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Immigrants' Legalization and Firms: Evidence from the 2007 EU Enlargement

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Immigrants' Legalization and Firms: Evidence from the 2007 EU Enlargement

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Regolarizzazione degli immigrati e imprese: evidenza dall'allargamento dell'UE del 2007

Vittoria Dicandia[1] Silvia Vannutelli[2]

Sommario

Le restrizioni legali alla partecipazione dei lavoratori stranieri nel mercato del lavoro possono generare potere monopsonistico a favore dei datori di lavoro, con effetti particolarmente rilevanti nei contesti caratterizzati da una diffusa economia sommersa. Questo lavoro studia come le imprese reagiscono a mutamenti permanenti nello status giuridico di una quota rilevante della forza lavoro immigrata, prendendo come caso di studio l'ingresso di Bulgaria e Romania nell'Unione Europea nel 2007, che ha sancito la libertà di circolazione e di lavoro per il gruppo di immigrati più numeroso presente in Italia. Questo studio utilizza i dati amministrativi INPS e adotta una strategia di identificazione IV-DID per stimare gli effetti di questo cambiamento normativo sulle scelte di gestione del personale e sulle performance aziendali. I risultati mostrano uno spostamento nella composizione della forza lavoro aziendale a favore dei lavoratori EU07 e a svantaggio dei nativi, senza che ciò si sia accompagnato a variazioni nella dinamica salariale per nessuno dei due gruppi. Parallelamente, i lavoratori EU07 hanno registrato una più elevata mobilità inter-aziendale e una maggiore incidenza di contratti a tempo indeterminato, segnale che il rafforzamento del loro potere contrattuale si è tradotto principalmente in miglioramenti delle condizioni di lavoro non salariali, in un contesto di sostanziale rigidità retributiva. A fronte della crescita occupazionale, le imprese hanno tuttavia registrato una riduzione dei ricavi e del valore aggiunto per addetto. Nel complesso, i risultati suggeriscono che le restrizioni normative abbiano operato principalmente come strumento di estrazione di rendite a danno dei lavoratori privi di regolare status giuridico, piuttosto che come misura di tutela dei lavoratori nativi.

Parole chiave: Migrazione, Regolarizzazione, Imprese, Gestione del personale, Allargamento dell'Unione Europea

Codici JEL: J61, M51, J46, O17

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Le conclusioni espresse sono esclusivamente quelle degli autori e non rappresentano le posizioni dell'INPS. Le opinioni espresse in questo articolo sono quelle degli autori e non riflettono necessariamente le posizioni della Federal Reserve Bank of Cleveland o del Board of Governors of the Federal Reserve System.

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Immigrants' Legalization and Firms: Evidence from the 2007 EU Enlargement

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Abstract

Legal restrictions on migrants' labor market participation can create monopsony power for employers, particularly in countries with large informal sectors. How do firms respond to permanent changes in the legal status of a substantial group of migrants? We study the effects of the entry to the European Union of Bulgaria and Romania in the Italian labor market, which granted unrestricted work rights to the largest group of migrants in Italy. We use unique administrative employer-employee data on the universe of private-sector workers and an IV-DID design to identify the effects of this change in migrants' legal status on firms' personnel decisions and performance. Firms exhibit an increase in the share of migrant workers at the expense of natives, not accompanied by a change in wage growth for either group. Consistent with a shift in bargaining power toward workers, EU07 migrants experienced significant gains in job mobility and job security, suggesting they leveraged enhanced bargaining power to secure non-wage benefits in a rigid wage environment. Despite employment growth, firms experienced declines in per capita revenues and value-added. These patterns suggest that legal restrictions primarily enabled employers to capture economic rents from the presence of undocumented workers, rather than protect native workers as intended.

Keywords: Migration, Legalization, Firms, Personnel, EU Enlargement
JEL codes: J61, M51, J46, O17

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The findings and conclusions expressed are solely those of the authors and do not represent the views of INPS. The views expressed in this paper are those of the authors and do not necessarily reflect the views of the Federal Reserve Bank of Cleveland or the Board of Governors of the Federal Reserve System.

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1 Introduction

Most countries restrict migrants' labor market access, usually 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 enabling employers to appropriate rents from undocumented labor. These distortions may also place downward pressure on compensation in the formal sector and are often cited as a threat for native workers labor-market outcomes (Elias et al. (2024)).

It is thus unsurprising that there is a large policy debate on whether countries should relax work visa requirements to downsize the informal sector and promote fairer competition in the labor market. Yet, the evidence on the effects of such policy changes on firms and workers remains scant, mainly for two reasons. First, it is rare to observe large policy changes that would critically affect these distortions. Second, data that allow to study the consequences of these policy changes on both migrant and native workers' labor-market outcomes as well as firms' outcomes are hard to come by.

We overcome these limitations by studying the effects of the 2007 European Union enlargement that admitted Romania and Bulgaria (which we collectively refer to as EU07) in the Italian labor market. This event represents a very significant episode of relaxing migrants' labor-market restrictions, and it is particularly relevant for Italy because Romanians are its largest immigrant group due to the strong language similarity between the two countries.[3] The enlargement removed key legal barriers for EU-07 migrants, durably relaxing constraints that affect hires, separations, and the transition from temporary to permanent contracts.

We exploit unique administrative matched employer-employee data from Italy to study the consequences of this large regularization episode on firms and workers. 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 regularization shock, based on differences in the pre-existing presence of EU07 migrants.

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

Because migrants might endogenously sort in areas with good economic opportunities, we instrument the local change in the share of migrants around the 2007 EU enlargement with the pre-existing change in the share of migrants between 2001 and 2002, when an unexpected large amnesty for informal migrant workers took place. The key idea supporting the relevance of our instrument is that labor markets that experienced a large change in migrants' share as a result of the amnesty of 2002 are characterized by a high share of informal workers and thus would be more exposed to the regularization shock induced by the EU enlargement in 2007. Indeed, the change in the share of EU07 migrants between 2001 and 2002 in a local labor market is a good predictor of the change observed between 2006 and 2007.

We provide evidence that labor market outcomes of firms operating in more vs. less exposed labor markets evolved along parallel paths before the EU enlargement, but started diverging afterwards. Furthermore, we show that our instrument does not seem to have other indirect effects on firms' labor-market outcomes.

Our main analyses focus on how firms adjust their personnel and compensation decisions in response to the change of legal status for EU07 migrants.

First, we investigate whether firms change their relative personnel composition between migrants and natives. Here, we find evidence that relative employment of EU07 migrants increases suddenly and persistently, at the expense of natives. This pattern is mainly driven by a change in firms' hiring decisions: compared to the trends in the pre-reform period, firms in highly exposed labor markets hire more EU07 workers and fewer native workers. This shift in workforce composition is consistent with legalization reducing the compliance costs for firms associated with formalizing the previously informal employment of affected migrants and/or increasing migrants' bargaining power. We also observe an increase in the rate of both job hires and separations for EU07 migrants, suggesting an increase in job-to-job transitions. This effect is likely explained by the relaxation of pre-existing restrictions in job-to-job mobility imposed by employer-sponsored visas, the resulting improvement of migrants' outside options, and the weakening of firm-level monopsony power, consistent with the findings of Naidu et al. (2016) in the United Arab Emirates[4].

[4]Naidu 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 legalization 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

We then turn to investigate the consequences of the EU enlargement on both wages and non-wage amenities. While we do not find any significant change in wage trends for either native or EU07 workers, we do observe a significant increase in the share of permanent contracts for EU07 workers, indicating that they experienced enhanced job stability in the aftermath of the enlargement. This pattern suggests that contract form adjusts faster than wages when legalization status changes and firms upgrade relationships to retain workers whose outside options have risen. This result is likely driven by the wage stickiness in Italy, which stems from broad coverage of sectoral collective agreements and union institutions. This absence of wage effects is in line with Glitz (2012), who studies the immigration shock induced by the German reunification and finds no impact on relative wages even as immigration displaces unemployed natives, consistent with adjustment occurring through employment reallocation rather than wages.

We perform a series of heterogeneity analyses aimed at gaining a deeper understanding of the mechanisms behind the observed patterns. We investigate how our results vary across proxies of firms' pre-existing relationships with EU07 workers. First, we look at firms that already employed EU07 workers before 2007 and firms that participated in a previous amnesty for migrant workers. Then, we look at firms with managers of different nationalities, comparing results for firms that have only managers of Italian nationality and firms that have at least one non-Italian non-EU07 manager.

We show that our results are largely driven by firms that participated in a previous amnesty legalizing migrants or that employed EU07 workers before 2007. This is consistent with previous evidence from Di Porto et al. (2025) showing that firms that employ migrants are likely to do so both formally and informally. These firms were thus more likely to have relied on undocumented (or otherwise weakly protected) EU-07 labor before accession, enjoying greater employer leverage and rent extraction. Legalization erodes that leverage by expanding workers' outside options and legal mobility, thus inducing firms to regularize them.

Turning to managerial composition, we find that the employment response of EU-07 workers is larger in firms with at least one migrant manager, whereas the increase in the EU-07 share on permanent contracts is concentrated in firms with only native (Italian) managers. A natural interpretation is that migrant managers have lower fixed and informational costs of tapping EU-07 labor after legalization—through better recognition of

it eliminates visa requirements for migrants from Romania and Bulgaria, rather than just affecting job-to-job transitions.

foreign credentials, language/network ties, and greater familiarity with compliance—so these firms expand hiring on the extensive margin. By contrast, native-managed firms adjust mainly on the retention margin: once EU-07 workers' outside options improve, they convert existing temporary arrangements into open-ended contracts to keep workers from leaving, but they do not expand hiring to the same extent.

Lastly, we analyze the impact of the change in migrants' legal status on firms' performance. Despite the increase in firms' size, we find no changes in total revenues, and a reduction in per capita revenues and both total and per capita operative value-added, suggesting that the observed employment expansion is not associated with overall firm growth. This offers additional suggestive evidence that after the EU enlargement, firms have formalized existing informal employment relationships.

This paper makes three key contributions to the literature. First, we provide new evidence on how lifting labor restrictions affects the labor-market outcomes of migrant workers and increases their market power compared to firms (Amior and Manning (2025)). While previous work has documented the consequences of amnesties ((Fasani 2015, Elias et al. 2024, 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 more significant, permanent change in migrants' legal status that affected the largest immigrant group in the country. In this sense, our treatment closely resembles the one studied by Cascio and Lewis (2019). Unlike their focus on fiscal outcomes in tax data, we analyze an EU-wide legalization and trace firm-side adjustments in Italy using matched employer–employee data (hiring, separations, compensation, contract conversion, and business performance).

Second, our unique data sources allow us to track within-firm adjustments in response to the shock and to document the consequences of the change in migrants' status on a wide set of firm-level outcomes. The few papers in this area have mostly focused on the effects of high-skill migrants on firms (Dustmann and Glitz (2015); Ottaviano and Peri (2012); Mitaritonna et al. (2017); Ottaviano et al. (2018); Doran et al. (2022); Signorelli (2024)). A recent exception is represented by the work of Amuedo Dorantes et al. (2023), showing that US firms who are exogenously granted access to more temporary visas to hire low-skilled workers experience increases in performance and no negative impact on total labor costs or employment of other workers. Our setting differs along two key dimensions: (i) the policy is a permanent, status-wide legalization (EU-07 accession) rather than a program-specific, temporary visa channel; (ii) our outcomes

include matched worker–firm personnel margins in addition to firm performance.

Our paper instead focuses on a labor supply shock of low-skill migrants[5] and its effects on firms' outcomes. Thanks to the richness of our data, we can study the resulting changes in firm-level wages and employment dynamics, as well as in business performance measures, providing a wide-ranging collection of evidence.

More broadly, our results also provide novel evidence to the literature studying monopsony power arising from other forms of restrictions of workers' movement. Most closely, our results speak to the evidence of Johnson et al. (2025), who show how tightening legal constraints on mobility—e.g., via enforceable non-compete agreements—reduce job-to-job moves and penalize affected workers by reducing their outside options. Our results, albeit in a very different setting, provide the mirror image: a loosening of legal constraints that raises feasible matches and strengthens workers' outside options increases mobility and contractual conditions of affected migrants.

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 in Italy increased significantly from just 1 percent in the early 1990s to 9 percent by 2022 (Istat (2023)). This shift in migration patterns offers both economic and demographic opportunities for Italy, a nation grappling with declining fertility rates and an aging population.

However, concerns have arisen in recent years due to the combination of increased migration and sluggish economic growth. Many fear potential wage suppression and a shrinking pool of economic opportunities. Research by Alesina et al. (2022) indicates that Italians have some of the most significant misconceptions about migration; for instance, respondents tend to overestimate the number of migrants in the country and their reliance on welfare.

In this context, Italy has implemented a demand-driven approach to immigration, primarily governed by Laws *40/1998* and *189/2002*. This legal framework mandates that

[5]The Italian National Institute of Statistics reports that in 2012 only 11 percent of foreigners living in Italy had completed a bachelor's degree or more (available at: http://dati.istat.it/Index.aspx?QueryId=24433). This estimate does not include data on undocumented workers, which is likely to further decrease the share of highly educated migrants.

economic migrants enter the country with a valid work permit. Each year, the national government determines the number of available work permits based on region and contract type (seasonal or non-seasonal) and may restrict access to migrants from specific countries. Firms must submit permit applications *before* migrants arrive in Italy. Once approved, these migrants, sponsored by their employers, are eligible to enter the country and work legally for two years, with the possibility of renewing their permits for an additional two years. Should they lose their initial job, migrants face a six-month unemployment limit, after which they are required to leave Italy.

Since the implementation of this system, the quota for work permits has consistently been set at levels significantly lower than demand. For instance, in 2006, the quota was set at 170,000, yet over 500,000 applications were submitted. This disparity has led to a growing presence of undocumented workers.

To tackle this issue, Italy, like other European countries, periodically introduced a one-off random selection process for firms and migrants eligible for work permits, which largely depends on the speed of application submissions during designated "click-days" (for further details, see Pinotti (2017)). These one-off general amnesties allow undocumented workers to obtain temporary work permits. Applications for an amnesty must be submitted by employers: a successful outcome grants the same permit status as under the quota system described above.

The number of individuals impacted by these legalization episodes has significantly increased over the years. The most recent amnesty prior to the 2007 EU enlargement occurred in 2002 and was the largest in Italy's history, resulting in over 600,000 foreign workers transitioning from the informal labor market into formal employment.

