predicted treatment are in different units, column (1) coefficients are not directly comparable in magnitude to columns (2)–(6). First-stage F computed from a univariate OLS regression of the treatment variable on the instrument at the local labor market level ($N \approx 610$ SLLs); in the just-identified case this equals the Kleibergen-Paap F -statistic. For col. (4) the first stage is $\Delta Share_{EU07_{l,0507}}$ on $\Delta Share_{EU07_{l,0102}}$; for all other IV columns it is $\Delta Share_{EU07_{l,0607}}$ on the listed instrument. Robust standard errors clustered at the local labor-market level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

A.1.7 Hansen Overidentification Tests

Table A4
Hansen Overidentification Tests

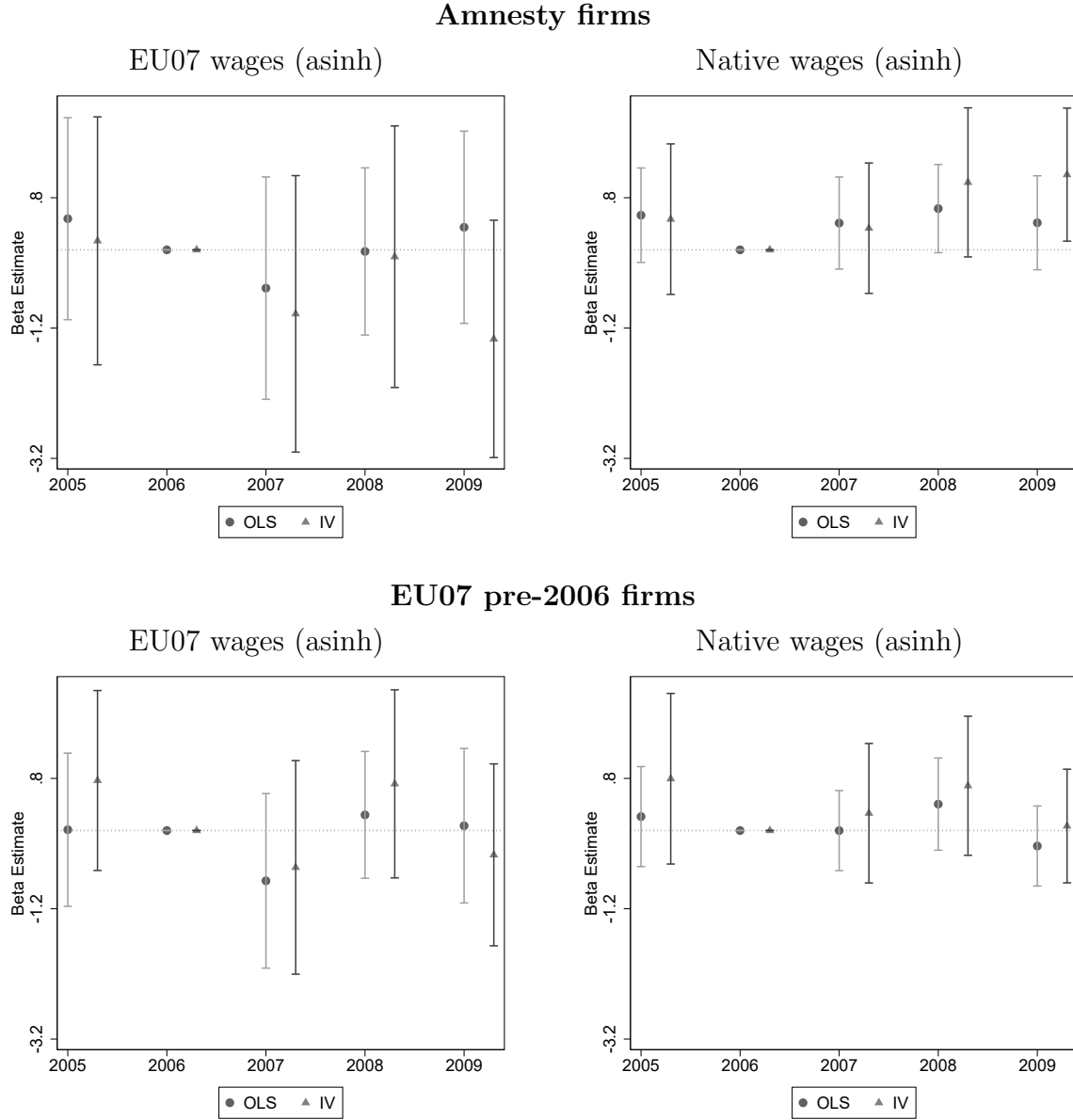
Outcome	$\Delta ShareEU07_{l,0102} + \text{SS-IV (1991)}$		$\Delta ShareEU07_{l,0102} + \text{SS-IV (2001)}$	
	$J \text{ stat. } (\chi^2_4)$	$p\text{-value}$	$J \text{ stat. } (\chi^2_4)$	$p\text{-value}$
EU07 empl. share	7.428	0.115	4.348	0.361
Native empl. share	5.823	0.213	1.227	0.874
KP $F\text{-stat}$	$\approx 17\text{--}21$			
KP $F\text{-stat}$	$\approx 14\text{--}18$			

Notes: Hansen J statistic from the joint overidentification test using two instrument sets: (i) $\Delta ShareEU07_{l,0102}$ (amnesty-based, 4 instruments) and SS-IV (1991) (4 instruments); (ii) $\Delta ShareEU07_{l,0102}$ and SS-IV (2001) (4 instruments). In each case there are 4 endogenous regressors (year $\times$ treatment interactions) and 4 overidentifying restrictions; the J statistic is distributed $\chi^2(4)$ under H_0 that all instruments are valid. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

A.1.8 Heterogeneity Analysis

Figure A17

Heterogeneity by past experience with migrants: Wages

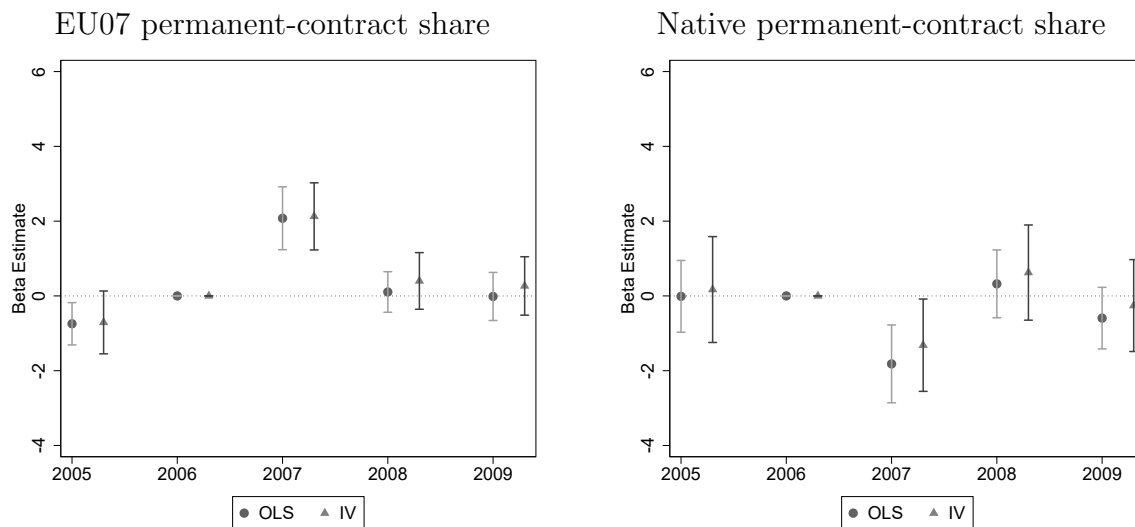


Notes: In each panel, the y-axis reports estimates of β_t from specification 1, showing the effect of the interaction of the treatment variable with the time variable on the indicated outcome. Standard errors clustered at the local labor-market level. Coefficients represent the effect of a one-unit increase in $\Delta ShareEU07_{l,0607}$. OLS and IV estimates are shown separately. Standard errors are clustered at the local-labor-market level.