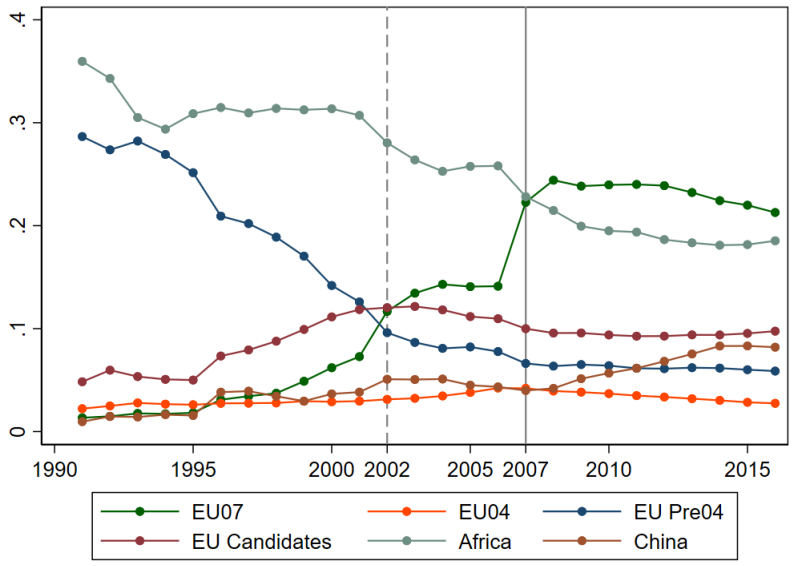
Since Italy is a member state of the EU, Italian immigration legislation does not apply to EU citizens, who enjoy free access to the Italian labor market. Consequently, EU enlargements have altered the pool of potential legal migrants over time. When a new country joins the EU, its citizens gain the right to reside and work in any member state.[6]

The two largest enlargements to date occurred in 2004 and 2007, both of which extended EU membership to Eastern European countries. In 2004, the following countries entered the EU: Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, and Slovenia. In 2007, Bulgaria and Romania entered the EU.

[6]There are some exceptions; for example, countries like the UK and Germany implemented temporary restrictions on workers from Eastern European nations upon their entry into the EU. These restrictions typically limited freedom of movement in certain economic sectors.

Figure 1 illustrates the evolving composition of migrant workers by citizenship 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 (Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, and Slovenia), "EU Pre04" includes countries that were EU members prior to 2004, "EU Candidates" include Albania, Bosnia, Croatia, Iceland, Kosovo, Macedonia, Montenegro, Serbia, and Turkey.

The 2004 EU enlargement had a limited impact on the Italian labor market, as most workers from the new member states migrated to other, more prosperous countries, such as Germany. By contrast, Romania's accession to the European Union in 2007 represented a turning point for migrant workers in Italy. The increase in the Romanian workforce in Italy was substantial, even relative to other European labor markets. To illustrate this, Table A1 in the appendix reports annual Romanian inflows to Italy and Germany, one of the largest EU labor markets and a major destination for migrants. While inflows to Germany were present and steady over the years, they were more gradual and contained compared to the sharp rise observed in Italy.
As shown in Figure 1, EU07 workers already constituted the second-largest immigrant group in Italy prior to 2007. This is almost exclusively driven by the heavy presence of workers from Romania, due to the strong linguistic similarities between the two

countries. Additionally, they represented the largest group of migrants affected by the 2002 amnesty.

Figure 1 also shows a marked increase in the share of EU07 migrants in 2007, as anticipated. Notably, there was no unusual rise in the presence of EU07 workers in 2006, indicating the absence of anticipation effects, at least within the formal labor market. This finding is not surprising, given that work permits are typically approved in the fall; thus, the impact of the EU07 expansion announcement in December 2005 would not have been reflected until the latter months of 2006.[7] While Romanian and Bulgarian migrants were granted immediate freedom of movement in Italy, their access to the labor market in certain sectors faced delays.[8] Nevertheless, all major employment sectors for Romanian workers—most notably construction, tourism, and services—were fully accessible from the start.

As shown in Figure 1, no other groups of migrants experienced a similar sudden increased presence in Italy. The countries labeled as "EU Candidates" are grouped together in this classification because they too are geographically European, but not EU member states (as of 2007). Albania, for instance, even has a significant history of migration to Italy over the past 20 years. These countries share similarities with Romania and Bulgaria and have been candidates for EU membership, or have been considered as potential candidates, by 2007 without a realistic prospect of accession in the near future. Workers from these countries serve as a useful counterfactual for EU migrants, as their legal status remains unchanged throughout the period under study. If the observed migration patterns were driven by factors other than the EU enlargement, it would be reasonable to expect workers from these countries to respond similarly to those from EU07 countries. However, that has not been the case. This strongly suggests that the surge in the share of Bulgarian and, more notably, Romanian workers was primarily driven by their accession to the EU.

[7]The lack of an anticipatory response is further supported by aggregate 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.

[8]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 (https://www1.interno.gov.it/mininterno/export/sites/default/it/sezioni/sala˙stampa/notizie/europa/app˙notizia˙23478.l

2.1 EU enlargement vs. amnesties: different labor-market implications

The labor-market implications of an EU enlargement are markedly distinct from those of previous regularization episodes that arose from general amnesties.

First, both amnesties and quota permits require migrants to secure a sponsoring employer. This means that if a migrant wishes to change jobs, they must obtain formal consent from their current employer, a situation likely to create lock-in effects and severely limit mobility (Naidu et al. 2016).

Second, amnesties and quotas provide only temporary work permits valid for two years and impose a six-month limit on unemployment. In contrast, EU citizens can seek the most suitable job matches and favorable employment conditions, granting them permanent access to the labor market.

Third, amnesties necessitate proof of a prior (informal) employment relationship with the sponsoring employer, while the legal status change resulting from EU enlargement applies broadly to all individuals, regardless of their previous employment status or history.

Overall, EU citizenship allows for greater job, sector, and geographic mobility while also granting strong status security. These considerations point to EU enlargements having potentially different economic impacts from the more commonly studied one-time amnesties.

3 Data and sample

We use two sources of high-quality, restricted-access administrative data provided by the Italian Social Security Institute (INPS). First, we use a panel of matched employer-employee records of the universe of non-agricultural firms with at least one employee. The data account for 74 percent of private employment in Italy and 93 percent of private-sector employees. Additionally, we incorporate CERVED data, which provide detailed firm-level balance-sheet information for the universe of companies registered with the Chamber of Commerce in Italy.[9]

For each worker-firm record, the INPS data provide information about the beginning

[9]These data represent the Italian segment of firms present in ORBIS (Aida).

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) for all workers employed in the firm. Moreover, we also have access to rich demographic information for each worker, such as gender, age, nationality, and municipality of residence. On the firms' side, we observe the sector and industry in which the firm operates,[10] geographic location, and firm creation and destruction dates (which we will refer to as entry or exit in the labor market).

From this data, we construct our key outcomes of interest, all measured at the firm level. We analyze employment and wage dynamics for two distinct groups: EU07 workers, whose legal status is changed by EU enlargement, and native workers. We examine the relative employment for each group as a share of total firm employment. The richness of the data also enables us to investigate changes in hiring and separation rates for these groups. We further investigate the effects on average wages for each group relative to firm-level wages, which allows us to capture differences in relative pay across groups. Lastly, we estimate the effects of the EU enlargement on the share of workers who have a permanent (or open-ended) contract, which is a very desirable feature in the Italian labor market.

Given the high prevalence of very small firms in Italy, the CERVED dataset only covers about one-third of the firms present in the INPS-matched employer-employee dataset. While this causes a significant reduction in the sample size for our analysis of business outcomes, it still presents us with the unique opportunity to study key measures of firm performance that are usually not available in combination with the type of detailed labor-market micro data we utilize in this paper.

We use balance sheet data to estimate the impact of the EU enlargement on labor costs, revenues, and operational value-added. These outcomes are important in their own right, but analyzing them also sheds light on the mechanisms driving labor-market effects. When combined with the previously discussed firm-level impacts on the workforce, these business performance patterns provide valuable insights into the composition and dynamics of the migrant labor force.

Throughout the paper, we estimate 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.

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

These areas are designed to capture regions characterized by a shared labor market. Italy has 611 such local labor markets, and these provide the geographic variation used in our analysis. By focusing on these areas, we can isolate variation in the supply of EU07 workers that is plausibly exogenous at the local level, as they are not influenced by administrative differences, while still reflecting the economic conditions faced by individual firms.

3.1 Sample

Our analysis concentrates on the years 2004 to 2009. We exclude the years prior to 2004 to avoid capturing the dynamic effects of the 2002 amnesty.[11] 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 only 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 consistently present and employed at least one worker during our period of interest (2004-2009).[12] Our final sample comprises 779,552 firms, representing approximately 47 percent of the firms in the full dataset.

Table 1 presents descriptive statistics for the firms in our sample from 2006, the year prior to the EU07 enlargement. On average, firms in our sample employ 11 individuals. These firms typically employ 10 native workers and 0.1 EU07 workers. Although the difference in numbers is not statistically significant, EU07 workers earn, on average, wages that are 10 percent lower than those of their native counterparts.

As indicated by the data below, not all firms employed EU07 workers. However, a non-negligible share did: 9 percent of firms employed one or more EU07 workers, while 95 percent had at least one native worker. Firms that employed at least one EU07 worker were larger on average, yet the mean wages for native workers were comparable

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

[12] Nonetheless, we also examine the effect of our treatment on firm entry and exit and find no significant impact, providing reassurance that our sample restriction is unlikely to be affected by selection bias.

Table 1
Firm-level summary statistics

	Mean Employment	Mean Wages
All workers	11.3	418.8
	(156.3)	(136.1)
Native workers	10.4	423.2
	(146.5)	(138.7)
EU07 workers	0.1	383.0
	(2.2)	(108.1)
Number of firms	779552	779552

Notes: Summary statistics for outcomes measured in 2006 for the universe of firms in our sample.

to those in the rest of the sample.

4 Empirical strategy

To estimate the causal effect of EU07 enlargement-induced labor supply shocks on firm-level outcomes, we adopt an instrumental variable difference-in-differences (IV-DID) approach. This empirical strategy integrates two complementary components designed to address specific identification challenges and capture the dynamics of firm responses over time.

We implement a difference-in-differences specification that leverages both temporal variation in outcomes and geographic variation in treatment intensity, while controlling for firm-, sector-, and region-specific trends. This approach allows us to examine both the immediate and medium-term adjustments that firms make in response to labor supply shocks. The difference-in-differences framework is particularly well-suited to our context because it accounts for time-invariant unobserved heterogeneity across firms and regions while isolating the effect of the migration shock.

Second, to address potential endogeneity concerns—such as the possibility that local economic shocks simultaneously influence both migrant inflows and firm outcomes—we implement an instrumental variable strategy. Specifically, we instrument the change in EU07 migrant shares observed in 2006-2007 with the analogous change that occurred during a previous exogenous shock: the 2001-2002 general amnesty for informal migrant

workers. This historical migration episode provides plausibly exogenous variation that predicts the spatial distribution of EU07 migrants following the enlargement, without being directly influenced by contemporaneous local economic conditions.

In the following subsections, we provide a detailed discussion of the key empirical choices underlying our analysis. We begin by explaining why a first-difference specification is preferred over alternative approaches, emphasizing both conceptual and econometric considerations. We then justify our selection of the treatment variable, demonstrating why the change in migrant shares best captures the labor-market shock experienced by firms. Finally, we describe our instrumental variable strategy in detail, including the construction of the instrument and a series of validation tests that support its validity.

4.1 First-difference framework

To trace the dynamic effects of the EU07 enlargement shock, we implement a first-difference specification within a dynamic difference-in-differences framework. Specifically, we regress the change in outcome Y for firm f between years t and $t-1$ on the 2007-2006 change in the EU07 migrants' share in the corresponding local labor market l:

$$\Delta Y_{ft} = \sum_{t=2005}^{t=2009} \beta_t D_t \times \Delta Share\widehat{EU}07_{07-06,l} + \delta_{dt} + \delta_{st} + \delta_{rt} + \varepsilon_{ft} \tag{1}$$

In this specification, $\Delta Share\widehat{EU}07_{07-06,l}$ is the instrumented treatment variable, δ_{dt} are time-varying effects for firm size, δ_{st} are sector-specific time trends,[13] δ_{rt} are regional trends for Italy's 20 administrative regions, 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[14].

The choice to use a first-difference model rather than a levels specification is critical

[13]Sectors 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.

[14]Specifically, 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 (see Legislative Decree 276/2003 and National Collective Bargaining Agreements, CCNL).

for our identification strategy, and this choice is motivated by both conceptual and econometric considerations. Conceptually, changes in labor supply over time are far more informative for understanding labor market adjustments than the level of labor supply observed at a single point in time. A levels regression-one that regresses the share of EU07 migrants on any outcome Y measure at time t, but otherwise similarly specified as equation 1-would fail to capture the true impact of the migrant shock. Such a specification would only reflect the level of immigrant labor supply after the EU enlargement, rather than isolating the effect of the *change* in the available documented immigrant labor supply. However, it is the sudden change in migrant share, such as that induced by the EU enlargement, that creates a labor-market shock prompting firms and workers to adjust their behavior. These dynamic responses to changing labor market conditions are precisely what we aim to measure, and they cannot be adequately captured by examining static levels alone. Put differently, the relevant economic question concerns how firms respond when the composition of the local labor force shifts suddenly, not what the steady-state relationship is between immigrant presence and firm outcomes.

More importantly, from an econometric perspective, a levels regression would fail to control for persistent, unobserved factors that are not captured by the available controls in our dataset and may be correlated with both the local presence of immigrants and firm performance, thereby generating omitted variable bias.

To test this theoretical argument empirically, we compare the properties of residuals from the first-difference model with those from a levels one. Specifically, we examine the correlations between residual errors across consecutive years in the two models. In Figure A2, we find that the residuals from the first-difference model show no significant correlation across time, whereas the residuals from the levels regression exhibit substantial positive autocorrelation. This suggests that the latter specification fails to fully isolate the impact of the migration shock from other unobserved factors. Ultimately, the observed autocorrelation reflects unaccounted-for persistence in firm-level outcomes, which leads to bias in the treatment effect estimates.

In contrast, the first-difference approach, by focusing on changes in outcomes between consecutive years, effectively removes all time-invariant unobserved heterogeneity at the firm level, including any persistent firm characteristics that might be correlated with local immigrant concentrations. This transformation ensures that our estimates capture the causal effect of the migration shock on the *change* in firm outcomes, rather

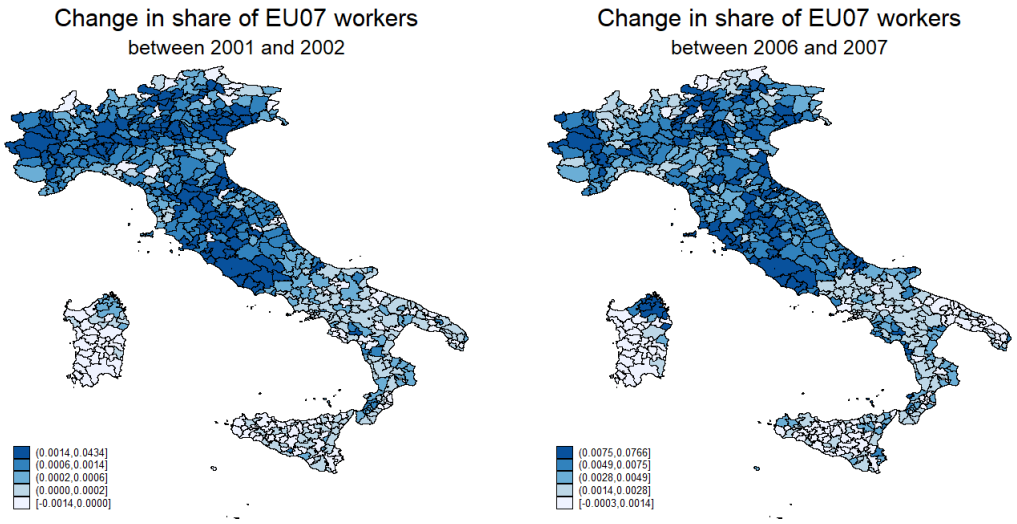
than conflating treatment effects with pre-existing differences across firms or locations. Consequently, the first-difference specification provides a more reliable foundation for estimating the causal effects of interest.

4.2 Treatment variable

Given that our first-difference specification focuses on changes in migrants' presence rather than levels at a single point in time, the relevant labor market shock is best captured by the difference between the share of EU07 workers in 2007 and 2006, as this measure directly reflects the sudden change in labor supply that firms within each local labor market actually experienced. This approach aligns with the conceptual framework discussed above: it is the *change* in the availability of documented EU07 workers that constitutes the exogenous shock to local labor markets.

Figure 2 illustrates the spatial variation in these changes across Italian local labor markets for two distinct migration episodes: the period 2001-2002 (corresponding to the general amnesty for informal workers) and the period 2006-2007 (corresponding to the EU enlargement). The maps clearly demonstrate substantial geographic heterogeneity in the intensity of migrant inflows during both episodes, with some local labor markets experiencing large increases while others saw minimal changes. This spatial variation forms the basis for our identification strategy, as it allows us to compare the outcomes of firms located in high-exposure areas with those in low-exposure areas.

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



Notes: The maps show local labor markets in Italy. Left: change in migrant share between 2001-2002. Right: change in migrant share between 2006-2007. Colors indicate the magnitude of the change.

We considered several alternative measures for our explanatory variable, but ultimately rejected them due to significant conceptual and practical limitations. First, we considered using the absolute number of EU07 migrants in each local labor market. However, this measure is problematic because it is mechanically correlated with geographic characteristics such as total population size and labor market composition. Larger local labor markets will naturally attract more migrants in absolute terms, even if the increase relative to the existing labor force is modest. Using absolute numbers would therefore confound the effect of the migration shock with underlying differences in local labor market size, making it impossible to isolate the causal effect of interest. Moreover, the economic relevance of a given absolute increase in migrants clearly depends on the size of the local labor market: an influx of 1,000 workers represents a far more significant shock in a small labor market than in a large metropolitan area.
Second, we considered using the percentage growth rate in the share of EU07 migrants as our treatment variable. While this measure has some intuitive appeal, it can be highly misleading in our context. Specifically, percentage growth rates can produce disproportionately large values in areas with very small initial stocks of migrants, potentially overstating the economic relevance of these changes. For example, an area with virtually no EU07 migrants in 2006 might experience a growth rate of several hundred percent following the enlargement, yet the absolute increase in the share of

EU07 workers might still be negligible. Such a change, while representing high percentage growth, is unlikely to constitute an economically meaningful shock to the local labor market or to materially affect firm behavior.

This concern is not merely hypothetical. Empirically, we observe that areas with lower initial shares of EU07 workers in 2006 tended to experience relatively larger inflows during 2006-2007. This pattern is consistent with the geographic diffusion of migrants following the enlargement, as newly documented workers sought opportunities beyond the traditional destination areas.

To directly address this concern, we computed growth rates in the share of EU07 migrants and present the resulting spatial patterns in Figure A3 in the appendix. When compared to our preferred measure, the observed geographical patterns reveal significant differences in what would be the resulting characterization of treatment intensity across labor markets. Such discrepancies could substantially distort our interpretation of the economic effects of the EU enlargement.

In contrast, the absolute difference in the share of EU07 workers relative to the total local population provides a more economically meaningful characterization of treatment intensity. It captures both the direction and the magnitude of the shock in units that are directly interpretable and comparable across local labor markets of different sizes. This measure appropriately balances concerns about both the relative and absolute dimensions of the migration shock, ensuring that areas classified as high-treatment are those where firms and workers actually faced a substantial change in labor market conditions.

4.3 Instrumental variable strategy

While the difference-in-differences framework addresses many potential sources of bias, important endogeneity concerns remain. Most critically, the spatial distribution of EU07 migrants following the 2007 enlargement may not be entirely exogenous to local economic conditions. Areas experiencing positive economic shocks, such as rising labor demand or expanding industries, might simultaneously attract more migrants and generate improvements in firm outcomes through channels unrelated to the migration shock itself. This would bias our estimates upward, as we would incorrectly attribute to the migration shock effects that actually stem from underlying economic trends.

Hence, we implement an instrumental variable strategy. Specifically, we instrument the change in EU07 migrant shares between 2006 and 2007 with the analogous change

observed during a previous exogenous migration episode: the change in EU07 migrant shares between 2001 and 2002. This earlier period corresponds to the implementation of a large-scale general amnesty for migrant workers who were previously employed in the informal labor market. Many of the affecting workers were from Romania and Bulgaria, resulting in a sudden increase in the documented EU07 workforce across Italian local labor markets.

The 2001-2002 amnesty serves as a powerful instrument for several reasons. First, the amnesty was a nationwide policy implemented at a specific point in time, making it plausibly exogenous to contemporaneous local economic conditions in 2006-2007. The spatial distribution of newly legalized EU07 workers in 2001-2002 reflected the geographic settlement patterns that had emerged during the 1990s, which in turn were shaped by historical factors, migration networks, and earlier policy decisions. These settlement patterns are unlikely to be directly influenced by economic shocks occurring five years later.

Second, the amnesty provides relevant predictive power for the spatial distribution of EU07 migrants following the 2007 enlargement. Local labor markets that experienced large increases in documented EU07 workers during the 2001-2002 amnesty were likely to receive disproportionately large inflows in the following years, due to the strength of established migrant networks and communities.

Third, and crucially for the validity of the exclusion restriction, the effects of the 2001-2002 amnesty on local labor markets were likely to have dissipated by 2006-2007. Any direct impact of the one-time amnesty on firm outcomes would have materialized shortly after legalization and would have faded over the subsequent years as labor markets adjusted to the new equilibrium. Consequently, the change in EU07 shares during 2001-2002 should affect firm outcomes in 2006-2009 only through its influence on the spatial distribution of migrants following the 2007 enlargement, and not through any persistent direct effects on local economic conditions[15].

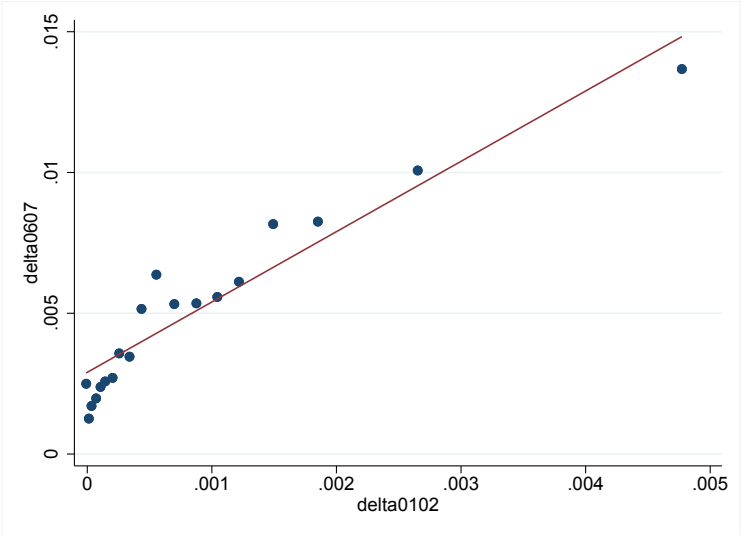
Formally, we construct both the treatment variable and the instrument by computing the shares as the number of Romanian and Bulgarian workers in the relevant given year divided by the local population in 1991. This choice serves two important purposes. First, it avoids potential confounding effects that could arise from endogenous population growth between 1991 and our study period. If we instead used contemporaneous population as the denominator, areas experiencing population growth (whether due to

[15]Nonetheless, we test this hypothesis in Table A1, as discussed shortly.

native population increases, internal migration, or immigration from other countries) would mechanically show smaller changes in EU07 shares, even if the absolute inflow of EU07 workers was similar to areas with stable populations. Second, since immigration to Italy was still a very small-scale phenomenon in 1991, using this early population baseline ensures that our measures are not contaminated by subsequent immigration patterns that might themselves be correlated with local economic conditions. This approach allows us to avoid spurious correlations caused by endogenous growth in either the native or the overall immigrant population.

Figure 3 shows the binned scatter plot illustrating the first-stage relationship between the 2001-2002 and 2006-2007 changes. The figure provides compelling visual evidence of a strong, positive correlation between the two measures. Local labor markets that experienced large increases in EU07 migrant shares during the 2001-2002 amnesty consistently experienced similarly large increases during the 2006-2007 enlargement, while areas with small changes in the earlier period tended to see small changes in the later period as well. First-stage regressions (not shown) confirm the strong predictive power of the instrument, with F-statistics well above conventional thresholds for weak instrument concerns.

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 associated with the EU enlargement in 2006-2007 (y-axis), measured as a share of the 1991 total local labor market population.

Following the approach of Mitaritonna et al. (2017), we further support the validity of the chosen instrument by showing that pre-2002 economic shocks do not predict the instrument. Panel A of Table A1, examines whether pre-2002 economic trends predict our instrument, thereby testing whether historical economic shocks might confound our results. Specifically, the panel shows that changes in local labor-market outcomes between 1992-1997 do not significantly correlate with the instrument, alleviating concerns about confounding trends. The results provide reassuring evidence that pre-existing economic trends do not predict the geographic distribution of newly legalized migrants during the 2001-2002 amnesty.

Panel B examines a different potential threat: the possibility that the 2001-2002 amnesty had persistent direct effects on local labor markets that continued to influence firm outcomes during our study period. If such persistent effects exist, the instrument might affect firm outcomes through channels other than the 2006-2007 migration shock, thereby violating the exclusion restriction. The results indicate that areas which experienced large increases in documented EU07 workers during the amnesty did not subsequently experience differential trends in aggregate labor market outcomes during the years leading up to the 2007 enlargement. This finding suggests that any direct effects of the 2001-2002 amnesty on local labor markets had largely dissipated by the time of the EU enlargement, consistent with the notion that labor markets had adjusted to the post-amnesty equilibrium by 2006. Consequently, the instrument is unlikely to affect firm outcomes in 2006-2009 except through its influence on the geographic distribution of migrants following the 2007 enlargement.

Taken together, the absence of correlation between the instrument and both pre-amnesty trends and post-amnesty but pre-enlargement changes in labor market outcomes suggests that the 2001-2002 change in EU07 shares provides plausibly exogenous variation for identifying the causal effects of the 2007 enlargement. This evidence, combined with the strong first-stage relationship documented in Figure 3, supports our use of the IV-DID framework as a credible approach for estimating the firm-level impacts of the EU07 migration shock.

5 Results

This section presents the results of our analysis into how firms adjusted following the 2007 EU citizenship acquisition by Bulgarian and Romanian workers. We begin by

examining firms' personnel choices regarding the relative employment of workers from different countries of origin, documenting how the composition of the workforce shifted in response to the policy change. We then investigate how wages and types of employment contracts changed for these groups of workers, exploring whether the newly acquired legal status of EU07 workers translated into improved compensation or job security. Finally, we analyze how these changes in personnel composition and payroll structures are reflected in firms' overall business performance, assessing whether the labor supply shock generated measurable effects on firm-level performance.

As noted earlier, our analysis focuses on a balanced sample of firms, i.e., firms that were continuously active and employed at least one worker throughout the period 2004-2009. Before presenting our main results, we demonstrate that restricting the sample in this way does not introduce selection bias.

Focusing on a constant set of firms ensures that the effects we identify reflect actual behavioral responses by existing firms to the migration shock, rather than changes in which types of firms are present in the market.

However, this sample restriction raises a potential concern. As documented by Mahajan (2024), immigration can substantially alter local business demography by reducing firm exit rates and stimulating establishment entry, largely because migrant inflows simultaneously expand both the local labor supply and the consumer base. If the EU07 enlargement similarly affected firm entry and exit patterns, then restricting our analysis to continuously operating firms might introduce selection bias, potentially obscuring important channels through which the migration shock affected local economies.

Thus, we directly test whether the change in EU07 migrant shares between 2006 and 2007 influences firm entry or exit rates. We apply the same instrumental variable difference-in-differences from specification 1 used throughout our analysis, and we measure firm entry and exit as the share of entering or exiting firms relative to the total number of firms in each local labor market.

The results, presented in Figure A4 in the appendix, reveal no statistically significant effects of the EU07 enlargement on either firm entry or exit rates. The point estimates are small in magnitude and statistically indistinguishable from zero across all years in our sample period. These findings provide reassurance that the employment, wage, and contract effects documented below reflect actual within-firm adjustments rather than compositional changes in the firm population.