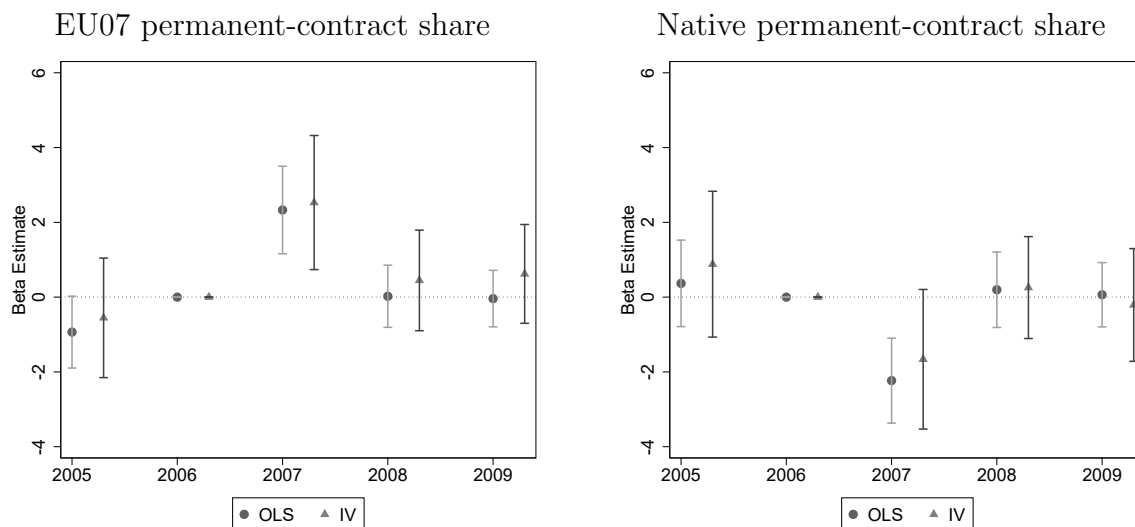
Figure A18

Heterogeneity by past experience with migrants: Permanent contracts

Amnesty firms

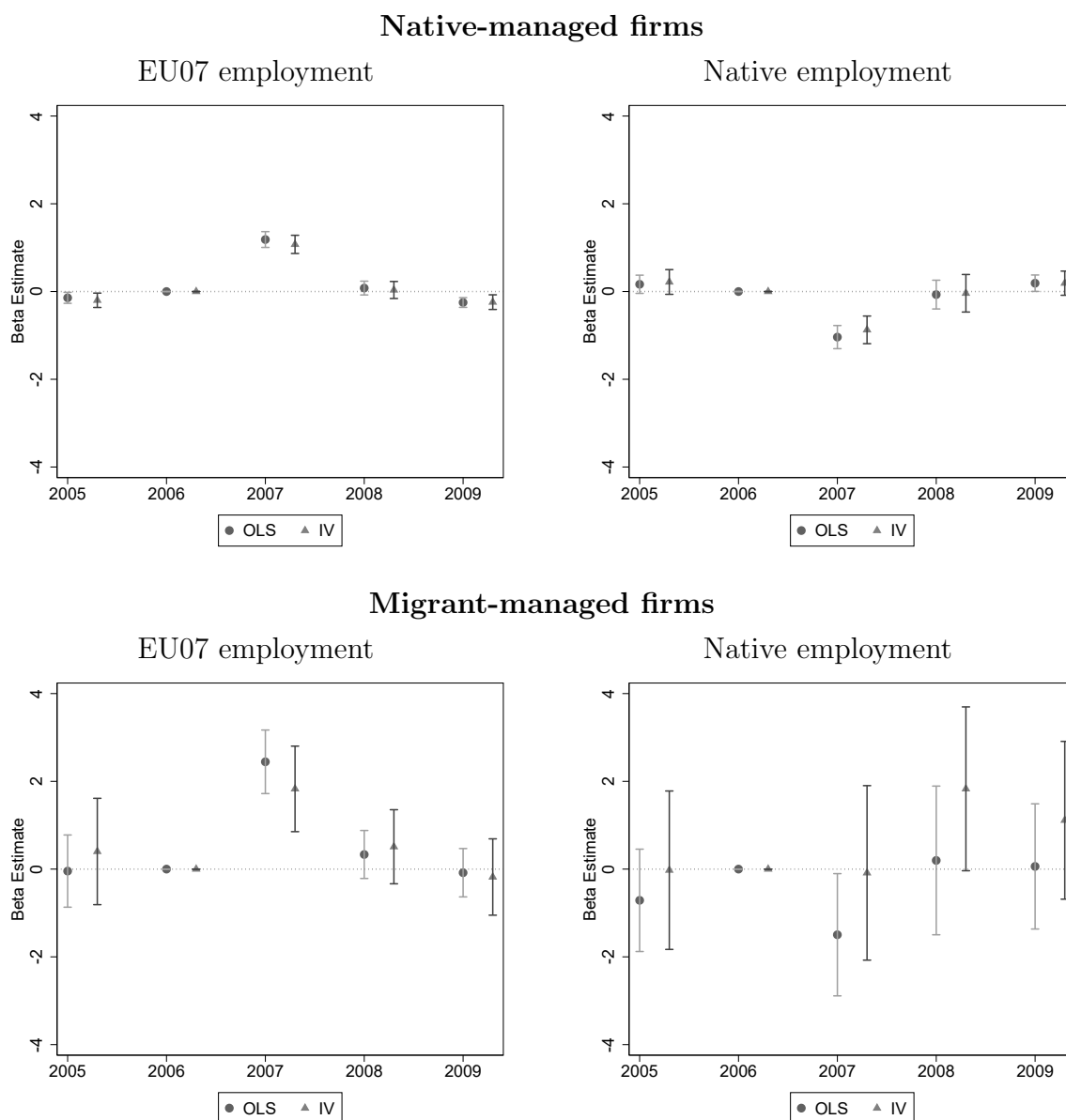


EU07 pre-2006 firms



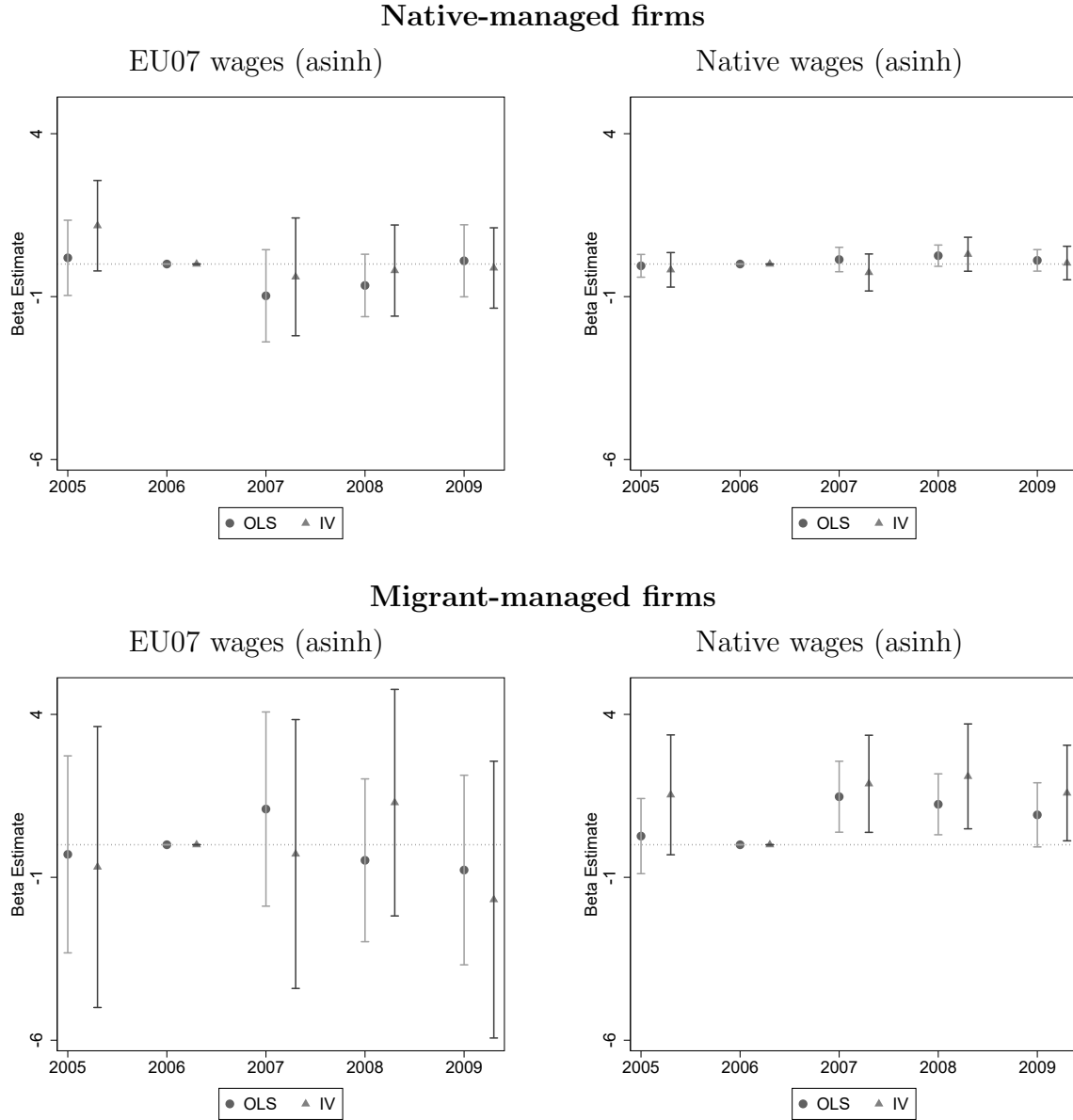
Notes: In each panel, the y-axis reports estimates of β_t from specification 1, showing the effect of the interaction of the treatment variable with the time variable on the indicated outcome. Standard errors clustered at the local labor-market level. Coefficients represent the effect of a one-unit increase in $\Delta Share_{EU07,0607}$. OLS and IV estimates are shown separately. Standard errors are clustered at the local-labor-market level.

Figure A19
Heterogeneity by manager type: Employment



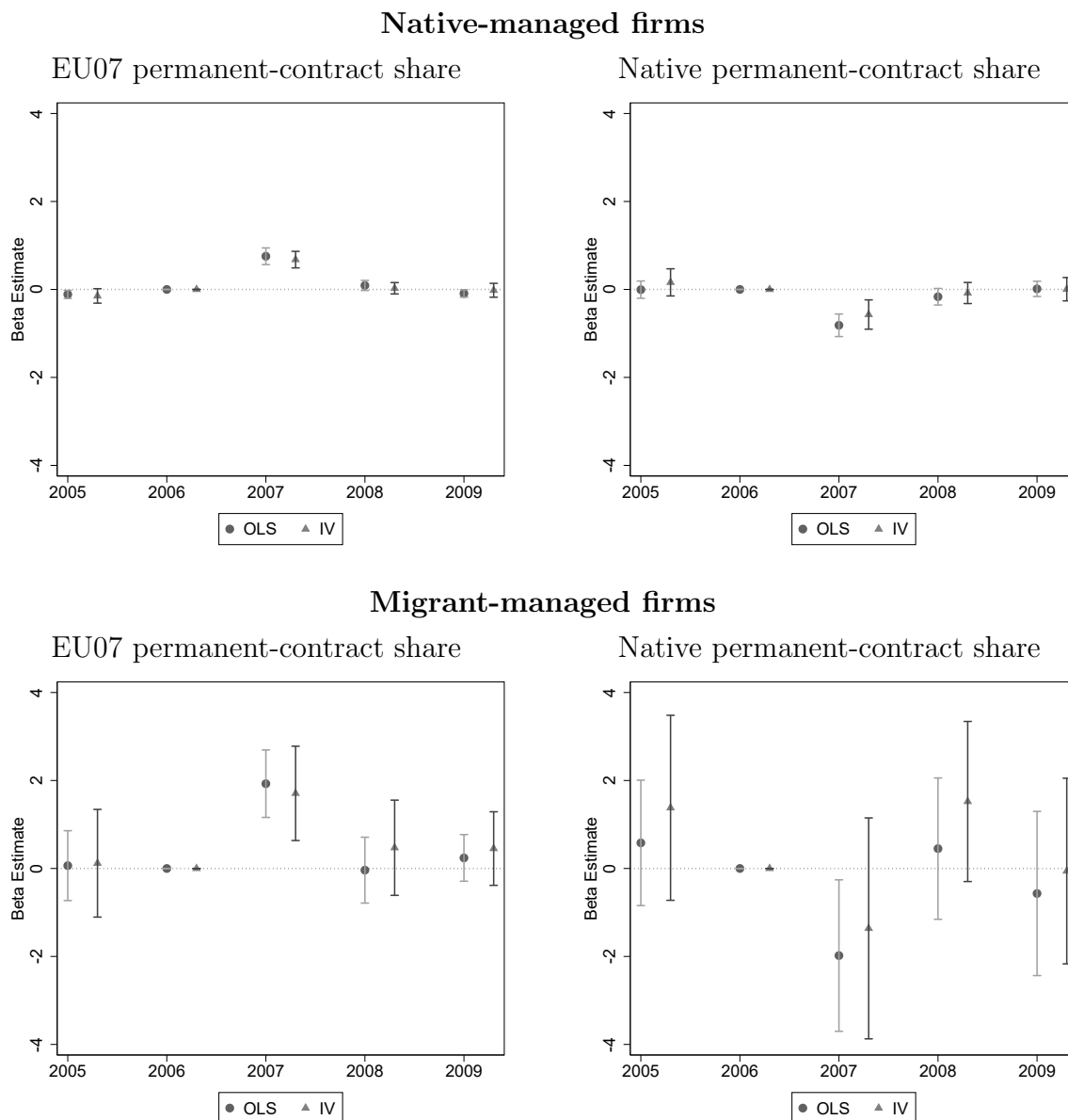
Notes: In each panel, the y-axis reports estimates of β_t from specification 1, showing the effect of the interaction of the treatment variable with the time variable on the indicated outcome. Coefficients represent the effect of a one-unit increase in $\Delta Share_{EU07, l, 0607}$. OLS and IV estimates are shown separately. Standard errors are clustered at the local-labor-market level.