5.1 Employment

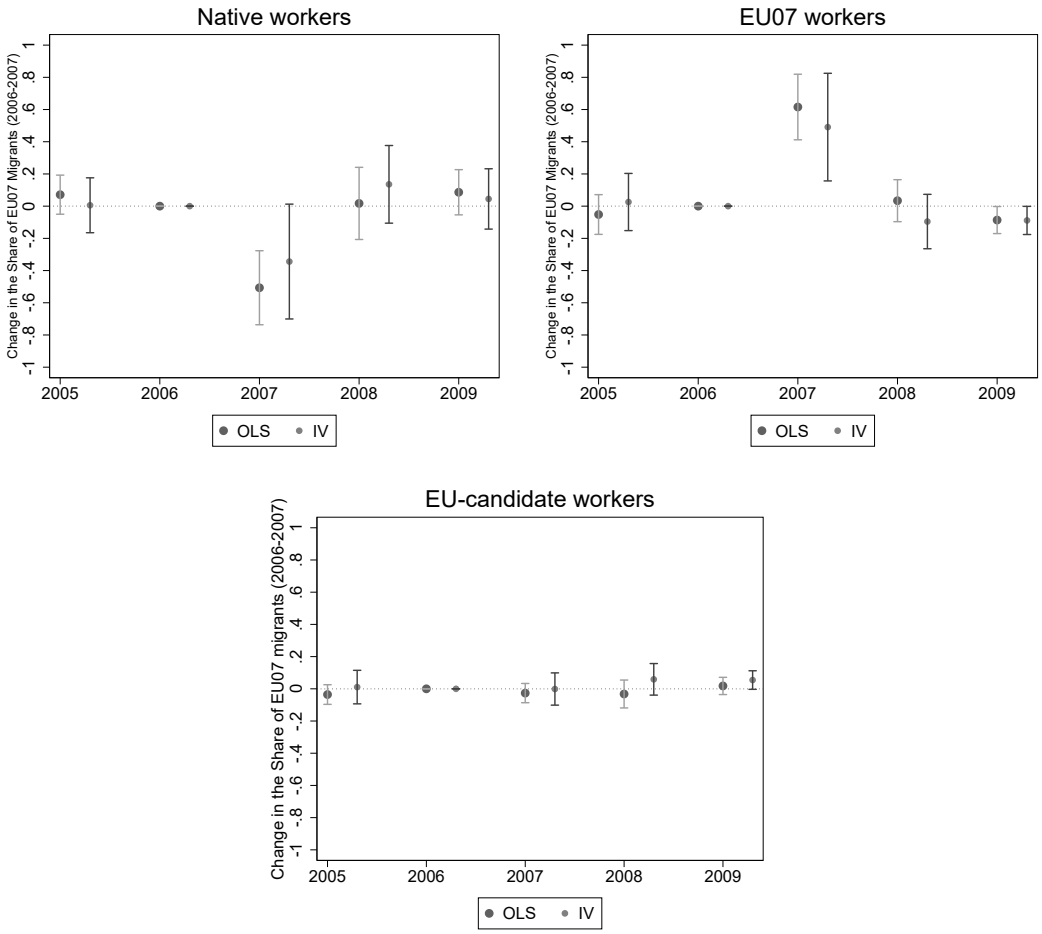
We begin our analysis of firm responses by examining changes in the composition of firms' workforces. Figure 4 presents estimates of how within-firm relative employment of different worker groups evolved in response to the EU07 enlargement. Following the dynamic difference-in-differences design specified in equation 1, we report coefficients on the interaction terms between our time indicators (defined at the year level) and the main treatment variable—the instrumented change in EU07 migrant shares between 2006 and 2007. For each outcome, we present both ordinary least squares (OLS) estimates and two-stage least squares (2SLS) estimates that account for potential endogeneity through our instrumental variable strategy.

The results reveal two contrasting patterns that illuminate how firms adjusted their hiring decisions in response to the policy change. First, examining the middle 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. The magnitude of this effect is substantial, indicating that firms in local labor markets with larger EU07 populations significantly increased their relative employment of these workers immediately following the enlargement. However, this initial surge does not persist or strengthen over time. By 2008, the estimated coefficient diminishes considerably in magnitude and becomes statistically indistinguishable from zero, suggesting that the initial substitution toward EU07 workers stabilized quickly. By 2009, we observe a slight negative effect on EU07 relative employment, though its magnitude remains economically negligible.

The left panel of Figure 4, displaying the effects on native worker employment, shows a precisely opposite trajectory. In 2007, we observe a significant decline in the relative employment of native workers. This negative effect indicates that firms in high-exposure areas reduced their relative hiring of native workers in the immediate aftermath of the legal status change. However, this displacement effect proves temporary: by 2008, the negative effect on native employment dissipates entirely, with point estimates returning close to zero and losing statistical significance. This pattern suggests that any initial substitution away from native workers was short-lived, possibly reflecting a temporary adjustment period as firms responded to the sudden expansion of the legally documented EU07 workforce.

To provide additional evidence that these employment effects reflect the consequences of the legal status change for EU07 migrants rather than broader trends affecting all

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



Notes: On the y-axis are the estimates of β from specification 1, showing the effect of interaction of the treatment variable with the time variable on relative employment for native, EU07, and EU-candidates workers. The coefficients represent the corresponding change in percentage points for a 1-unit increase in the share of EU07 migrant workers in a given local labor market. Robust standard errors are clustered at the local labor-market level.

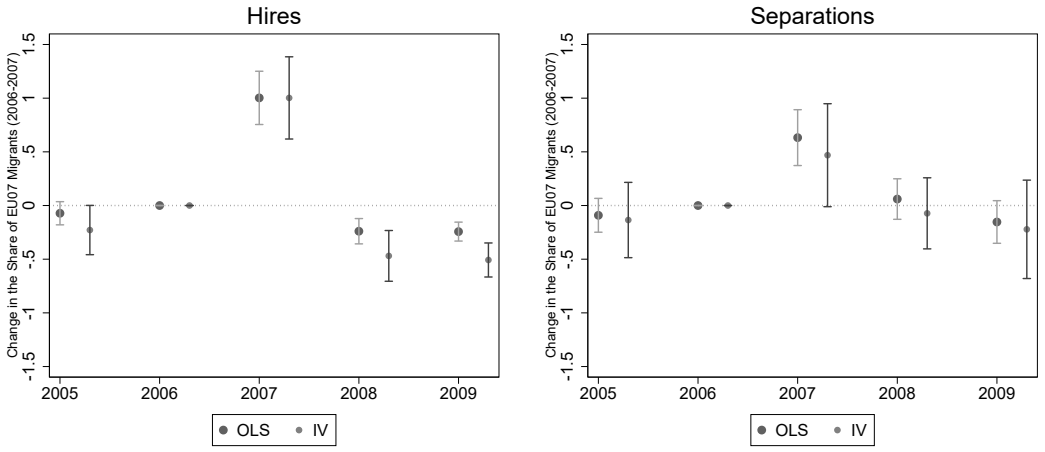
immigrant groups, we examine employment changes for workers from EU candidate countries. These workers, who did not experience any change in legal status in 2007, serve as a valuable comparison group. The third panel of Figure 4 shows that workers from EU candidate countries experienced no significant impact on their relative employment in any year. The point estimates fluctuate around zero with no discernible pattern, and none achieve statistical significance. This null result strengthens our interpretation that the observed effects for EU07 and native workers stem specifically from the legal status change, which made EU07 workers more similar to native workers

in terms of labor market rights and mobility, thereby increasing their substitutability with native workers while leaving other immigrant groups unaffected.

Before proceeding to examine the mechanisms underlying these employment effects, it is crucial to clarify the interpretation of our estimates. Our first-difference specification compares changes in outcomes in each year relative to the baseline change observed between 2005 and 2006—the year immediately preceding the EU enlargement. Consequently, our coefficients should be interpreted as showing how the year-to-year change in each outcome in a given year differs from the year-to-year change that occurred between 2005 and 2006.

To make this concrete, consider the context of overall employment growth. The results shown in Figure 4 indicate that in the immediate aftermath of the EU enlargement, the relative employment share of EU07 workers grew more rapidly than it had been growing in the pre-enlargement period (2005-2006), while the relative employment share of native workers experienced slower growth—or even decline—compared to the pre-enlargement growth rate. Thus, our estimates capture accelerations or decelerations in employment trends rather than absolute levels. This interpretation applies throughout our analysis.

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 interaction of the treatment variable with the time variable on relative hires and separations for EU07 workers. The coefficients represent the corresponding change in percentage points for a 1-unit increase in the share of EU07 migrant workers in a given local labor market. Robust standard errors are clustered at the local labor-market level.

To better understand the mechanisms driving the overall employment effects docu-

mented above, we decompose employment changes into their constituent parts: hiring decisions and separation patterns. This decomposition reveals whether the observed employment shifts primarily reflect firms' active hiring choices, differential rates at which workers leave firms, or some combination of both channels.

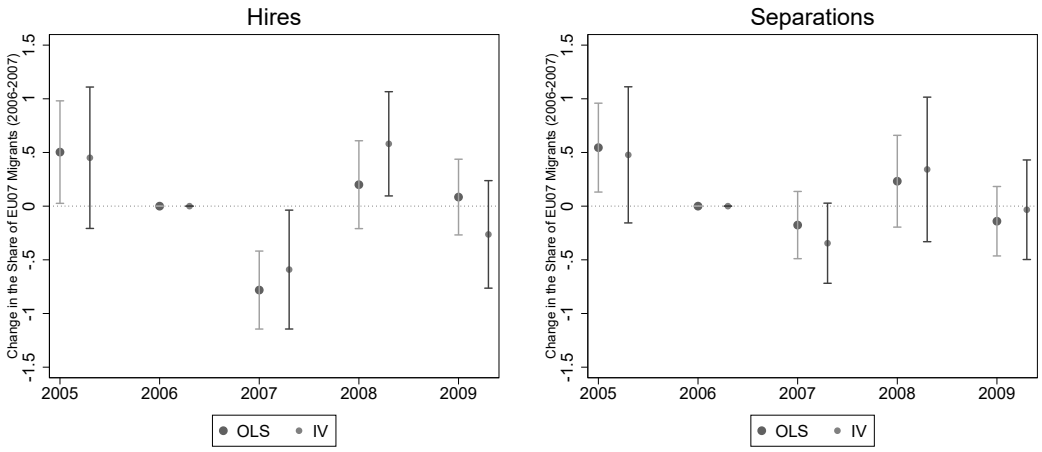
Figure 5 examines the hiring and separation dynamics of EU07 workers, with both outcomes expressed as shares of total firm employment. The left panel reveals a dramatic and significant increase in EU07 hires in 2007, with the magnitude of this hiring surge approximately twice as large as the observed effect on the net relative share of EU07 workers in total employment. This substantial discrepancy between gross hiring flows and net employment changes is explained by the pattern shown in the right panel: we observe a correspondingly substantial rise in separations among EU07 migrants in 2007.

This pattern of simultaneously elevated hiring and separation rates indicates markedly higher labor market dynamism among EU07 workers in the immediate aftermath of the legal status change. The data suggest that many EU07 workers transitioned between firms during this period, taking advantage of their newly acquired mobility rights. This interpretation aligns perfectly with the institutional change brought about by the EU enlargement: prior to 2007, EU07 workers' employment was typically tied to employer-sponsored work permits, which created significant barriers to job mobility. The removal of these restrictions in 2007 effectively eliminated employer monopsony power over EU07 workers, allowing them to search for better employment opportunities and move freely between firms without jeopardizing their legal status.

Interestingly, the hiring trend reverses markedly in the medium term. In both 2008 and 2009, we observe notable and statistically significant declines in the relative share of EU07 hires. This reversal suggests that after an initial period of heightened churning and reallocation, the EU07 workforce stabilized. By 2008-2009, firms had adjusted to the new equilibrium, and EU07 workers had sorted into their preferred employment arrangements, reducing the need for continued high rates of job-to-job transitions.

Figure 6 examines the corresponding hiring and separation patterns for native workers. The left panel shows that in 2007, there was a significant negative change in the share of native worker hires—mirroring the surge in EU07 hiring documented above. This displacement in hiring indicates that firms actively substituted toward newly mobile EU07 workers and away from native workers in their recruitment decisions.

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 interaction of the treatment variable with the time variable on relative hires and separations for native workers. The coefficients represent the corresponding change in percentage points for a 1-unit increase in the share of EU07 migrant workers in a given local labor market. Robust standard errors are clustered at the local labor-market level.

However, this substitution in hiring proves temporary. The trend reverses in 2008 and 2009, with the coefficients becoming positive (though not always statistically significant), suggesting that native hiring rates recovered or even exceeded their pre-enlargement change rates in the years following the initial shock. In the right panel we observe no significant changes in native worker separation rates in any year. The absence of effects on separations indicates that firms did not lay off or differentially retain native workers in response to the EU07 shock; rather, the adjustment occurred entirely through the hiring margin.

Synthesizing the evidence from both EU07 and native worker flows, we can conclude that in 2007, firms in high-exposure areas favored hiring EU07 workers over native workers in the formal sector, leading to the temporary displacement of native hiring documented in Figure 6. This shift in hiring preferences can be attributed to complementary factors.

First, the change in legal status for EU07 workers fundamentally altered their position in the labor market. Prior to 2007, these workers faced significant constraints on their mobility and bargaining power due to their dependence on employer-sponsored work permits. The legal status change eliminated these constraints, enhancing EU07 workers' bargaining power and making them more comparable to native workers in

terms of employment rights, job mobility, and legal protections. From the perspective of employers, this transformation reduced the distinctions between EU07 and native workers, increasing their substitutability.
Second, and perhaps more importantly, the fact that we observed a significant displacement effect only in the first year of the EU enlargement, suggests that many EU07 workers were likely already employed by Italian firms prior to 2007, albeit informally. Consequently, the observed surge in EU07 hiring in 2007 likely reflects, at least in part, the transition of existing informal employment relationships into formal, documented positions. This formalization process would naturally explain the measured increase in EU07 hires and the simultaneous the temporary slowdown in native hiring.