Figure A20
Heterogeneity by manager type: Wages



Notes: In each panel, the y-axis reports estimates of β_t from specification 1, showing the effect of the interaction of the treatment variable with the time variable on the indicated outcome. Standard errors clustered at the local labor-market level. Coefficients represent the effect of a one-unit increase in $\Delta Share_{EU07_{l,0607}}$. OLS and IV estimates are shown separately. Standard errors are clustered at the local-labor-market level.

Figure A21
Heterogeneity by manager type: Permanent contracts



Notes: In each panel, the y-axis reports estimates of β_t from specification 1, showing the effect of the interaction of the treatment variable with the time variable on the indicated outcome. Standard errors clustered at the local labor-market level. Coefficients represent the effect of a one-unit increase in $\Delta Share_{EU07,0607}$. OLS and IV estimates are shown separately. Standard errors are clustered at the local-labor-market level.

A2 Conceptual Framework - Formal Derivations

This section develops a conceptual framework to guide the interpretation of the empirical results and help clarify which empirical patterns are consistent with the different margins influenced by our shock.

Environment

Workers. Workers belong to one of three groups, indexed by k , and defined by legal status: natives (N), non-native workers in formal employment under employer-tied permits (F), and non-native workers in informal employment (I), with group size n_k . Within F and I we identify EU07 subgroups (Romanian and Bulgarian nationals) of size $n_{EU07,F}$ and $n_{EU07,I}$ whose legal status changes with the 2007 EU enlargement. All other non-native workers in F and I (EU candidate-country nationals and other non-EU citizens) remain subject to the same permit regime throughout the period.

Production and the legal-status nests. Each firm produces a single freely-traded good using labor as the sole input. Following Elias et al. (2025), we organize labor in two nests according to legal status:

$$Y_f = A_f [\alpha_U L_{U,f}^\rho + \alpha_R L_{R,f}^\rho]^{1/\rho}, \quad \rho < 1, \quad \sigma_{UR} \equiv \frac{1}{1-\rho} > 1, \quad (1)$$

where $A_f > 0$ is a firm-specific productivity shifter. The *unrestricted-status* aggregate $L_{U,f}$ collects workers who face neither permit requirements nor restrictions on employer mobility:

$$L_{U,f} = L_{N,f} + L_{EU07,f}, \quad (2)$$

where $L_{EU07,f} = 0$ pre-enlargement. The *restricted-status* aggregate $L_{R,f}$ collects workers tied to a specific permit or operating informally:

$$L_{R,f} = L_{F,f} + \theta L_{I,f}, \quad \theta \in [0, 1], \quad (3)$$

with θ a productivity discount on informal labor. Pre-enlargement, EU07 workers in F and I are part of L_R because their labor-market access is restricted either by employer-tied status or by informality. The enlargement grants EU07 workers portable legal status and moves them into L_U , where they face neither employer-specific permit con-

straints nor exclusion from formal employment. With imperfect substitution between nests ($\sigma_{UR} < \infty$), the relevant production substitutes for post-enlargement EU07 workers are natives inside L_U , not other migrants in the L_R nest.

Firm heterogeneity. Firms differ along two independent dimensions. The first is the productivity shifter A_f in equation (1), which generates cross-firm dispersion in wage offers: higher-productivity firms face a higher MPL and therefore offer higher wages to otherwise identical workers. The second is the cost of recruiting new hires, which we model as group-specific because natives and migrants are accessed through different channels. Following Naidu et al. (2016):

- For *native* hires, the recruiting cost is a firm-invariant baseline $v_R^N \geq 0$, capturing standard recruitment costs (advertising, screening, training) that do not vary materially across firms in our sample.
- For *migrant* hires (EU07 and non-EU07 alike), the one-time recruiting cost per hire is firm-specific and network-dependent, $v_{R,f} \geq 0$, reflecting the firm's general proximity to migrant labor-supply communities (prior amnesty participation, prior migrant hiring, geographic location near migrant settlements). We parameterise

$$v_{R,f} = v_0 - \pi_f, \quad \pi_f \in [0, v_0], \quad (4)$$

where π_f indexes the firm's prior exposure to migrant networks. Firms with no exposure have $\pi_f = 0$ and bear the full baseline cost v_0 ; firms with high exposure have π_f close to v_0 , so $v_{R,f}$ is low. The one-time recruiting cost for migrants thus decreases in π_f , generating a gradient in the relative cost of EU07 versus native hiring across firms.

We treat A_f and π_f as independent: general firm productivity is empirically distinct from migrant-network proximity.

Wages. Within the formal sector, the firm exercises monopsony power over total compensation $\tilde{w}^i = w^i + V$. Outside the formal sector, informal workers earn the prevailing informal-market wage v , below formal-sector wages, determined by local supply-and-demand conditions among undocumented workers.

Employment contracts. There are two contract types: permanent (P) and temporary (T). A permanent contract confers a non-wage surplus $V > 0$ on the worker (dismissal protection, social-insurance access, career prospects). The prevailing wage differs by

contract type: $\bar{w}^T$ for temporary contracts and $\bar{w}^P > \bar{w}^T$ for permanent contracts. These represent each worker's outside option in the relevant labor market: a worker can expect to secure at least the corresponding rate from any other formal employer offering the same contract type. In addition, the firm bears administrative and firing-protection costs of permanent contracts. Let $\gamma > 0$ denote the total firm-side incremental cost of a permanent contract relative to a temporary one, with $V > \gamma$. The contract amenity enters the worker's participation decision through total compensation $\tilde{w}^i \equiv w^i + V$, where $V = 0$ for temporary-contract workers.

Permanent contracts are effectively inaccessible to tied-permit workers: the permit is itself temporary, so any employment relationship is coterminous with it.²⁹

Labor supply to the firm. Firms face upward-sloping labor supply curves. Total compensation $\tilde{w}^i \equiv w^i + V$, combining the cash wage and the non-wage contract amenity, is the relevant offer variable. Following Naidu et al. (2016), we write firm-facing labor supply for a worker of type i (indexing legal-mobility and tenure status) as

$$L_f^{s,i} = S^i(\tilde{w}^i), \quad (5)$$

with firm-facing supply elasticity

$$\epsilon^i \equiv \frac{\partial \log L_f^{s,i}}{\partial \log \tilde{w}^i},$$

a property of S^i .

The elasticity ϵ^i , as in Naidu et al. (2016), depends on the worker's legal mobility and tenure. Three types i are relevant:

- *Tied* ($i = \text{tied}$): workers on employer-tied permits. A competing employer must sponsor a new permit to make a credible offer, so $\epsilon^{\text{tied}} \approx 0$.
- *Incumbents* ($i = \text{inc}$): formally employed workers with established tenure, combining legal mobility with tenure-specific outside-option awareness. Elasticity is ϵ^{inc} .
- *Entrants* ($i = \text{ent}$): workers whose formal-sector record begins at formalization or arrival. They have legal mobility but lack firm-specific tenure, so $\epsilon^{\text{ent}} < \epsilon^{\text{inc}}$.

²⁹This reflects the institutional context described in Section 2.2.

The ordering satisfies

$$\epsilon^{\text{inc}} > \epsilon^{\text{ent}} > \epsilon^{\text{tied}} \approx 0. \quad (6)$$

Pre-enlargement, EU07 workers in F are of type tied. The firm's optimal total compensation for type- i workers satisfies

$$\tilde{w}^i = \bar{w}^T + \frac{\epsilon^i}{1 + \epsilon^i} (\text{MPL}^i - \bar{w}^T) \quad (7)$$

so that total compensation equals the worker's outside option $\bar{w}^T$ plus a markdown share of the surplus between marginal product and that outside option. Workers with lower elasticity capture a smaller share of this surplus, so their total compensation lies closer to $\bar{w}^T$; as $\epsilon^i \rightarrow 0$, $\tilde{w}^i \rightarrow \bar{w}^T$, while as $\epsilon^i \rightarrow \infty$, $\tilde{w}^i \rightarrow \text{MPL}^i$.

Profit function. Let $E_{k,f} \geq 0$ denote new hires of type k at firm f (workers not employed at the firm in the previous period), $E_{N,f}$ new native hires, $E_{M,f} \equiv E_{\text{EU07},f} + E_{\text{non-EU07},f}$ new migrant hires (all groups), and $L_{P,f}$ the number of workers at firm f on permanent contracts. The firm's profit function is

$$\Pi_f = Y_f - \sum_k w_{k,f} L_{k,f} - v_R^N E_{N,f} - v_{R,f} E_{M,f} - \gamma L_{P,f}. \quad (8)$$

Native hires bear the baseline cost v_R^N ; migrant hires (EU07 and non-EU07) bear the firm-specific network-dependent cost $v_{R,f}$. Each worker on a permanent contract adds the incremental cost γ defined above. Retained incumbents incur no recruiting cost; a worker transitioning from informal to formal employment *at the same firm* is not a new hire and incurs neither v_R^N nor $v_{R,f}$.

Pre-enlargement equilibrium

Wages and contracts pre-enlargement. Applying the wage-setting rule derived above to EU07 workers in F : under employer-tied permits, $\epsilon^{\text{tied}} \approx 0$, so by equation (7) firms pay total compensation close to $\bar{w}^T$, capturing nearly the entire gap to MPL^{tied} as a rent. Natives, who hold unrestricted status and full labor-market mobility throughout, are paid total compensation close to their marginal product $\text{MPL}_{U,f}$, the high-elasticity limit of equation (7), plus any firm-level supplement, and their wages are not predicted to move with the enlargement. Informal workers earn $w_{I,f} = v$, the informal-market wage. By the legal-status constraint, no tied-permit or informal worker

holds a permanent contract pre-enlargement.

Pre-enlargement sorting misallocation. The FOC for informal EU07 hiring is

$$\theta \cdot \text{MPL}_{R,f} \geq v + v_{R,f}, \quad (9)$$

where $\text{MPL}_{R,f} \equiv \partial Y_f / \partial L_{R,f}$ is the marginal product of restricted-status labor. Firms with low $v_{R,f}$ hire informally; firms with high $v_{R,f}$ do not. Pre-existing informal EU07 employment is therefore decreasing in $v_{R,f}$. Equation (8) also implies EU07 workers' sorting is heavily distorted by network proximity. Combined with the inability of tied-permit workers to switch employers, this generates a *sorting wedge*: workers entering through the tied-permit or informal channels attach to effectively networked firms, preventing them from matching with higher-productivity firms elsewhere.

The enlargement shock

Definition 1 (EU Enlargement). *The 2007 EU enlargement grants EU07 nationals unrestricted labor market status:*

1. *EU07 workers in L_R are reassigned to L_U : their input now enters the unrestricted-status nest (2) rather than the restricted-status nest (3).*
2. *The post-enlargement EU07 pool comprises three groups:*

$$n_{EU07,F} + n_{EU07,I} + \Delta n_{\text{new}}, \quad (10)$$

where $n_{EU07,F}$ and $n_{EU07,I}$ are the pre-existing tied-permit and informal stocks, and $\Delta n_{\text{new}} \geq 0$ is the flow of new migrants attracted by free entry.

3. *Their outside option for wage-setting becomes the prevailing formal wage $\bar{w}^T$ at any competing firm.*
4. *Since competing offers may include permanent contracts, their effective outside option rises above $\bar{w}^T$, activating the possibility of bargaining over the type of contract.*
5. *Their firm-facing supply elasticity rises: EU07 workers retained from F become incumbents (type inc); workers transitioning from I or newly arriving become entrants (type ent).*

6. *The status, outside options, and elasticity of all other workers in L_R are unchanged.*

Comparative statics

Proposition 1 (Employment composition). *Following the EU enlargement, the EU07 employment share rises ($\Delta(L_{EU07,f}/L_f) > 0$) at firms with positive pre-enlargement EU07 exposure, and the native employment share declines. The employment of non-EU07 workers in F has no direct legal-status response and is assumed to be fixed in the short run by tied-permit constraints.*

Post-enlargement, EU07 workers enter $L_{U,f}$ alongside natives as perfect substitutes (equation (2)). The firm minimizes the cost of expanding $L_{U,f}$. For formalized workers already attached to the firm, no recruiting cost is incurred, making them strictly cheaper to acquire than any new hire. For new EU07 arrivals, the network-specific recruiting cost $v_{R,f}$ is below the baseline cost v_R^N at network-proximate firms, making them preferred over new native hires at those firms.

Therefore, the firm expands $L_{EU07,f}$ through the adjustment of pre-existing EU07 relationships and, potentially, additional EU07 entry. The EU07 employment share rises, while the native share falls as a relative-composition effect when the expansion of employment is concentrated among EU07 workers.

Non-EU07 workers in $L_{R,f}$ have no direct treatment: their legal status, outside options, and firm-facing supply elasticity remain unchanged, while tied-permit constraints make their short-run employment supply highly inelastic. Thus any indirect change in the marginal product of restricted-status labor does not generate a first-order adjustment in the outcomes we take to the data.