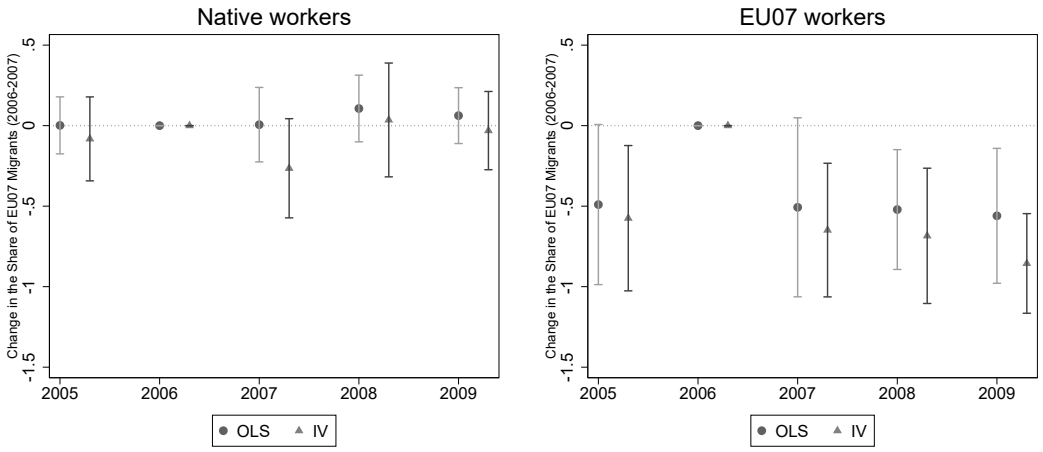
5.2 Wages and types of contracts

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

5.2.1 Wage Effects

Figure 7 presents evidence on how the EU07 enlargement affected wages for native and EU07 workers. The results indicate that the legal status change had no statistically significant impact on wage changes for either group of workers. Across all years in our sample period, the point estimates fluctuate around zero with no consistent pattern, and none of the coefficients achieve statistical significance. This null result holds for both native workers (left panel) and EU07 workers (right panel), suggesting that wages remained largely unaffected by the migration shock.

Figure 7
Firm-level wage, native and EU07 workers



Notes: On the y-axis are the estimates of β from specification 1, showing the effect of interaction of the treatment variable with the time variable on relative wages for native and EU07 workers. The coefficients represent the corresponding change in percentage points for a 1-unit increase in the share of EU07 migrant workers in a given local labor market. Robust standard errors are clustered at the local labor-market level.

Furthermore, unlike the employment results discussed previously, we observe no notable temporal differences in wage changes across years. The absence of any clear dynamic pattern suggests that wages did not serve as the primary adjustment mechanism through which labor markets responded to the EU07 shock. Hence, we focus our discussion on the overall pattern rather than year-specific dynamics.

At first glance, the absence of positive wage effects for EU07 workers might seem surprising. After all, the legal status change substantially enhanced these workers' bargaining power by eliminating their dependence on employer-sponsored work permits and granting them full labor market mobility. Economic theory would typically predict that such an increase in bargaining power should translate into higher wages, particularly if employers had previously been able to extract monopsony rents from workers whose mobility was constrained.

However, several factors help explain why we do not observe significant wage increases for EU07 workers following the enlargement. First, it is important to recognize that the point estimates for EU07 wages, while negative in some specifications, are not statistically distinguishable from the pre-existing trends observed before 2007. This lack of statistical significance suggests that any apparent wage declines are more likely at-

tributable to sampling variation or pre-existing trends rather than causal effects of the policy change.

Second, the reported estimates capture averages across all legally employed EU07 workers, which may mask important heterogeneity within this population. Specifically, if a substantial subset of EU07 workers had previously been employed informally, then their transition into formal employment in 2007 might have involved complex wage dynamics. Some of these newly formalized workers may have experienced wage increases relative to their previous informal earnings, particularly if formalization came with additional benefits such as social security contributions, health insurance, or legal protections. However, these same workers might still earn less than long-tenured EU07 workers who had been employed formally for many years and had accumulated experience and seniority within the formal labor market. The presence of both groups within our data could produce an average effect close to zero, even if some individuals experienced meaningful wage gains.

Unfortunately, due to the inherent limitations of the absence of information on undocumented or informal employment, this hypothesis regarding the composition of wage effects cannot be empirically verified. We cannot observe workers' pre-2007 informal wages, nor can we distinguish between workers who were newly formalized in 2007 and those who had long been employed formally. Consequently, while the compositional explanation is plausible and consistent with our findings, it remains speculative.

Third, and perhaps most importantly, our null wage results are entirely consistent with existing evidence from other large-scale migration episodes. Notably, Glitz (2012) examines the labor market effects of the massive inflow of ethnic Germans into Germany following the fall of the Berlin Wall and finds no significant effects on relative wages, despite the large scale of the migration shock. Glitz's findings highlight the persistence of initial labor market disadvantages faced by immigrants, who often enter employment in lower-wage occupations and segments of the labor market. Even when immigrants possess legal rights equivalent to those of natives—as ethnic German immigrants did, and as EU07 workers did after 2007—their initial position in the labor market may constrain their ability to capture wage gains. Factors such as language barriers, lack of recognition of foreign credentials, limited professional networks, and discrimination may all contribute to persistent wage gaps that are not immediately eliminated by legal status changes.

Beyond these composition and selection issues, institutional features of the Italian labor

market provide an additional explanation for the absence of wage effects. Specifically, the Italian labor market is characterized by pronounced wage rigidity, with nominal wages remaining relatively stable over time due to centralized wage-setting institutions. As documented by Faia and Pezone (2024), wage determination in Italy remains largely centralized, with sector- or industry-level collective bargaining agreements covering the vast majority of workers. These agreements establish minimum wages and standard wage scales that apply broadly within each sector, leaving relatively little room for firm-level wage bargaining or individual wage negotiation.

Given this institutional context, wage adjustments are unlikely to be the primary channel through which workers, native or immigrant alike, capture gains from changes in labor market conditions. Instead, workers may seek improvements in other dimensions of employment that offer greater flexibility and are not constrained by collective agreements. These alternative dimensions might include job stability, contract type, working conditions, opportunities for advancement, or non-wage benefits. The next subsection explores one particularly important margin of adjustment in the Italian context: the transition from temporary to permanent employment contracts.

5.2.2 Contract Type and Job Security

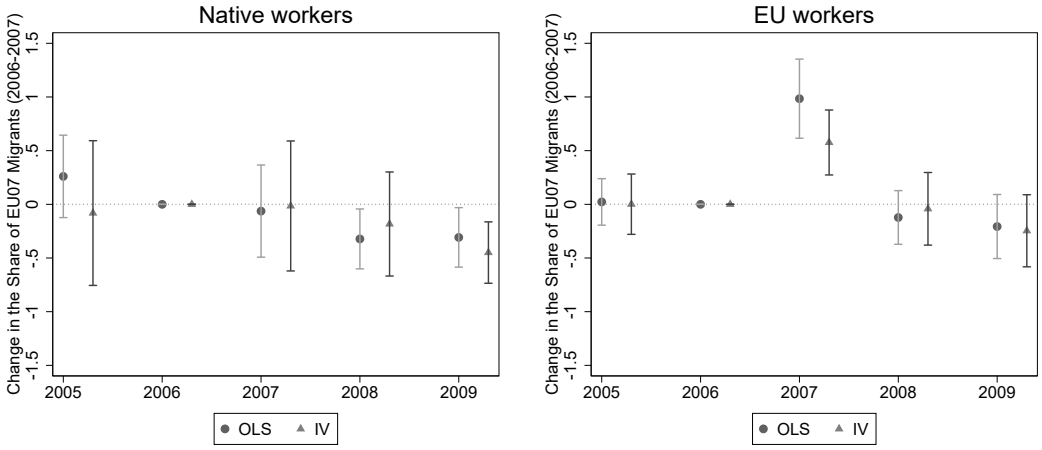
A distinctive and economically important feature of the Italian labor market is its dual structure, which sharply distinguishes between workers employed under permanent contracts and those employed under temporary or atypical contracts. This segmentation creates substantial differences in employment security, benefits, and career prospects across contract types.

As highlighted by Boeri and Garibaldi (2007), Italy's employment protection legislation creates a pronounced divide between insiders (permanent workers) and outsiders (temporary workers), concentrating job security and long-term benefits among the former while exposing the latter to greater volatility and uncertainty. Bratti et al. (2021) further emphasize that temporary contracts often provide fewer training opportunities and more limited prospects for skill development, reinforcing the long-term consequences of contract type for workers' career trajectories and lifetime earnings.

Given the magnitude of these differences, workers typically exhibit a strong preference for permanent over temporary employment. From the worker's perspective, the security and benefits associated with permanent contracts are highly valuable, often outweighing modest differences in wages. Consequently, it is entirely plausible that

EU07 migrants, newly empowered by the legal status change in 2007, would prioritize securing permanent contracts over negotiating higher wages—particularly given the limited scope for wage bargaining within Italy's centralized wage-setting system.
This hypothesis leads us to examine whether the EU07 enlargement affected the distribution of contract types among workers. If EU07 workers leveraged their enhanced bargaining power primarily to secure more stable employment rather than higher wages, we should observe an increase in the share of EU07 workers employed under permanent contracts following the 2007 legal status change.

Figure 8
Share of permanent contracts, native and EU07 workers



Notes: On the y-axis are the estimates of β from specification 1, showing the effect of interaction of the treatment variable with the time variable on the share of permanent contracts for native and EU07 workers. The coefficients represent the corresponding change in percentage points for a 1-unit increase in the share of EU07 migrant workers in a given local labor market. Robust standard errors are clustered at the local labor-market level.

Figure 8 provides strong support for this hypothesis. The right panel shows that following 2007, there was a noticeable and statistically significant increase in the share of permanent contracts among EU07 migrants. The effect is most pronounced in 2007 itself, immediately following the legal status change, indicating that EU07 workers (or the firms employing them) moved quickly to convert temporary arrangements into more secure permanent positions. The magnitude of this effect is economically meaningful, suggesting that the legal status change facilitated substantial improvements in job security for EU07 workers.

In contrast, the left panel of Figure 8 shows that the EU enlargement had no discernible effect on the share of permanent contracts among native workers. The point estimates fluctuate around zero without any consistent pattern, and none achieve statistical significance. This null result for natives provides a useful benchmark: it indicates that the increase in permanent contracts for EU07 workers was not part of a broader trend affecting all workers, but rather represents a specific response to the changing labor market position of EU07 migrants.

Collectively, the evidence on wages and contract types reveals a coherent pattern. The EU07 legal status change enhanced workers' bargaining power and labor market position, but this improvement manifested primarily through increased access to permanent employment contracts rather than through higher wages. This finding reflects the institutional realities of the Italian labor market, where the scope for individual wage bargaining is limited, but where contract type remains an economically important dimension along which workers and firms can negotiate. For EU07 workers, the value of transitioning from precarious temporary employment to secure permanent positions likely exceeded the value of modest wage increases, making contract type the preferred margin of adjustment.

5.3 Robustness

To assess the robustness of our main findings, we implement an extensive series of alternative specifications and estimation strategies. These robustness checks serve two primary purposes. First, they verify that our results are not artifacts of specific modeling choices or sensitive to the inclusion of additional control variables. Second, they confirm that our findings are not driven by the particular construction of our instrumental variable, but rather reflect actual causal effects of the EU07 legal status change that emerge consistently across multiple plausible identification strategies.

We first estimate a reduced form regression (Alternative specification 1). This specification captures the overall impact of the predicted migration shock on firm outcomes, offering a transparent test of whether the exogenous variation underpinning our identification is directly associated with observable changes at the firm level.

The rest of our robustness exercises fall into two broad categories. First, we assess the sensitivity of the estimates to the inclusion of additional control variables that account for potentially confounding factors such as subsequent changes in the EU07 population and spillover effects from other immigrant groups. Second, we employ alternative in-

struments that measure the EU07 migration shock in different ways, examining whether our results remain stable across these alternative approaches to identifying exogenous variation.

Additional Controls

In the second specification (Alternative specification 2), we account for subsequent changes in the local EU07 migrant population that could confound the effect of the 2007 legal status change. While the policy triggered an immediate increase in observed EU07 migrants, inflows continued to fluctuate in the following years, reflecting new potential migration dynamics associated with the EU enlargement. To isolate the 2007 effect, we include controls for changes in the EU07 migrant population in 2008 and 2009, instrumented using the same approach as for the original treatment variable. This allows us to disentangle the impact of the legal status change from subsequent shifts in EU07 local labor supply.

The third specification (Alternative specification 3) adds controls for changes between 2006 and 2007 in the share of workers from all other foreign nationalities, interacted with year fixed effects in the same manner as the EU07 share. This adjustment accounts for potential spillover effects from non-EU07 immigrant groups that could influence the labor market outcomes of EU07 migrants. By interacting changes in the population of other immigrant groups with year fixed effects, we can more clearly isolate the impact of EU07 migration from that of other migrant flows. These controls are defined and instrumented using the same approach as for our main variable of interest. This specification also helps address potential endogeneity arising from unobserved factors that may simultaneously affect both the presence of other immigrant groups and local labor market outcomes.

Alternative Instruments

To further assess the robustness of our findings, we examine the sensitivity of our results to the choice of instruments. Each of the alternative instruments is constructed to capture exogenous variation in the local share of EU07 workers, isolating changes that are plausibly independent of contemporaneous labor market shocks. Certain instruments achieve this by carefully accounting for the timing of inflows, helping to separate the effect of the 2007 legal status change from other events occurring around the same period. Others explicitly account for local labor market dynamics to reduce

the risk that the measured effects simply reflect local conditions rather than exogenous migrant exposure. Thus, in addition to our main instrument, we construct and implement four alternative measures.

The first alternative instrument (Alternative Specification 4) is constructed by combining the pre-existing distribution of EU07 workers across Italian local labor markets with the observed changes in migrant inflows between 2005 and 2007. By using the difference in inflows between 2007 and 2005, rather than the immediate pre-2007 change, this approach helps mitigate potential anticipatory or "magnet" effects, in which migrants might have moved in expectation of the upcoming legal status change already in 2006. The instrument thus captures the expected exposure of each local labor market to the 2007 policy change based on the pre-existing distribution of EU07 workers, while minimizing bias from more recent, anticipatory inflows.

The second alternative instrument (Alternative specification 5) predicts EU07 inflows using the one-year change from the previous year for each outcome year. Unlike the original instrument, which always relies on the 2006-2007 change for all years, this specification updates the baseline each year. Because this approach could mechanically correlate the instrument with local labor market outcomes in the same year, the predicted inflows are calculated using a leave-one-out procedure that excludes the local labor market itself. By capturing contemporaneous shifts in migrant inflows while mitigating potential endogeneity, this instrument provides a robustness check for year-to-year variation. If results using this instrument are similar to those obtained with the original specification—meaning that significant effects are observed only in the policy change year—it indicates that the estimated effects are not driven by shifts in labor supply alone, but reflect the causal impact of the 2007 legal status change.

The third instrument (Alternative specification 6) differs from the first two by employing an earlier cohort of EU07 workers, observed in 1998, to weight local labor market exposure to the 2007 inflow. By using a more distant historical distribution, this instrument reduces the possibility that contemporaneous labor market shocks in 2006–2007 are mechanically correlated with the instrumented variable, providing a robustness check against potential endogeneity arising from local labor market conditions immediately prior to the policy change.

Finally, the fourth alternative instrument (Alternative specification 7) is constructed in the same way as the original instrument, using the one-year 2006-2007 change in EU07 inflows to predict local exposure. The only difference is the application of a leave-

one-out procedure, which excludes the local labor market itself from the calculation of the overall national change in EU07 migrants, following the approach outlined in Tabellini (2020). This adjustment reduces the risk that the instrument is mechanically correlated with local outcomes.

Table 2
Native Workers Relative Employment

	Alternative Specifications						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
2005×IV	0.005	–0.034	0.010	0.008	0.006	0.081	0.017
	(0.087)	(0.088)	(0.155)	(0.086)	(0.089)	(0.099)	(0.091)
2007×IV	–0.344*	–0.418*	–0.611*	–0.344*	–0.337*	–0.471**	–0.378*
	(0.182)	(0.218)	(0.322)	(0.186)	(0.194)	(0.122)	(0.207)
2008×IV	0.136	0.125	0.241	0.144	0.156	–0.073	0.151
	(0.123)	(0.129)	(0.222)	(0.122)	(0.127)	(0.114)	(0.130)
2009×IV	0.045	0.015	0.080	0.046	0.031	0.182	0.042
	(0.096)	(0.093)	(0.174)	(0.095)	(0.095)	(0.111)	(0.097)
N	3,827,560						

Notes: Estimates corresponding to specification 1, analogous to those shown in the main-figure graphs, but obtained under the alternative specifications described in the text. The coefficients capture the effect of the interaction between the treatment variable and time on relative employment for native workers. Each coefficient represents the change in percentage points associated with a one-unit increase in the share of EU07 migrant workers in a given local labor market. Robust standard errors are clustered at the local labor-market level.

Each of these alternative specifications (1 through 7) is estimated using the same framework as the main specification. In Tables 2 and 3, we apply them to the relative employment of native workers and EU07 workers as an illustrative outcome, maintaining all controls and structural elements from equation 1. Across all specifications, the results remain consistent. Significant effects are observed for both natives and EU07 workers primarily in the year of the 2007 policy change. For EU07 workers, we also observe a modest rebound in the final year of the observed period, but its magnitude is substantially smaller than the initial policy impact. Overall, these robustness checks reinforce confidence that our estimated effects are not sensitive to the specific construction of the instrument and are robust to different plausible measures of exogenous variation in the EU07 migrant population.

Table 3
EU07 Workers Relative Employment

	Alternative Specifications						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
2005×IV	0.026	0.040	0.045	0.024	0.023	-0.047	0.012
	(0.091)	(0.094)	(0.159)	(0.090)	(0.094)	(0.067)	(0.097)
2007×IV	0.491**	0.542**	0.872**	0.493**	0.489**	0.607**	0.509**
	(0.171)	(0.199)	(0.313)	(0.174)	(0.182)	(0.115)	(0.193)
2008×IV	-0.096	-0.094	-0.170	-0.102	-0.105	-0.002	-0.107
	(0.086)	(0.092)	(0.151)	(0.088)	(0.091)	(0.085)	(0.092)
2009×IV	-0.089**	-0.089*	-0.158*	-0.090**	-0.084*	-0.159**	-0.078*
	(0.045)	(0.046)	(0.088)	(0.044)	(0.046)	(0.045)	(0.047)
N	3,827,560						

Notes: Estimates corresponding to specification 1, analogous to those shown in the main-figure graphs, but obtained under the alternative specifications described in the text. The coefficients capture the effect of the interaction between the treatment variable and time on relative employment for EU07 workers. Each coefficient represents the change in percentage points associated with a one-unit increase in the share of EU07 migrant workers in a given local labor market. Robust standard errors are clustered at the local labor-market level.

5.4 Mechanisms

To gain a deeper understanding of the mechanisms behind these effects, we conduct a series of heterogeneity analyses to identify the types of firms driving the results. Specifically, we will examine two key margins. First, we will explore heterogeneity effects across firms that have different histories in terms of employment of EU07 workers. Second, we will define firms according to the nationality of their managers, focusing on whether at least one manager is a migrant.

In our heterogeneity analysis on different types of firms defined by their past experience with EU07 workers, we analyze whether the observed effects differ for firms that employed at least one EU07 worker prior to 2007 and whether firms with prior experience in participating in a migration amnesty are more likely to respond to changes in legal status.

Participating in a previous legalization episode may serve as a proxy for a firm's likelihood to hire workers informally, and to formalize their status only when administrative costs decrease. To explore this, we leverage the significant amnesty that occurred in September 2002, which legalized over 700,000 undocumented migrants (see Di Porto

et al. (2025) for a detailed description of the policy). Our dataset allows us to identify the firms that participated in this amnesty—namely, those that applied for the legalization of at least one migrant worker at that time.

In Table 4 we present the heterogeneous employment dynamics for natives and EU07 workers. Consistently with our hypothesis, we find effects that are on average twice as large in magnitude for firms that had participated in the 2002 amnesty program for all outcomes.

The second type of firms we identify is those that employed at least one EU07 worker

Table 4
Heterogeneity by past experience with migrants, employment

	Native Relative Employment		
	All	EU07 pre-2006	Regularizing in 2002
2005 $\times\Delta\widehat{\text{Share}}\text{EU07}_{llm,07-06}$	0.005	-0.088	-0.373
	(0.087)	(0.227)	(0.581)
2007 $\times\Delta\widehat{\text{Share}}\text{EU07}_{llm,07-06}$	-0.344*	-0.419	-1.385**
	(0.182)	(0.294)	(0.630)
2008 $\times\Delta\widehat{\text{Share}}\text{EU07}_{llm,07-06}$	0.136	0.278	-0.143
	(0.123)	(0.276)	(0.592)
2009 $\times\Delta\widehat{\text{Share}}\text{EU07}_{llm,07-06}$	0.045	-0.241	0.309
	(0.096)	(0.198)	(0.530)
	EU07 Relative Employment		
	All	EU07 pre-2006	Regularizing in 2002
2005 $\times\Delta\widehat{\text{Share}}\text{EU07}_{llm,07-06}$	0.026	0.138	-0.639
	(0.091)	(0.269)	(0.434)
2007 $\times\Delta\widehat{\text{Share}}\text{EU07}_{llm,07-06}$	0.491**	0.679*	1.630**
	(0.171)	(0.383)	(0.601)
2008 $\times\Delta\widehat{\text{Share}}\text{EU07}_{llm,07-06}$	-0.096	-0.330	0.214
	(0.086)	(0.205)	(0.562)
2009 $\times\Delta\widehat{\text{Share}}\text{EU07}_{llm,07-06}$	-0.089**	0.110	0.126
	(0.045)	(0.173)	(0.438)
N	3,827,560	336,675	164,230

Note: Reporting the estimates of β from specification 1, showing the effect of interaction of the treatment variable with the time variable on the relative employment of native and EU07 workers. The coefficients represent the corresponding change in percentage points for a 1-unit increase in the share of EU07 migrant workers in a given local labor market. Robust standard errors are clustered at the local labor market level reported in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

formally prior to 2007. For these firms, it is less straightforward to predict how the change in legal status might affect their personnel choices. On one hand, these firms might be less responsive to the EU07 enlargement, having already absorbed the costs of formalizing workers before the change in legal status. On the other hand, firms that hire migrants in the formal sector may also be more likely to employ them informally and may have better access to their networks. Our findings indicate that the latter effect predominates, with stronger patterns observed in firms that employed EU07 workers before 2007 compared to those that did not.

Next, we perform the same analysis on wages. Remember that we did not find any particularly significant effects in the overall sample. This heterogeneity analysis does not provide additional insight, as the estimates remain consistent across different types of firms. Results are shown in Table A2 in the Appendix.

Lastly, in Table 5 we present the results of our heterogeneity analysis on the change in the share of permanent contracts for native and EU07 workers. Unlike the changes observed in employment, we find that the shifts in the overall sample are primarily driven by firms that already employed EU07 workers formally prior to 2007, rather than those that participated in the 2002 amnesty. In fact, all of our estimates indicating a significant effect of EU enlargement on changes in the share of permanent contracts are substantially larger for firms that were already engaged in the formal employment of EU07 workers in 2006.

Perhaps most notably, we find that the increase in the share of permanent contracts for EU07 workers endures within these firms. While the most significant change occurs in the immediate aftermath of the EU enlargement, the increase observed in the final period of our analysis remains substantial. This suggests that the change in legal status has permanently enhanced job stability for affected workers, particularly in firms that were already engaging with them in the formal labor market.

Table 5
Heterogeneity by past experience with migrants, share of permanent contracts

	Native Share of Permanent Contracts		
	All	EU07 pre-2006	Regularizing in 2002
2005 $\times\Delta\widehat{\text{Share}}\text{EU07}_{llm,07-06}$	-0.081	-1.106	0.962
	(0.344)	(1.121)	(1.163)
2007 $\times\Delta\widehat{\text{Share}}\text{EU07}_{llm,07-06}$	-0.015	-0.927	-0.424
	(0.309)	(0.872)	(1.389)
2008 $\times\Delta\widehat{\text{Share}}\text{EU07}_{llm,07-06}$	-0.183	-0.407	0.066
	(0.247)	(0.607)	(13.364)
2009 $\times\Delta\widehat{\text{Share}}\text{EU07}_{llm,07-06}$	-0.449**	-1.118**	1.330
	(0.146)	(0.391)	(1.348)
	EU07 Share of Permanent Contracts		
	All	EU07 pre-2006	Regularizing in 2002
2005 $\times\Delta\widehat{\text{Share}}\text{EU07}_{llm,07-06}$	0.001	0.405	1.774
	(0.143)	(0.728)	(1.379)
2007 $\times\Delta\widehat{\text{Share}}\text{EU07}_{llm,07-06}$	0.576**	4.151**	1.296
	(0.154)	(0.854)	(1.522)
2008 $\times\Delta\widehat{\text{Share}}\text{EU07}_{llm,07-06}$	-0.042	2.568**	1.248
	(0.173)	(0.647)	(1.214)
2009 $\times\Delta\widehat{\text{Share}}\text{EU07}_{llm,07-06}$	-0.246	1.540**	0.268
	(0.171)	(0.738)	(2.598)
N	3,827,560	336,675	164,230

Note: Reporting the estimates of β from specification 1, showing the effect of interaction of the treatment variable with the time variable on the share of permanent contracts of native and EU07 workers. The coefficients represent the corresponding change in percentage points for a 1-unit increase in the share of EU07 migrant workers in a given local labor market. Robust standard errors are clustered at the local labor-market level reported in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

To better understand the mechanisms behind firms' personnel choices, we conduct a second heterogeneity analysis by dividing our sample into firms with at least one non-native manager and those with only native workers in managerial positions.[16] The primary hypotheses guiding these analyses are that 1) migrant managers may have closer networks with EU07 workers, regardless of their country of origin, giving them better access to this labor supply; and 2) because they share the experience of being workers in a foreign country, their attitudes toward migrant workers may be less negatively biased than those of native managers. Once again, we will examine the heterogeneous effects on changes in employment, wages, and the share of permanent contracts for both native and EU07 workers.

We start our heterogeneity analysis by examining relative employment for native and EU07 workers. In Table 6, we see an immediate increase in the change of relative employment of EU07 workers in both types of firms during the first year following the change in legal status. Consistent with our hypothesis, this effect is more pronounced in firms with migrant managers. In contrast, for native workers, we observe a slight, statistically insignificant decline in relative employment in the first year, but only among firms with exclusively native managers.

In Table A3 we examine how wages were affected differently based on the nationality of firm managers, while Table A4 illustrates the changes in the share of permanent contracts across these firms. We find that the effects observed in the overall sample are primarily driven by firms with managers of Italian nationality, which constitute the majority of our sample. Interestingly, there are no significant effects on wages or the share of permanent contracts for migrants in firms with at least one migrant manager. This aligns with our hypothesis that the change in legal status for EU07 migrant workers predominantly enhances their bargaining power in interactions with native managers, who may lack the networks to assess the abilities of EU07 workers and are more likely to be negatively biased toward migrants.

Our findings are broadly consistent with the evidence reported by Åslund et al. (2014), who show that immigrant managers in Sweden are more likely to hire workers of the same ethnic background and that shared backgrounds reduce job separations, particularly in environments where information about workers' abilities is limited. Similar to their results, our analysis suggests that migrant managers can facilitate better labor market outcomes for foreign-born workers, not through wage premiums, but by increas-

[16] We exclude firms that have at least one manager from EU07 countries, as these workers are also affected by the change in legal status under study.

ing employment in contexts where native managers may otherwise face informational constraints or hold more negative biases.