Proposition 2 (Job flows). *EU07 hire rates and separation rates both rise in the year of the enlargement. No equivalent legal-status-driven mobility response is predicted for non-EU07 workers.*

Hires. In the year of the enlargement, EU07 hires comprise the formalized informal stock ($n_{EU07,I,f}$, entering the admin data as new formal hire events), new arrivals ($\Delta n_{\text{new},f} \geq 0$) and incumbent workers relocating to better matches. At any firm with $n_{EU07,I,f} > 0$, the hire rate rises strictly above its pre-enlargement level.

Separations. Pre-enlargement, $\epsilon^{\text{tied}} \approx 0$ gives a total compensation $\tilde{w}^{\text{tied}}$ near $\bar{w}^T$, the tied permit forecloses competing offers, and the separation rate is approximately zero.

Post-enlargement, $\epsilon^{\text{inc}} \gg \epsilon^{\text{tied}}$ raises total compensation above $\bar{w}^T$ (Proposition 3), and the permit-induced mobility barrier is removed. By the sorting misallocation in Section A2, some employer-tied incumbents were suboptimally matched; any incumbent for whom the expected total compensation $\tilde{w}_{f'}^{\text{inc}}$ at a more productive alternative firm f' exceeds their current compensation $\tilde{w}_f^{\text{inc}}$ now separates. The separation rate rises from approximately zero to strictly positive. A relocating worker carries their formal employment history and EU citizenship to the destination; the entrant classification applies only to workers entering the formal sector for the first time. A cross-firm mover therefore accesses the incumbent compensation schedule at f' , justifying the comparison $\tilde{w}_{f'}^{\text{inc}} > \tilde{w}_f^{\text{inc}}$ in the separation condition. For non-EU07 workers, legal status, elasticities, and outside options are unchanged, so the model predicts no direct change in their mobility hazard.

Proposition 3 (Wages). *The firm-level average EU07 wage change is ambiguous in sign: the incumbent gain component pushes it up, while the influx of entrants at $\bar{w}^T$ dilutes the pre-enlargement premium earned by employer-tied workers. Individual EU07 incumbents experience within-person gains in total compensation ($\Delta\tilde{w}^{\text{inc}} > 0$), which translate to nominal wage gains for temporary-contract workers and high-MPL permanent-contract workers.*

Incumbents. Pre-enlargement, EU07 under employer-tied permits earned total compensation close to their outside option $\bar{w}^T$, since $\epsilon^{\text{tied}} \approx 0$ left firms little incentive to pay more (equation (7)). Post-enlargement, incumbents face $\epsilon^{\text{inc}} \gg \epsilon^{\text{tied}}$; by equation (7), $\tilde{w}^{\text{inc}} = \bar{w}^T + \frac{\epsilon^{\text{inc}}}{1 + \epsilon^{\text{inc}}} (\text{MPL}^{\text{inc}} - \bar{w}^T) > \bar{w}^T$, since $\text{MPL}^{\text{inc}} > \bar{w}^T$ and $\epsilon^{\text{inc}} > 0$. The nominal wage gain depends on the contract type the worker holds:

- Incumbents on T: $w^{\text{inc},T} = \tilde{w}^{\text{inc}}$. The full gain is realised in the nominal wage.
- Incumbents on P: $w^{\text{inc},P} = \tilde{w}^{\text{inc}} - V$. Part of the total compensation gain is absorbed by the permanent-contract amenity V rather than the nominal wage.

Total compensation $\tilde{w}^{\text{inc}}$ rises for all incumbents; nominal wages rise for temporary-contract incumbents and high-MPL permanent-contract incumbents.

Entrants. All entrants, workers transitioning from I to formal employment and new arrivals (Δn_{new}), have elasticity $\epsilon^{\text{ent}} < \epsilon^{\text{inc}}$. Workers formalizing at the same firm bear no recruiting cost; new arrivals bear $v_{R,f}$. In both cases the participation constraint binds at $w^{\text{ent}} = \bar{w}^T$. EU07 workers with prior formal tenure who switch firms are

incumbents at the destination, not entrants, and their outside option is $\bar{w}^P + V$ as in Proposition 4.

Firm-level average. Pre-enlargement, EU07 in the admin data are all under employer-tied permits on temporary contracts; since $\epsilon^{\text{tied}} \approx 0$ (but positive), their wage is near $\bar{w}^T$. Pre-enlargement tied-permit EU07 workers extracted a small wage above $\bar{w}^T$ through their small but positive supply elasticity ($\epsilon^{\text{tied}} \approx 0$ but > 0); newly entering workers are entrant-type, for whom the participation constraint binds at $\bar{w}^T$. The dilution term $(\bar{w}^{\text{pre}} - \bar{w}^T) \geq 0$ captures this incumbent-versus-entrant gap. Post-enlargement, the firm has a mix of incumbents (average nominal wage $w^{\text{inc}} \geq \bar{w}^T$) and entrants (at $\bar{w}^T$):

$$\Delta \bar{w}_{EU07,f} = s_f^{\text{inc}} (w^{\text{inc}} - \bar{w}^T) - (\bar{w}^{\text{pre}} - \bar{w}^T), \quad (11)$$

where s_f^{inc} is the share of incumbents among observed EU07 workers at firm f and $\bar{w}^{\text{pre}}$ is the pre-enlargement EU07 average at that firm. The sign is ambiguous: the first term is positive (incumbents gain), while the second reflects that the influx of entrants at $\bar{w}^T$ dilutes the pre-enlargement average. Incumbents' gains may further be partly absorbed into permanent-contract access.

Proposition 4 (Contract type). *The share of EU07 workers employed on permanent contracts rises. The native share of all permanent contracts declines. Non-EU07 workers retain temporary contracts.*

Two reinforcing channels move EU07 workers toward permanent contracts. First, the permit constraint is removed: the tied permit was itself temporary, making the employment relationship coterminous with it and ruling out permanent contracts independent of bargaining. Post-enlargement, EU07 workers hold EU citizenship, a permanent right to work, making open-ended employment contracts meaningful for the first time. Second, the elasticity change activates contract bargaining. Pre-enlargement, the tied permit leaves the worker with no credible outside option; the firm retains the worker at wage $\bar{w}^T$ and keeps the surplus $V - \gamma > 0$. Post-enlargement, competing firms offer permanent contracts, raising the outside option to $\bar{w}^P + V$. The firm can retain the worker by matching this outside option in two ways: offer a temporary contract at cash wage $\bar{w}^P + V$ (cost $\bar{w}^P + V$) or offer a permanent contract (cost $\bar{w}^P + \gamma$). Since $V > \gamma$, the permanent contract is strictly cheaper; the firm offers it. Both channels act in the same direction. For non-EU07 workers in F , the legal barrier and elasticity

are unchanged, so temporary contracts persist. The native permanent-contract share declines mechanically: $n_{P,f}^N$ is unchanged (native first-order conditions and legal status are unaffected), while $n_{P,f}^{\text{EU07}}$ rises from zero, so the native fraction $n_{P,f}^N/(n_{P,f}^N + n_{P,f}^{\text{EU07}})$ falls.