Table 6
Heterogeneity by manager type, employment

	Native Relative Employment		
	All	Native Manager	Migrant Manager
2005 $\times\Delta\widehat{\text{Share}}\text{EU07}_{llm,07-06}$	0.005	0.046	0.897
	(0.087)	(0.106)	(0.637)
2007 $\times\Delta\widehat{\text{Share}}\text{EU07}_{llm,07-06}$	-0.344*	-0.389*	-0.377
	(0.182)	(0.209)	(0.627)
2008 $\times\Delta\widehat{\text{Share}}\text{EU07}_{llm,07-06}$	0.136	-0.004	0.630
	(0.123)	(0.128)	(0.524)
2009 $\times\Delta\widehat{\text{Share}}\text{EU07}_{llm,07-06}$	0.045	0.022	0.222
	(0.096)	(0.099)	(0.582)
	EU07 Relative Employment		
	All	Native Manager	Migrant Manager
2005 $\times\Delta\widehat{\text{Share}}\text{EU07}_{llm,07-06}$	0.026	-0.027	-0.871
	(0.091)	(0.099)	(0.602)
2007 $\times\Delta\widehat{\text{Share}}\text{EU07}_{llm,07-06}$	0.491**	0.470**	1.709**
	(0.171)	(0.159)	(0.490)
2008 $\times\Delta\widehat{\text{Share}}\text{EU07}_{llm,07-06}$	-0.096	0.030	0.001
	(0.086)	(0.066)	(0.420)
2009 $\times\Delta\widehat{\text{Share}}\text{EU07}_{llm,07-06}$	-0.089**	-0.047	-0.128
	(0.045)	(0.039)	(0.219)
N	3,828,560	3,603,910	185,935

Note: Reporting the estimates of β from specification 1, showing the effect of interaction of the treatment variable with the time variable on the relative employment of native and EU07 workers. The coefficients represent the corresponding change in percentage points for a 1-unit increase in the share of EU07 migrant workers in a given local labor market. Robust standard errors are clustered at the local labor-market level reported in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

5.5 Firm performance

In the final section of our analysis, we investigate the impact of the EU07 enlargement on various measures of firm performance. Our primary objective is to assess whether changes in personnel decisions have influenced overall business outcomes.

To this end, we use data from the CERVED dataset. Since this dataset is sourced from the Italian Chamber of Commerce registry, it does not include firms that are not required to register. Nevertheless, we successfully matched approximately 30 percent of our original sample of firms, consistent with the matching success observed in the broader INPS dataset. Table 7 presents summary statistics that align with those in Table 1.

Table 7
Firm-level summary statistics

	Mean Employment	Mean Wages
All workers	23.8	473.6
	(260.5)	(163.3)
Native workers	22.0	478.3
	(245.6)	(165.3)
EU07 workers	0.21	397.6
	(3.1)	(119.7)
Number of firms	240364	240364

Notes: This table refers to summary statistics for outcomes measured in 2006 for the universe of firms in our sample.

As expected due to the nature of the dataset, the firms for which we have business data are larger and offer higher wages compared to the average firm in our overall sample. These firms employ more EU07 workers,[17], who earn about 83 percent less than their native counterparts.

Despite these sample differences, we observe some similar trends regarding the effects of EU enlargement on employment and wages. In 2007, we note an increase in employ-

[17] In line with our observation in Section 3.1 reporting that these workers are more likely to be hired by larger companies.

ment change for the average firm, driven by a higher employment level of EU07 workers (whose firm-level share over all employment increases). Unlike with our findings from the original sample, we observe an increase in the change of relative wages of native workers, while relative wage changes for EU07 workers exhibit a downward trend.

Figure 9 reports the effects of the EU enlargement on our outcomes of interest describing firm-level business performance: cost of labor, total revenues, and operative value-added. The analysis performed implements the same empirical strategy used in the previous sections of the paper.

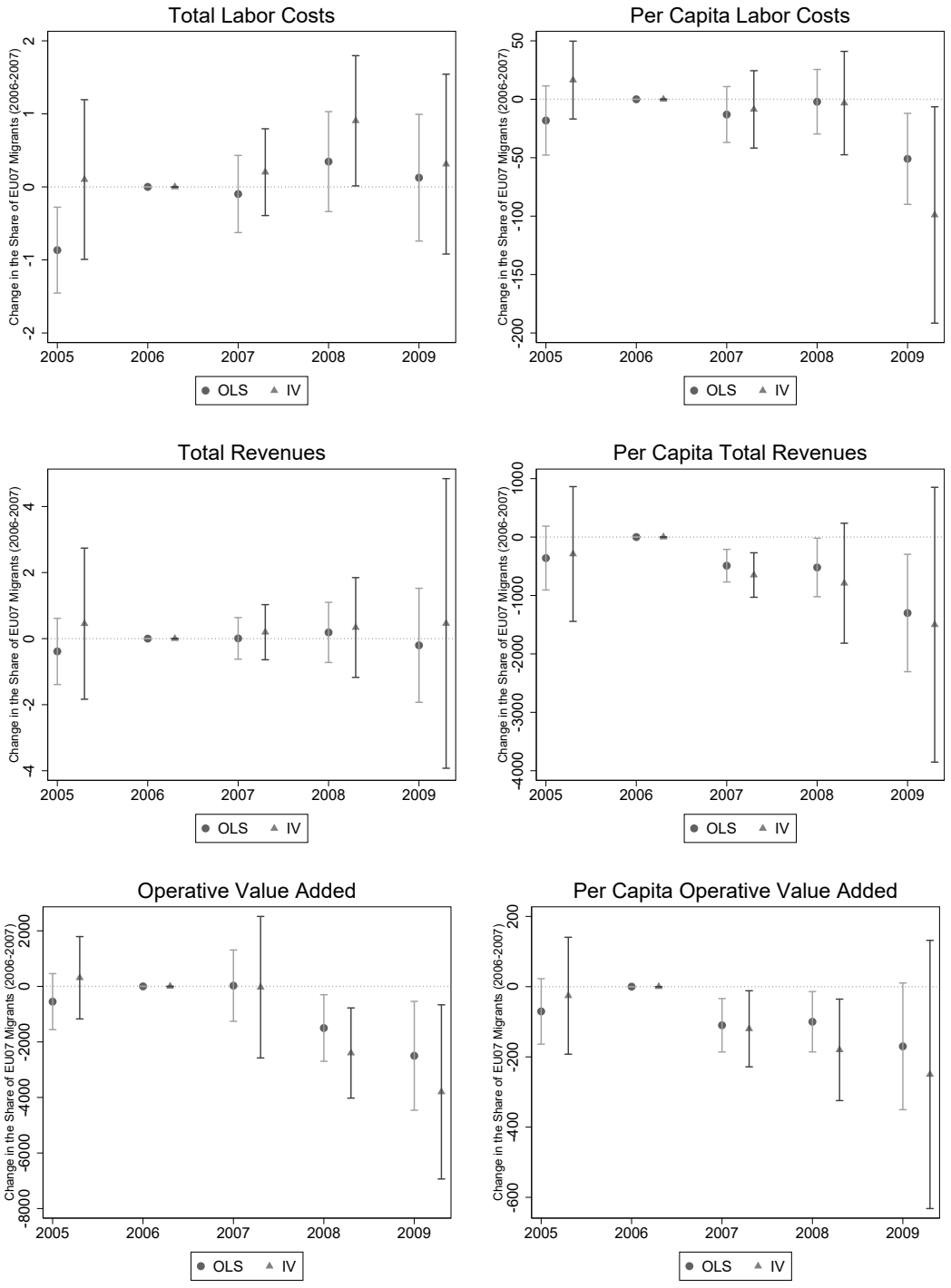
The top panels show the results of this analysis for both total and per capita labor costs, which encompass all employee-related expenses, including non-wage costs such as social security contributions and benefits. While our estimates are not very precise, we observe a trend of increasing total labor costs alongside a decrease in per capita labor costs. The rise in total labor costs is a mechanical outcome of the slight increase in overall employment, while the decline in per capita costs reflects the growth in employment among EU07 workers, who typically receive lower wages.

The middle panels explore the impact of EU enlargement on firms' total and per capita revenues. The findings indicate no significant change in total revenues, suggesting that the decision to increase employment was not driven by business growth, nor did it result in an expansion of business activities. Consequently, per capita revenues show a downward trend from 2007 onward, primarily driven by the rise in the number of employees.

Lastly, the bottom panels show a decline in both total and per capita operative value-added, which measures the revenue generated by a firm's core operations after accounting for resource costs. This decrease, combined with unvaried total revenues, indicates that the new resources employed by firms—including a larger workforce—are not as productive as those utilized before the EU07 enlargement.

Given the insights from the middle and bottom panels of Figure 9, it is pertinent to question why firms would choose to increase their workforce and associated costs if this does not lead to improvements in business performance. One possible explanation is that the rise in EU07 employment was largely driven by EU07 workers who were already employed, but informally. After 2007, EU citizenship granted these workers the possibility to seek formal employment, which increased their labor-market power, and may have compelled firms to hire them formally.

Figure 9
Firm-level business performance outcomes



Notes: On the y-axis are the estimates of β from specification 1, showing the effect of interaction of the treatment variable with the time variable on firm business outcomes. Robust standard errors are clustered at the local labor-market level.

Overall, the analysis of changes in firms' business outcomes is not only interesting in its own right, but offers valuable insights into the underlying mechanisms at play. These findings suggest that the rationale behind the increase in employment cannot be attributed to a rise in less-costly yet equally productive labor supply. If that were the case, we would expect to see the trends in Figure 9 for overall and per capita labor costs being accompanied by an increase in total revenues and operative value-added, and unvaried per capita revenues and operative value-added.

If the increase in labor supply consisted not only of cheaper workers but also of less productive ones, we would still expect to see a corresponding rise in total revenues or operative value-added to justify the decision to expand the workforce.

Unfortunately, the lack of reliable data on the presence of undocumented workers and on workers' histories outside the scope of non-agricultural private-sector firms limits our ability to interpret these results with greater detail and certainty. However, we believe that the evidence collectively suggests that an important channel through which the EU07 enlargement has affected local labor markets has been the formalization of previously undocumented working arrangements.

6 Conclusion

We analyze the impact of Romania's and Bulgaria's inclusion in the European Union on the Italian labor market. The EU enlargement in 2007 led to a permanent change in legal status for a group of migrants, particularly from Romania, who already had a significant presence in Italy, largely due to the linguistic similarities between Italian and Romanian. To investigate firms' responses in terms of personnel choices, we utilize a unique administrative employer-employee dataset that encompasses the entire private-sector workforce in Italy.

We find that firms increased their share of EU07 migrant workers at the expense of native workers, driven by a rise in hires and separations for migrant workers and a decrease in hires of native workers in the immediate aftermath of the enlargement. Despite this employment expansion, firms experienced no change in total revenues and a decline in per capita revenues and operative value-added. Our evidence suggests that these findings are primarily driven by the formalization of labor relations of migrant workers who were already part of the informal labor market. In fact, the pattern of results—an immediate spike in EU07 employment in 2007 that does not strengthen over

time, combined with increased firm employment unaccompanied by business growth—is most consistent with firms transitioning existing informal workers into formal employment rather than expanding operations.

Our results also indicate a significant shift in market power in favor of EU07 migrants. Following EU enlargement, these workers' ability to remain in Italy is no longer tied to a specific employer, as reflected in the higher rate of job separations as they are able to pursue better employment opportunities. Importantly, while the change in legal status did not lead to wage increases for EU07 migrants, it did result in a substantial and persistent increase in the share of workers with permanent contracts, which is a highly desirable contract feature in the Italian labor market. These results suggest that in contexts where wage rigidity constrains immediate monetary gains, as in the Italian labor market, workers respond to increased bargaining power by prioritizing job security and mobility.

Our findings carry important implications for immigration policy debates in both Europe and the United States, where restrictive visa requirements and employer-sponsored work permits remain the dominant approach to managing economic migration. Our results challenge the conventional wisdom that strict migration controls protect native workers. We find no evidence that granting permanent legal status to a large group of migrants harmed native workers through wage suppression. Rather, legal restrictions seem to have mainly generated monopsony advantages for employers, who could capitalize on the availability of undocumented workers in the informal sector. The removal of these restrictions shifted bargaining power toward migrants without detectably harming natives, suggesting that legal barriers primarily distort labor markets rather than protect them.

Our findings offer several lessons for EU and US migration policy. First, large-scale legalization programs can promote formalization without generating adverse wage effects for native workers. Second, employer-sponsored visa systems that tie workers to specific employers may create monopsony power and restrict mobility, as reflected in the observed surge in both job hires and separations following EU07 migrants' acquisition of unrestricted work authorization. Third, even in the absence of immediate wage gains, migrant workers can experience substantial improvements in job security and mobility, particularly in labor markets characterized by institutional wage rigidity.

Although outside the scope of our study, suggestive evidence of widespread formalization following EU enlargement points to the potential for substantial fiscal benefits.

When migrants acquire permanent legal status, firms have stronger incentives to formalize existing employment relationships, bringing previously informal economic activity into the tax base. This is particularly relevant for countries with large informal sectors, where restrictive migration policies may inadvertently encourage tax evasion and reduce government revenues.

While our findings are encouraging regarding the labor market effects of migrant legalization, several questions remain. We cannot directly observe the welfare effects on undocumented workers who formalized their status, as we lack data on their pre-formalization wages and working conditions. Moreover, our analysis is set in a context characterized by wage rigidity, a sizable informal labor market, and modest enforcement against informal economic activity — conditions that shape both the pre-formalization environment and the incentives for formalization, as well as the subsequent labor market responses. We also focus on a period of relative economic stability; the effects of legalization during downturns or in labor markets with higher native unemployment remain unclear. Finally, our setting involves migrants with strong cultural and linguistic ties to Italy, and the generalizability of our results to contexts with greater cultural distance or language barriers warrants further investigation.

Despite these limitations, our analysis provides robust evidence that there can be conditions under which permanent legal status for migrants can enhance labor market efficiency, improve outcomes for migrant workers, and facilitate formalization without harming native workers. As policymakers grapple with immigration reform, our findings suggest that, upon certain conditions, reducing legal barriers to work may achieve better outcomes than the restrictive, employer-dependent systems currently in place.

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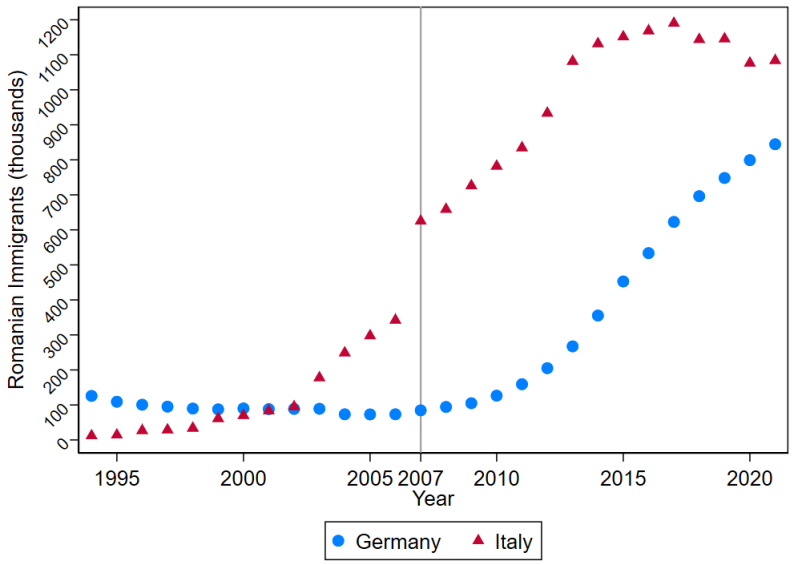
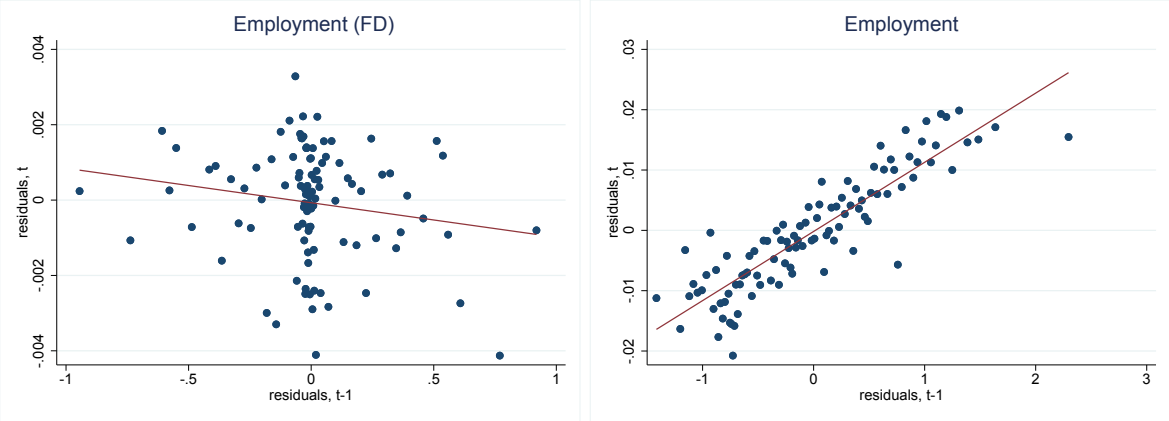
Appendix - Additional Tables and Figures

Figure A1
Annual inflows of migrants from Romania



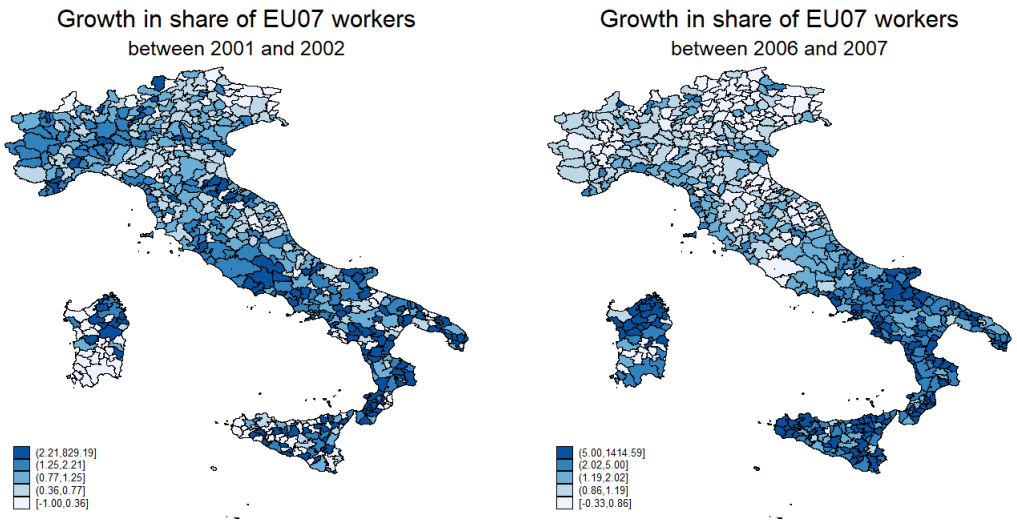
Notes: Data are from the OECD (2024) International Migration Database. Annual migrant flows are measured as of January 1 of each indicated year.

Figure A2
Test for residual errors autocorrelation



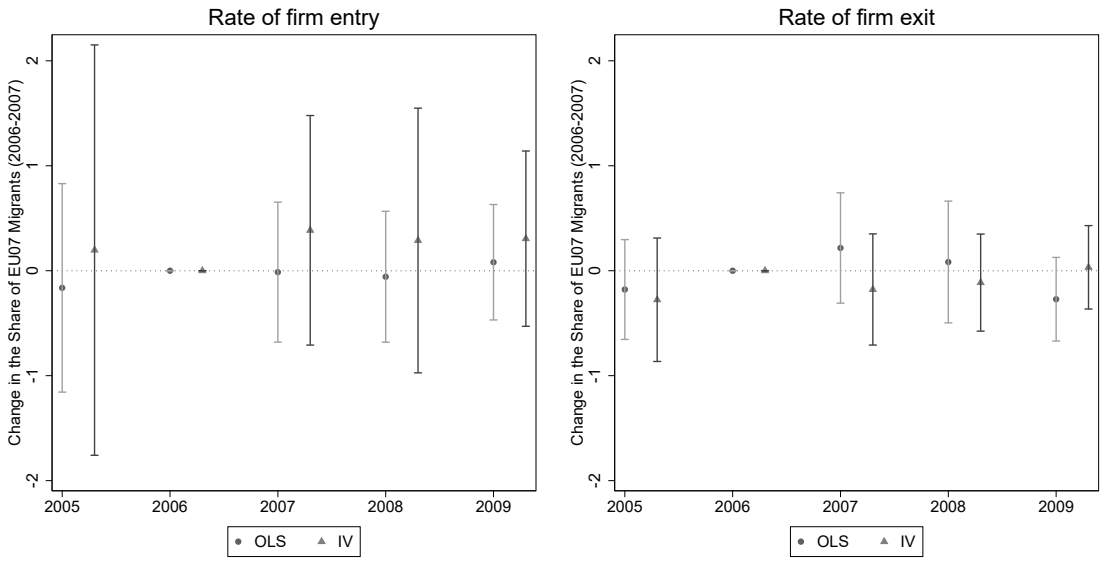
Notes: This figure presents the correlations of binned residuals between two consecutive periods (at time t on the y axis and at time t-1 on the x-axis) for two different estimation approaches: the first-difference dynamic model in Equation 1 and the standard levels regression model. The regression uses total employment as the example outcome variable. For the first-difference model, the residuals correspond to the differences between 2007-2006 and 2006-2005, while for the levels model, the residuals correspond to the differences between 2007 and 2006.

Figure A3
Growth in Share of Migrants Across Local Labor Markets



Notes: The maps show local labor markets in Italy. Left: growth in EU07 migrant share between 2001-2002. Right: growth in EU07 migrant share between 2006-2007. For areas with an initial share of zero EU07 workers, we replace it with 0.000001 to enable the computation of growth rates. Colors indicate the magnitude of the change.

Figure A4
Rate of firms entering and exiting the local labor markets



Notes: On the y-axis are the estimates of β from specification 1, showing the effect of interaction of the treatment variable with the time variable on the share of entering and exiting firms. The coefficients represent the corresponding change in percentage points for a 1-unit increase in the share of EU07 migrant workers in a given local labor market. Robust standard errors are clustered at the local labor-market level.

Table A1
Instrument validity

PANEL A:	$\Delta ShareEU07_{llm,02-01}$
Employment Natives (1992-1997)	-0.083
	(0.312)
Wages Natives (1992-1997)	0.072
	(0.112)
Employment EU07 (1992-1997)	-0.450
	(0.291)
Wages EU07 (1992-1997)	-1.932
	(1.791)
PANEL B:	$\Delta ShareEU07_{llm,06-07}$
Employment Natives (2002-2006)	-2.363
	(2.568)
Wages Natives (2002-2006)	-0.983
	(1.776)
Employment EU07 (2002-2006)	0.338
	(0.235)
Wages EU07 (2002-2006)	-0.251
	(0.291)
N	611

Notes: We perform two tests in the form of simple regressions at the local labor market level to corroborate the hypothesis that our instrument is not predicted by previous economic trends (in Panel A, natives and EU07 workers' changes in employment and wages, measured between 1992 and 1997), nor it has an effect on economic trends immediately preceding the EU07 enlargement (in Panel B, natives and EU07 workers' changes in employment and wages, measured between 2002 and 2006). See the main text for discussion. Robust standard errors are clustered at the local labor market level reported in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table A2
Heterogeneity by Past Experience with Migrants, Wages (in logs)

	Native Relative Wage		
	All	EU07 pre-2006	Regularizing in 2002
2005 $\times\Delta\widehat{\text{Share}}\text{EU07}_{llm,07-06}$	-0.082	-0.138	-0.436
	(0.133)	(0.277)	(0.609)
2007 $\times\Delta\widehat{\text{Share}}\text{EU07}_{llm,07-06}$	-0.265*	-0.241	-0.338
	(0.157)	(0.190)	(0.535)
2008 $\times\Delta\widehat{\text{Share}}\text{EU07}_{llm,07-06}$	0.035	-0.259	0.263
	(0.180)	(0.274)	(0.545)
2009 $\times\Delta\widehat{\text{Share}}\text{EU07}_{llm,07-06}$	-0.031	-0.310**	-0.269
	(0.124)	(0.147)	(0.511)
	EU07 Relative Wage		
	All	EU07 pre-2006	Regularizing in 2002
2005 $\times\Delta\widehat{\text{Share}}\text{EU07}_{llm,07-06}$	-0.575**	-0.577**	0.396
	(0.230)	(0.230)	(0.928)
2007 $\times\Delta\widehat{\text{Share}}\text{EU07}_{llm,07-06}$	-0.649**	-0.650**	-0.531
	(0.212)	(0.212)	(0.973)
2008 $\times\Delta\widehat{\text{Share}}\text{EU07}_{llm,07-06}$	-0.684**	-0.377	-0.544
	(0.214)	(0.298)	(0.790)
2009 $\times\Delta\widehat{\text{Share}}\text{EU07}_{llm,07-06}$	-0.856**	-0.674**	-1.541**
	(0.158)	(0.183)	(0.744)
N	3,827,560	336,675	164,230

Note: Reporting the estimates of β from specification 1, showing the effect of interaction of the treatment variable with the time variable on log wages of native and EU07 workers. The coefficients represent the corresponding change in percentages for a 1-unit increase in the share of EU07 migrant workers in a given local labor market. Robust standard errors are clustered at the local labor market level reported in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table A3
Heterogeneity by Manager Type, Wages (in logs)

	Native Relative Wage		
	All	Native Manager	Migrant Manager
2005 $\times\Delta\widehat{\text{Share}}\text{EU07}_{llm,07-06}$	-0.082	-0.060	-0.142
	(0.133)	(0.133)	(0.572)
2007 $\times\Delta\widehat{\text{Share}}\text{EU07}_{llm,07-06}$	-0.265*	-0.303*	0.520
	(0.157)	(0.155)	(0.515)
2008 $\times\Delta\widehat{\text{Share}}\text{EU07}_{llm,07-06}$	0.035	0.022	0.933*
	(0.180)	(0.163)	(0.495)
2009 $\times\Delta\widehat{\text{Share}}\text{EU07}_{llm,07-06}$	-0.031	-0.070	0.541
	(0.124)	(0.122)	(0.465)
	EU07 Relative Wage		
	All	Native Manager	Migrant Manager
2005 $\times\Delta\widehat{\text{Share}}\text{EU07}_{llm,07-06}$	-0.575**	-0.421	-1.579
	(0.230)	(0.262)	(1.876)
2007 $\times\Delta\widehat{\text{Share}}\text{EU07}_{llm,07-06}$	-0.649**	-0.536**	0.551
	(0.212)	(0.256)	(1.453)
2008 $\times\Delta\widehat{\text{Share}}\text{EU07}_{llm,07-06}$	-0.684**	-0.557**	-1.413
	(0.214)	(0.219)	(1.188)
2009 $\times\Delta\widehat{\text{Share}}\text{EU07}_{llm,07-06}$	-0.856**	-0.782**	-0.988
	(0.158)	(0.162)	(1.305)
N	3,828,560	3,559,650	104,962

Note: Reporting the estimates of β from specification 1, showing the effect of interaction of the treatment variable with the time variable on log wages of native and EU07 workers. The coefficients represent the corresponding change in percentages for a 1-unit increase in the share of EU07 migrant workers in a given local labor market. Robust standard errors are clustered at the local labor market level reported in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table A4
Heterogeneity by Manager Type, Share of Permanent Contracts

	Native Share of Permanent Contracts		
	All	Native Manager	Migrant Manager
2005 $\times\Delta\widehat{\text{Share}}\text{EU07}_{llm,07-06}$	-0.081	-0.080	0.621
	(0.344)	(0.342)	(1.163)
2007 $\times\Delta\widehat{\text{Share}}\text{EU07}_{llm,07-06}$	-0.015	-0.141	1.072
	(0.309)	(0.329)	(1.233)
2008 $\times\Delta\widehat{\text{Share}}\text{EU07}_{llm,07-06}$	-0.183	-0.237	-0.260
	(0.247)	(0.258)	(1.197)
2009 $\times\Delta\widehat{\text{Share}}\text{EU07}_{llm,07-06}$	-0.449**	-0.445**	-0.755
	(0.146)	(0.116)	(1.569)
	EU07 Share of Permanent Contracts		
	All	Native Manager	Migrant Manager
2005 $\times\Delta\widehat{\text{Share}}\text{EU07}_{llm,07-06}$	0.001	-0.108	-0.329
	(0.143)	(0.175)	(0.797)
2007 $\times\Delta\widehat{\text{Share}}\text{EU07}_{llm,07-06}$	0.576**	0.657**	0.853
	(0.154)	(0.160)	(0.913)
2008 $\times\Delta\widehat{\text{Share}}\text{EU07}_{llm,07-06}$	-0.042	-0.075	1.298
	(0.173)	(0.178)	(0.843)
2009 $\times\Delta\widehat{\text{Share}}\text{EU07}_{llm,07-06}$	-0.246	-0.270	-0.137
	(0.171)	(0.183)	(0.717)
N	3,828,560	3,526,154	179,534

Note: Reporting the estimates of β from specification 1, showing the effect of interaction of the treatment variable with the time variable on the share of permanent contracts of native and EU07 workers. The coefficients represent the corresponding change in percentage points for a 1-unit increase in the share of EU07 migrant workers in a given local labor market. Robust standard errors are clustered at the local labor market level reported in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$