Proposition 5 (Firm heterogeneity). *Firms with low $v_{R,f}$ exhibit larger employment, hire, and permanent-contract effects concentrated in 2007, and a firm-level EU07 wage effect of ambiguous sign.*

By equation (9), firms with low $v_{R,f}$ had larger pre-enlargement informal EU07 stocks $n_{\text{EU07},I,f}$. The change in legal status and the consequent increase in bargaining power for previously informal EU07 workers mechanically formalizes these stocks at the shock, generating a concentrated 2007 employment jump. A further economic wedge sharpens this: because no recruiting cost is incurred when a worker transitions from informal to formal employment at the same firm (equation (8)), a firm with informal EU07 stock incurs no recruiting cost when formalizing its existing workers, whereas replacing them with new native or migrant hires requires paying the recruiting cost v_R^N or $v_{R,f}$, respectively. Holding wage and permanent-contract costs fixed across these alternatives, formalization is therefore strictly cheaper on this acquisition-cost margin. By equation (11), the composition shift toward entrants at $\bar{w}^T$ is most pronounced where informal stocks are largest, making the firm-level wage change most attenuated at low- $v_{R,f}$ firms.

Distinguishing between internal and external margins of adjustment

The enlargement affected EU07 labor supply through two margins. The first is an *internal margin*. For EU07 workers already present in Italy, accession made labor-market access portable. It relaxed the firm-specific constraints faced by workers employed on employer-tied permits and allowed workers previously employed informally to enter the formal sector. This margin directly improved EU07 workers' outside options and bargaining position. The second is an *external margin*. By eliminating the requirement of employer-sponsored entry, accession also reduced the cost of new EU07 migration to Italy.

Both margins can increase observed EU07 employment, and our instrument is not designed to decompose their relative contribution. They have, however, different implica-

tions for the timing and nature of adjustment. The internal margin should generate immediate changes in existing employment relationships, as workers whose labor-market choices had been constrained by legal status can now move, renegotiate, or formalize their jobs. By contrast, the external margin operates through an expansion of labor supply. It can raise EU07 employment, but it need not generate a sharp 2007 break in incumbent outcomes or in existing firm-worker matches. Moreover, because it expands the supply of close substitutes, it should, if anything, put downward pressure on wages and on costly nonwage amenities such as permanent contracts.

The propositions in Section A2 therefore imply that the two margins are not distinguished by the employment response alone. Instead, the interpretation rests on a joint empirical signature: the time profile of the adjustment, the behavior of separations and incumbent outcomes, and the concentration of effects among firms with pre-existing EU07 relationships. Three dimensions of the evidence are especially informative.

1. Employment share, hires, and separations. Both margins predict an increase in the observed EU07 employment share. Under the internal margin, however, the adjustment should be concentrated around 2007, as a pre-existing stock of EU07 workers moves from constrained or informal employment into formal, more portable employment relationships. Once this stock adjustment has occurred, the EU07 share should stabilize, with subsequent changes reflecting normal inflows and turnover. Under a sustained entry margin, by contrast, the EU07 share should continue to grow beyond 2007 as new arrivals accumulate.

Hires follow the same logic. The internal margin predicts a concentrated increase in hires around 2007, including both workers entering formal records from informal employment and workers moving across firms after the mobility constraint is relaxed. An external margin instead predicts a more gradual increase in hires over several years, as new migrants enter the labor market.

Separations are particularly informative. For EU07 workers already formally employed on employer-tied permits, accession removed a firm-specific constraint and made outside options credible. This should release pent-up mobility and generate a spike in separations from existing employers in 2007. New arrivals, by contrast, enter without such an accumulated mobility constraint. Their separations should follow normal turnover patterns rather than producing an immediate spike at the time of accession. A sharp 2007 separation response therefore points to adjustment among pre-existing workers, rather than to a response driven mainly by unknown new entrants. The sep-

aration spike need not equal the hire spike in magnitude, because workers previously employed informally appear in the administrative records as hires without a corresponding observable separation from a prior formal job.

2. Individual wages, firm-level wages, and permanent contracts. The internal margin has direct implications for workers already attached to the Italian labor market. For EU07 workers formally employed before 2007, accession raises the relevant labor-supply elasticity from ϵ^{tied} to ϵ^{inc} , pushing the monopsony wage above $\bar{w}^T$. These workers should therefore experience wage gains and move toward higher-paying employers as the sorting wedge in Section A2 is reduced. They should also be more likely to obtain permanent contracts, since portable legal status strengthens their ability to bargain over nonwage amenities.

Firm-level average wages are less diagnostic. A firm-level EU07 wage average combines incumbent wage gains with a downward pull from new entrants entering at lower pay. Under the internal margin, formally employed incumbents may gain, while previously informal workers enter the administrative wage distribution at or near $\bar{w}^T$, attenuating the firm-level average. Under the external margin, this downward pull intensifies: newly arrived workers add to the compositional effect, and a broad expansion in the labor supply of close substitutes also dampens the wage gains that incumbents can extract from improved mobility. For this reason, the coexistence of individual wage gains with a near-zero firm-level average is more consistent with the internal margin than with the external margin, though this evidence alone cannot rule out some role for new entrants. Permanent contracts provide sharper evidence. In the Italian labor market, permanent contracts are costly nonwage amenities that provide greater employment security. The internal margin predicts an increase in permanent contracts because firms may need to upgrade employment terms to retain workers whose outside options improved. A response driven mainly by new inflows is less likely to generate this pattern. Unknown newcomers with no prior relationship to the firm are unlikely to receive permanent contracts immediately, because firms have not yet learned their match quality. Moreover, a labor-supply expansion should weaken, rather than strengthen, workers' ability to obtain costly amenities. A sharp increase in permanent contracts is therefore more naturally interpreted as evidence of improved bargaining power among EU07 workers already known to, or already connected with, Italian firms.

3. Pre-existing EU07 relationships across firms. The internal margin predicts stronger effects at firms with pre-existing relationships with EU07 workers. We use three

proxies for these relationships. The first is participation in the 2002 general amnesty. Firms that regularized workers in 2002 are especially likely to have had prior informal EU07 employment relationships and therefore a larger stock of workers whose status could be upgraded after accession. The second is prior formal EU07 employment, which captures firms already connected to EU07 labor networks and already employing EU07 workers before the reform. The third is manager nationality, which captures broader access to migrant labor networks through firms with foreign-born managers.

These three proxies need not identify identical mechanisms. Amnesty participation is more closely tied to prior informal employment and therefore to the stock of workers who could enter formal records after 2007. Prior formal EU07 employment and migrant management capture existing firm-worker relationships and network access, which could facilitate both incumbent reallocation and subsequent recruitment. The key prediction is not that only amnesty firms should respond, but that firms with pre-existing EU07 connections should display sharper and more immediate adjustment than firms with no such connections.

This cross-firm pattern is difficult to reconcile with a pure external margin interpretation. New inflows may partly follow existing migrant networks, so some concentration among EU07-connected firms is possible. But a response driven mainly by unknown new arrivals does not naturally predict a sharp 2007 adjustment specifically among firms with prior EU07 relationships, nor does it predict immediate increases in costly employment amenities such as permanent contracts. Those patterns are more consistent with firms adjusting existing relationships after EU07 workers' outside options improved.

Identification logic. The empirical interpretation therefore does not rest on decomposing the total employment effect into formalization and new immigration. Our instrument captures exposure to the overall legal-status shock and cannot separately estimate the size of each margin. Instead, identification comes from the joint pattern of outcomes.

The time profile is the first piece of evidence. A concentrated 2007 increase in EU07 employment, hires, and especially separations is consistent with a one-time adjustment among workers already present in Italy. An external margin would instead predict continued growth as new inflows accumulate. The cross-firm heterogeneity is the second piece of evidence. Effects should be strongest where pre-existing EU07 relationships made internal-margin adjustment most relevant: among amnesty-participating firms

and firms with prior formal EU07 employment. The outcome mix is the third piece of evidence. Individual wage gains for EU07 incumbents and increases in permanent contracts point to improved outside options and bargaining power, whereas firm-level wage averages may remain muted because they combine incumbent gains with compositional changes and potential labor-supply effects.

Taken together, these margins discipline the interpretation of the results. Employment growth alone is consistent with both incumbent adjustment and new inflows. But a sharp 2007 separation response, gains for incumbent workers, concentration among firms with prior EU07 relationships, and increases in permanent contracts are more consistent with the internal margin than with a response driven mainly by a sustained expansion in new migration.

Comparison with a general amnesty

The 2002 Italian regularization provides a natural comparator: it legalized around 640,000 informal workers but operated through a different mechanism. We frame the comparison in the language of the model: who is *amnestied* (gains some legal status) and who is *non-amnestied* (remains in the prior regime), abstracting from citizenship. The EU enlargement is a regularization that confers full and portable legal status; the 2002 amnesty confers only a partial, employer-tied status.

Definition 2 (General Amnesty). *A general amnesty raises the outside option of all informally employed workers (group I) from the informal-market level v to an intermediate value b' , with $v < b' < \bar{w}^T$, and grants them legal status that remains tied to their sponsoring employer (so ϵ does not rise to ϵ^{inc} but to some intermediate $\epsilon^{\text{Am}} < \epsilon^{\text{inc}}$). Because they enter the formal sector F on temporary contracts, they earn the prevailing wage:*

$$w_I^{\text{Am}} = \bar{w}^T$$

$$\Delta n^{\text{Am}} = n_I$$

Workers in F (the pool of already formally-employed workers on employer-tied permits, introduced in Section A2) are not directly targeted; they are affected indirectly through increased competition in the formal sector once amnestied workers enter F . Both amnesty entrants and pre-enlargement EU07 workers in F earn a wage close to

$\bar{w}^T$ on temporary contracts, but through distinct mechanisms: the former because their outside option b' falls short of the prevailing T -contract wage and gives no leverage to extract above it; the latter because their near-zero (but positive) supply elasticity ϵ^{tied} leaves them with minimal bargaining power, capturing only the small premium described in equation (11).

Structural differences from the enlargement. For the amnestied population, the enlargement and the amnesty differ in three structural dimensions.

Intensity: enlargement raises outside options to $\bar{w}^T$ and elasticity to ϵ^{inc} ; amnesty raises them only partially to $b' < \bar{w}^T$ and $\epsilon^{\text{Am}} < \epsilon^{\text{inc}}$. The intensity gap determines whether workers can extract wage premia above $\bar{w}^T$ and contest the permanent-contract surplus $V - \gamma$. Under the enlargement, the outside option reaches $\bar{w}^T$ and elasticity rises to ϵ^{inc} , jointly enabling extraction above the prevailing T -contract wage and access to the permanent-contract surplus $V - \gamma$. Under the amnesty, the outside option reaches only $b' < \bar{w}^T$ and elasticity rises only to ϵ^{Am} : neither condition is met, so wages remain at $\bar{w}^T$ and permanent contracts remain inaccessible.

Scope: enlargement frees workers in both F (enabling job-to-job mobility) and I (enabling formalization) and attracts new migrants. Amnesty formalizes workers in I but leaves workers in F tied to their employer and attracts no new migration.

Portability: enlargement creates a portable legal status; the amnesty creates a tied-permit status conditioned on continued employment with the sponsor, and workers cannot move across employers, unless they are able to obtain a new sponsor through a difficult authorization process, or risk losing legal status.

Spillovers to non-amnestied workers in F . Amnestied workers entering F raise the supply of formal-sector labor. For non-amnestied F workers, this is a competition shock: the increase in L_F puts downward pressure on the formal wage and on their hiring rate. Under the enlargement, the analogous spillover applies to natives within the L_U nest (Proposition 1); non-EU07 workers in F are insulated by imperfect substitution between nests.

Predictions by outcome.

Employment. Formal employment of amnestied workers rises mechanically as $L_I^{\text{amnestied}} \rightarrow L_F$. The scope gap implies the response is smaller than under the enlargement, and amnestied workers do not migrate to L_U , so the within- L_U substitution that compresses the native employment share is absent. Non-amnestied workers in F may see

employment decline through within- L_R competition.

Job flows. Hires spike as previously informal workers register formally. A contemporaneous separation spike is muted because amnestied workers remain tied to their sponsoring employer; the mobility channel is deactivated as long as the tied permit binds.

Wages. The intensity gap implies that any within-firm wage gain is smaller for amnestied workers; sorting gains through job mobility are absent. Non-amnestied F workers may see wage declines from increased competition.

Contract type. Because the amnesty preserved temporary, employer-tied status, we treat the permanent-contract margin as inactive in the amnesty benchmark.

Table A5 summarizes the framework's predictions by outcome and margin. The first two columns distinguish two limiting margins of the enlargement response. The internal margin captures the adjustment of EU07 workers already present in Italy, including workers constrained by employer-tied permits and workers previously outside the formal sector. The external margin captures additional EU07 entry after accession. These columns are not intended to decompose the empirical effect into mutually exclusive channels; rather, they clarify which patterns are more informative about pre-existing-worker adjustment versus continuing new entry. The third column reports the corresponding predictions for an amnesty that grants formal but employer-tied status. Panel A reports outcomes for treated workers: EU07 workers under enlargement and regularized migrants under the amnesty. Panel B reports outcomes for natives.

Table A5
Framework predictions by outcome and margin

Outcome	EU07 enlargement		
	Internal <i>stock, 2007</i>	External <i>flow, persistent</i>	Amnesty <i>tied status</i>
<i>Panel A: Treated workers (EU07 under enlargement; amnestied migrants under amnesty)</i>			
Relative employment (initial)	+	+	+
Relative employment (post-shock)	≈ 0	> 0	≈ 0
Hires (initial)	+	+	+
Hires (post-shock)	≈ 0	> 0	≈ 0
Separations (initial)	+	≈ 0	≈ 0
Separations (post-shock)	≈ 0	≈ 0	≈ 0
Firm-level wages	≤ 0	≤ 0	≈ 0
Individual wages (incumbents)	+	+	≈ 0
Permanent-contract share	+	≤ 0	≈ 0
<i>Panel B: Natives</i>			
Relative employment	–	–	≈ 0
Firm-level wages	≈ 0	≈ 0	≈ 0
Permanent-contract share	–	–	≈ 0

Notes: Columns correspond to the two limiting scenarios (Internal and External) and the general amnesty of Definition 2 (Amnesty). “(initial)” refers to the year of the shock (2007 for the enlargement, 2002 for the amnesty); (post-shock)” refers to the annual change in subsequent years relative to the pre-shock rate.